Jubilee Publication on the 75th Anniversary of Albert Szent-Györgyi's Nobel Prize Award

SZEGED 2012

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PREFACE

The Faculty of Medicine at the University of Szeged, Hungary, is organizing an international conference on the occasion of the **75th Anniversary of Albert Szent-Györgyi's Nobel Prize Award,** which he received in 1937 for isolating vitamin C and for his research on the Krebs cycle. The event is scheduled to start on 22nd March, 2012 (Thursday) and ends on 25th March 2012 (Sunday).

The **history of the University of Szeged** dates back to 1581, when István Báthory, the ruler of Transylvania, founded a higher educational institution in the city of Kolozsvár (Cluj-Napoca), which became prestigious within a short period of time. Due to its professors, well-known all around Europe, it provided a high standard of education and also had the right to confer bachelor and master's degrees. Moreover, it was the only institute for higher education at the end of the 16th century in Hungary. Later Maria Theresa entrusted the Piarists to reorganize the institution, as a result of which the Faculty of Medicine and Surgery was established in 1775. Later on, these served as the basis for the Hungarian Royal University of Kolozsvár, founded by Francis Joseph I in 1872. It was renamed after the king in 1881 and bore his name until 1940. After World War I, since Hungary lost Transylvania, the institution moved to Szeged in 1921 with many of its professors, and afterwards in the late twenties and early thirties the new university buildings were erected in the heart of the city together with the university clinics at the riverside. The Minister of Culture and Education, count Kunó Klebersberg, a man of vision, who supported this project also recruited several Hungarian scientists working abroad at the time to return to Hungary and accept a university position in this newly reorganized institution in Szeged. One of them was Albert Szent-Györgyi, who returned from the United Kingdom accepting the Chair of Medical Chemistry at the Faculty of Medicine in 1930. Albert Szent-Györgyi and his colleagues carried out their well known research on the Krebs cycle and vitamin C in Szeged, but later they made important contributions to muscle biochemistry with actin and myosin; findings, which by many scientists were considered as important as the isolation of vitamin C.

We are all proud of **Albert Szent-Györgyi**, the former professor and Dean of the Faculty of Medicine and former Rector of the University of Szeged. He is an idol both for lecturers and students, illustrating the idea that world famous results can be achieved in Hungary and Szeged as well. In addition, his personality and style favourably influenced university life in Szeged and made a great impact on future generations.

Szeged, which is a lovely university town in Hungary, situated in the south of the country, on the banks of River Tisza with a population of approximately 170,000 will host this meeting with strong and prestigious international participation in the research area of Gastroenterology, Cardiology, Immunology, Molecular Biology and Genetics, Neuroscience and Tuberculosis Evolution.

There will be 412 presentations in these topics and 4 plenary sessions, including those of the nine Nobel Prize laureates who take part in this meeting to celebrate Albert Szent-Györgyi's scientific achievements with us.

The conferences in the field of Cardiology will focus on cardioprotection and sudden cardiac death, since ischemic heart disease and sudden cardiac death are major factors contributing to

mortality worldwide, causing the premature death of millions of people every year in Western societies. The most common cause of sudden cardiac death is ischaemia-related cardiac arrhythmia as well as the genetic malfunction of cardiac ion channels, electrical remodeling in cardiac hypertrophy or failure, as well as side effects of drug therapy. Therefore, protecting the heart against ischaemia and reperfusion injury and their consequences including myocardial infarction and sudden death is a topic of intensive investigations.

In the scientific session on Immunology and Inflammation the most recent advances on the innate and adaptive immunity, immunoregulation, allergy, mediators of inflammation, tumor immunology and regenerative inflammatory processes will be discussed. Special focus will be on the immunity of the gut and skin.

In Gastroenterology, the focus will be on epithelial ion transport since it plays a fundamental role in the maintenance and integrity of the gastrointestinal tract. They provide proper environment for digestive processes, have a protective function, and are also involved in the homeostasis of bodily fluids. Importantly, the derangement of epithelial secretory processes leads to a number of diseases, including hyperacidity, cystic fibrosis and secretory diarrhoeas. In addition, an increasing number of experimental studies has been published on the role of ion transport in the pathogenesis of inflammatory diseases, such as infectious diarrhoea or inflammatory bowel diseases.

In Molecular Biology and Genetics, the leading topics will cover discoveries from the past, and open up new prospects for the future since the tremendous progress in Molecular Biology and Genetics during recent decades has made it possible to gain a DNA-based insight into the past of mankind, and has opened up opportunities for the provision of tailor-made personal medicine in the future. The knowledge we acquired through these disciplines has revolutionized our ideas on our past and revealed previously unforeseen possibilities for future exploitation. The "Conference on Molecular Biology and Genetics" brings together prominent scientists who will present accounts on the most recent advances in the field. Sessions will be devoted to archeogenomics, gene regulation, oncogenomics, translational medicine including topics on stem cells, gene therapy, nanomedicine, monogenic and multifactorial human diseases and their clinical diagnosis, and animal models of human diseases.

In Neuroscience, the focus is on the possible new aspects of therapy, because a number of neurological and psychiatric disorders lack effective therapies, in which the use of drugs to prevent or reduce disease progression is questionable. Other disorders of the nervous system inflict damage as a result of a single event in time, including stroke, head trauma and spinal cord injury; in these cases, there is a great need for developing effective therapies to restore lost functions. There are diseases, such as multiple sclerosis, in which drugs have been developed to slow disease progression, but there is a great need to improve or restore functions that continue to decline slowly over time. The transplantation of replacement cells into the adult nervous system or targeted delivery of therapeutic genes to areas of ongoing degeneration have received considerable attention over the past years. The next decade is likely to become a golden era of molecular medicine that will change the landscape of neurological and psychiatric diagnosis and therapy.

The scientific session on tuberculosis research will focus on questions in Tuberculosis Evolution. The recent progress in the field of Evolutionary Biology of Tuberculosis necessitates

a new synthesis on this topic. Several questions should be addressed, among them: what is the oldest evidence of this condition in human and animal remains? When did specific mutation(s) of the modern strains arise? What was the relative importance of different pathogenic species of genus *Mycobacterium* in past populations? Did the pre-contact American TB differ from the Old World infection? How can we explore the dynamics of the host-pathogen co-evolution in the case of tubercular infection? Can we reconstruct a consensual phylogeny of genus *Mycobacterium*? What do we know about the evolution of susceptibility/resistance pattern among these fights?

The organizers intend to provide an opportunity for fruitful and deep scientific discussion meetings of scientists and students from Szeged and top scientists from various parts of the world in a friendly atmosphere by putting forth a variety of cultural and recreational programmes to accompany the conference.

On behalf of the Organizing Committee,
looking forward to seeing you in Szeged,

András Varró

Gábor Szabó

József Pál

Rector's Office, University of Szeged

Lajos Kemény

László Vécsei

Péter Hegyi

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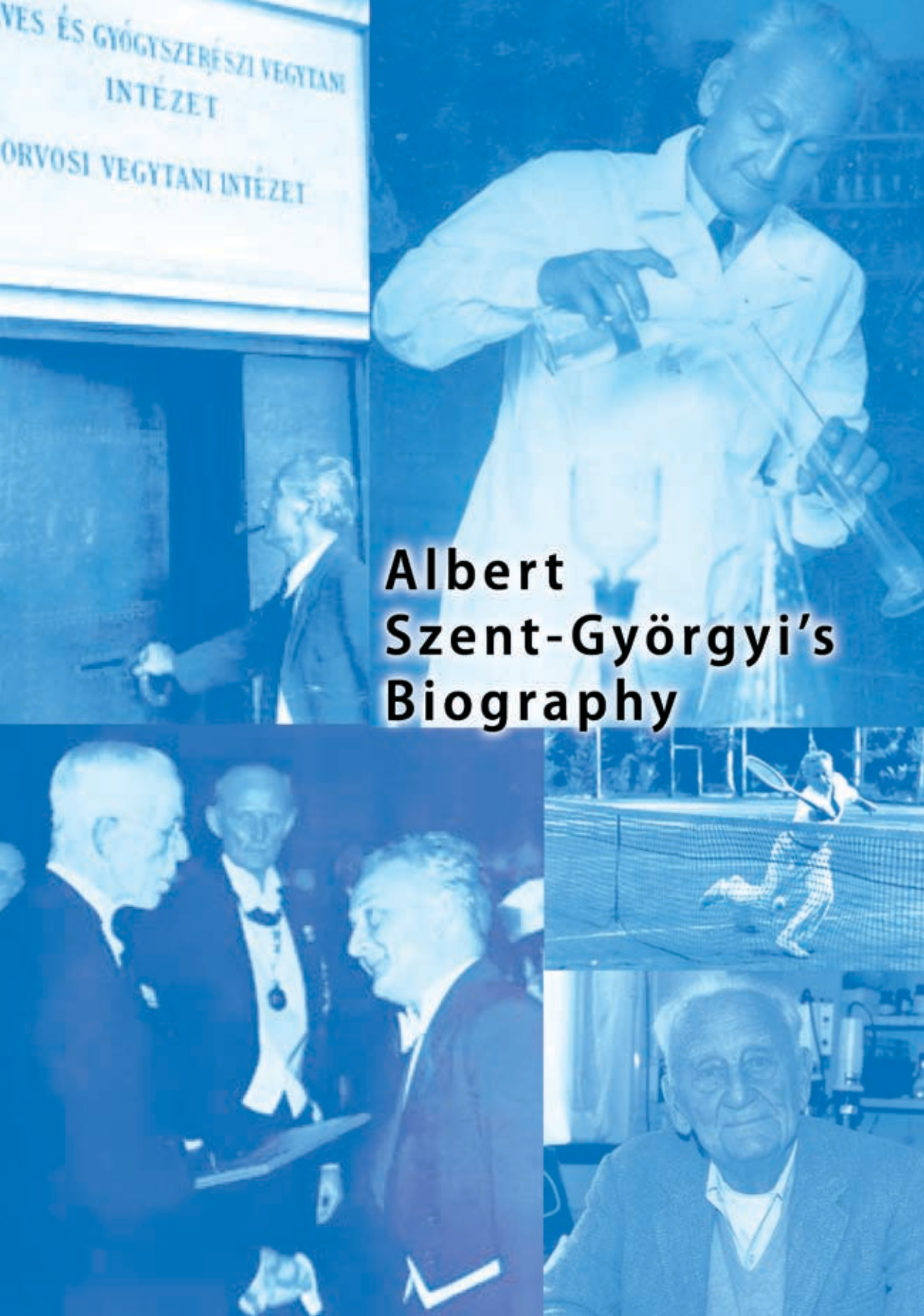

Albert Szent-Györgyi's Biography

TIMELINE OF ALBERT SZENT-GYÖRGYI'S LIFE

16 September 1893	**Born in Budapest**, baptized as Albert Imre, son of Miklós Szent-Györgyi and Jozefa Lenhossék. Spends his childhood in Kiskér near to the village of Buják.
1904–1911	Studies at the **Lónyay Street Calvinist High School** in Budapest.
1911	Starts his studies at the Faculty of Medicine of **Budapest University**.
1914	Interrupting his studies, he is mobilized to the military hospital in **Miskolc.**
1915	Serves at the **Russian front** as a volunteer of the 65th Miskolc Regiment.
1917	Wounded, Silver Medal for Valour, sick-leave, finishes studies, MD in Budapest.
19 September 1917	Marries Kornélia Demény.
1918	Serves at the **Italian front** after recovery, then discharged. Assistant of Professor Géza Mansfeld at the **University of Bratislava**. His daughter, Nelli is born.

Main places of Albert Szent-Györgyi's life in Europe

1919	Spends a short period in **Budapest**, then some weeks at the **University of Prague** at the institute of A. Tsermak.
1919–1920	In **Berlin,** at the institute of L. Michaelis.
1921–1922	In **Hamburg,** at the Tropenhygienisches Institut.
1922–1923	Assistant of Storm van Leuwen at the Institute of Pharmacology in **Leiden.**
1923–1926	Works with H. J. Hamburger in **Groningen.**
1924	His experiments end the scientific debate between O. Warburg and H. Wieland.
1926–1930	In **Cambridge** (England) as a Rockefeller Fellow, in the laboratory of F. G. Hopkins.
1926–1927	In **Rochester** (USA) at the **Mayo Clinic**.
1927	PhD in Chemistry in **Cambridge**.
1928	Discovers hexuronic acid.
29 September 1928	Obtains professorial position at the **University of Szeged**.

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1 October 1928	Receives a two-year sabbatical leave as a full-time professor to finish his research.
26 September 1930	Starts working in **Szeged** and moves there with his family.
1931	Chair of the Research Committee of Natural Sciences. Announces the discovery of vitamin C. Several invitations abroad as a guest lecturer.
1932	Corresponding member of the **Societé Philomatique** (Paris). Obtains the Lecturer Prize of the **Royal Medical Society of Budapest**. Gives a lecture and publishes a study on The Reform of Medical Training.
10 April 1932	Lecture in **Stockholm.**
24 October 1933	Protests against the abolition of the Faculty of Medicine in Szeged.
1934	Member of the **Karl Ludvig Academy of Halle**. Member of **Societé de Biologie** (Paris). Lecture at the Vitamin Congress in **London**. Member of the Pharmacological Comprehensive Exam Committee.
1934/1935	Dean of the Faculty of Medicine. Discovers and uses vitamin P in therapy together with István Rusznyák and others.
1934–1936	Deputy Head of the Institute of Organic and Pharmaceutical Chemistry.
1935	His institute moves to **Dóm Square**, while he moves to 14 Rudolf Square. Participates in the Congress of International Physiology in **Leningrad / Saint Petersburg**.

Albert Szent-Györgyi's institute on Dóm Square

Albert Szent-Györgyi in his research laboratory

16 May 1935	Corresponding member of the Hungarian Academy of Sciences.
1935/1936	ProDean of the Faculty of Medicine. Visiting professor at **Harvard University** (USA).
1936	Member of the National Higher Education Council, the Committee of Hungarian Biological Research Institute, the National Council of Natural Sciences, and Secretary of the Hungarian Society of Physiology. Honorary member of **Biologische Gesellschaft,** Finnish **Duodecim Medical Society,** **Yugoslavian Medical Society**.
28 October 1937	**Receives Nobel Prize in Medicine.**
16 November 1937	Honorary dinner of the **Rotary Club** at Hotel Hungaria, Szeged.
25 November 1937	Receives **the Hungarian Corvin Wreath.**
1 December 1937	**Honorary citizen of Szeged.**

Recieves the Nobel Prize from the Swedish King

10 December 1937	Receives the Nobel Prize in **Stockholm,** address in the Swedish Radio.
11 December 1937	Lecture in **Stockholm.**
16 December 1937	Lecture in **Göteborg.**
7 April 1938	**Doctor Honoris Causa at the University of Szeged.**
6 May 1938	Full member of the **Hungarian Academy of Sciences**.
August –September 1938	Lectures in the **USA**, his wife does not return to Hungary. His daughter, Nelli studies in Cambridge, then in Switzerland.
September 1938 –February 1939	Visiting Professor at **Liége University**.
3 November 1938	Doctor Honoris Causa of **Sorbonne, Paris**.
1939	Member of the National Teacher Monitoring Committee. Receives the **Yugoslavian 2nd Class Order of Saint Sava**. His new research field is the biochemistry of muscle movement.
1939–1943	Member of the Upper House of the Hungarian Parliament.
1940	Awarded the Cross of the **Belgian Order of Léopold.** Chairman of the Board for Physical Education. Chairman of the Athletic Club at the University of Szeged. His daughter returns and settles down in Újszeged.

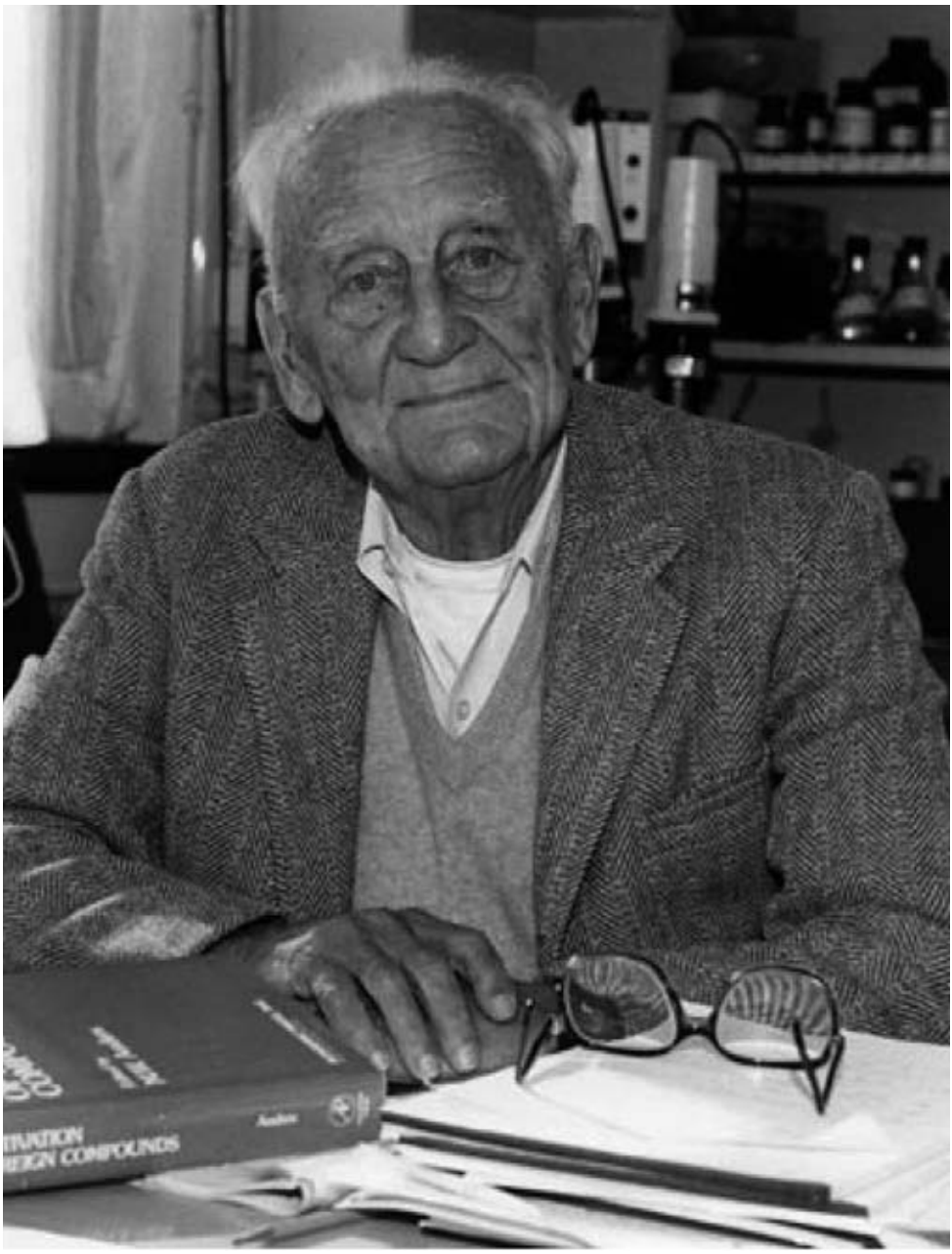
1–14 August 1940	Glider exam in categories A, B, C.
12 November 1940	Opening of the Horthy Miklós University.
13 December 1940	Foundation of the association "Youth of Szeged University".
1940/1941	Rector of the University of Szeged.
2 April 1941	Premiere of Hamlet at the university.
18 October 1941	Marries Márta Borbiró.
December 1941	Aviator training.
1941	Awarded the Hungarian Order of Merit.
1941/1942	ProRector of the University.
31 May 1942	**Doctor Honoris Causa of the University of Padua**.
20 November 1942	Aviator exam.
1943	Doctor Honoris Causa of the **University of Lausanne**.
13 February 1943	Lecture at the **University of Istambul**, secret negotiations on Hungary's secession from the German alliance.
16 September 1943	50th birthday anniversary.
16 December 1943	Reports on his muscle research at the Tisza István Scientific Society, Debrecen.
1944	Under house arrest, persecuted by the Gestapo, spends the rest of the war as fugitive.

BUDAPEST

August 1944	Leaves **Szeged**, hides in **Budapest**.
10 January 1945	After the advance of the Russian troops he stays in Enying at the Soviet military headquarters.
9 February 1945	Visits Szeged.
12 February 1945	Resigns from the membership of the Academy.
27 April 1945	Obtains full professorship at the **University of Budapest** as Chair of the Institute of Medical Chemistry.
30 May 1945	Honorary member of the Hungarian Academy of Sciences.
September 1945	Chairman of the Hungarian Academy of Natural Sciences. Chair of the National Council for Public Education. Active in politics of science.
1946	**Chair of the Hungarian - Soviet Cultural Association.**
24 July–18 December 1946	Second Chairman of the Hungarian Academy of Sciences.
17 November 1946	Honorary Chair at the founding session of the Southern Aviator Association in Szeged.
19 December 1946 –16 April 1948	Chairman of the Department of the Hungarian Academy of Sciences.
22 December 1946	Awarded the Silver Medal of the Hungarian Order of Freedom.
15 March 1948	**Receives (Nominated) Kossuth Prize.**

USA

1948	Emigrates to the **USA.**
	Becomes Director of the **Laboratory of the Institute for Muscle Research, Woods Hole, Massachusetts.**
	Research on cell-level regulation and cancer.
1954	Receives **Albert Lasker Award.**
1955	**Becomes a US citizen.**
1960	Starts studying the thymus.
1967	Claude Bernard Prize.
	Modern Medicine Award.
	Receives a goldess diploma from the Hungarian Ambassador.
1970	Campaigns widely against the Vietnam war.
	Publication of the *"15 Minutes to Zero"* in the New York Times against the Vietnam war.
	Publication of his anti-war book, *"The Crazy Ape"*.
	Published in Hungarian as *"Thoughts of a Biologist"*.
25 December 1970	A program about Szent-Györgyi on the Hungarian Radio.
1971	Publication of *"What Next?!"*
1972	Publication of *"The Scientific Citizen"*.
1973	Publication of *"The Living Stage"* and *"The Traits of Life"* in Hungarian.
	The government revokes financial support from his research.
	Founds the "Laboratory Without Walls", supported by the donations raised by the National Foundation for Cancer Research.
7 October 1973	**Comes home after 26 years.**
	Lecture at the Eötvös Lóránd University.
11 October 1973	Participates at the inauguration of the Biological Research Center of the Hungarian Academy of Sciences.
12 October 1973	**Doctor Honoris Causa at the Medical University of Szeged.**
16 October 1973	Visits the World Federation of Hungarians, Honorary Member of the Board.
1974	Two-hour long interview on the Hungarian Television. Parts concerning his life history is published on a record by Hungaroton.
7 January 1978	Arrives in Budapest escorting the Hungarian Royal Crown.
1978	*"The Living Stage of Substance"* is published in Hungarian.
1983	Publication of "Selected Studies".
20 September 1983	Awarded the Order of the Flag of the Hungarian People's Republic with Rubies.
22 April 1985	Premiere of the film dedicated to Szent-Györgyi "Psalmus Humanus" in Szeged.
1986	Medical University of Szeged decides to found a Museum for University History.

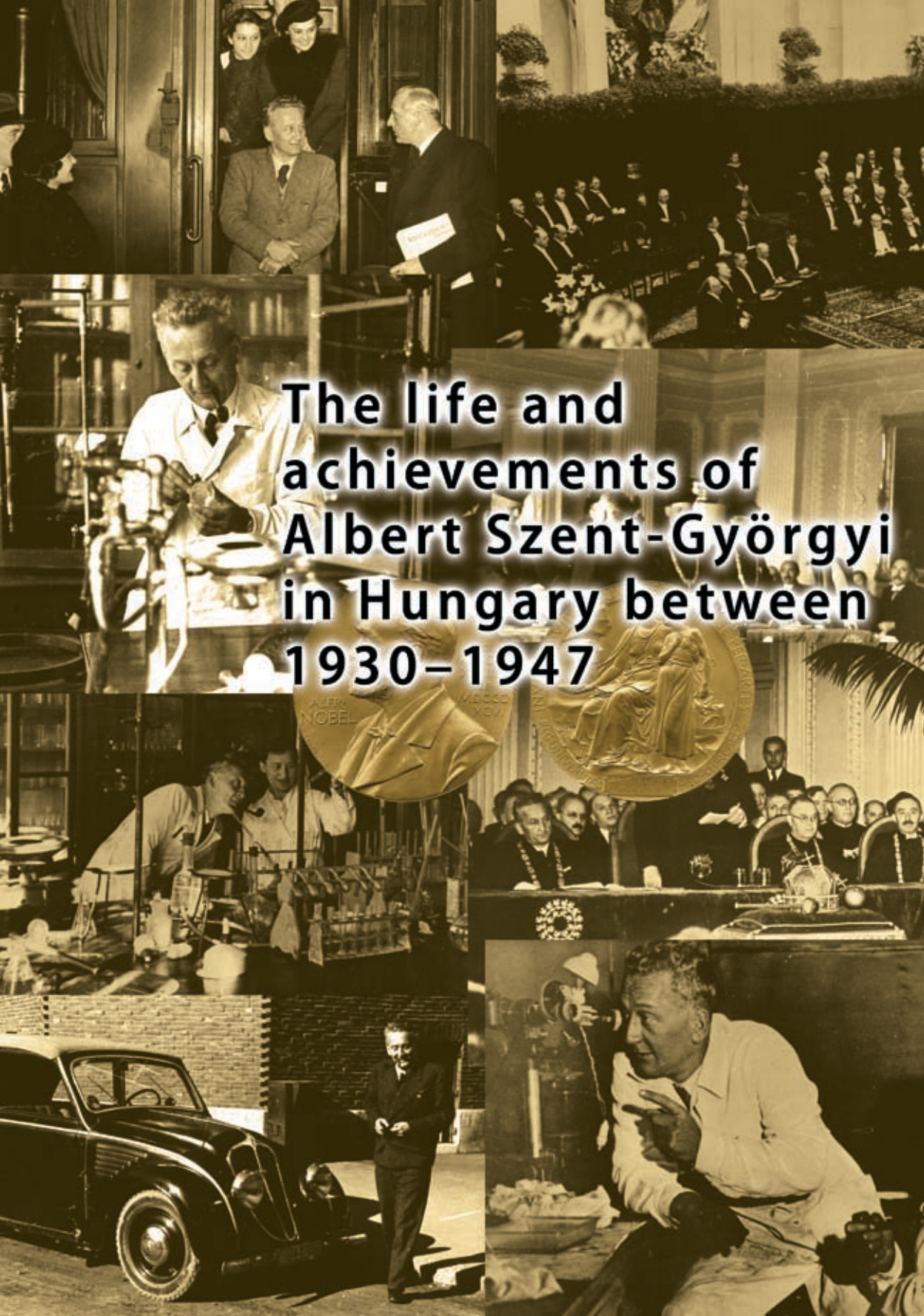


Albert Szent-Györgyi in his old age

His institute in Woods Hole

22 October 1986	**Dies in Woods Hole**, buried on the 25th.
15 December 1986	Commemoration by the City of Szeged, the Szeged Committee of the Hungarian Academy of Sciences, József Attila University and the Medical University of Szeged; announcement of the new name of the Medical University as Szent-Györgyi Albert Medical University.
10 December 1987	**Naming ceremony of the Szent-Györgyi Albert Medical University**.
11 December 1987	**Erection of his statue.**
1993	Exhibition on his 100th birth anniversary in the Black House in Szeged.
2003	Celebration in Szeged at the university on the 110th anniversary of his birth.
2007	Celebration on the 70th anniversary of his Nobel Prize Award.
2012	International conference on the occasion of the 75th Anniversary of Albert Szent-Györgyi's Nobel Prize Award.

Source: Albert Szent-Györgyi's Memorial Room



The life and achievements of Albert Szent-Györgyi in Hungary between 1930–1947

THE LIFE AND ACHIEVEMENTS OF ALBERT SZENT-GYÖRGYI IN HUNGARY BETWEEN 1930-1947

Róbert Károly Kiss – Tamás Vajda
Specialized Archives of the University of Szeged, Szeged, Hungary

Szent-Györgyi returns home on the invitation of the Minister of Culture and Religion.

The portrait of the young Albert Szent-Györgyi

Albert Szent-Györgyi was born in Budapest on 16th September 1893 as a descendant of an old Transylvanian family. After his graduation from the Lónyay Street Calvinist High School he continued his studies at the Faculty of Medicine at the Pázmány Péter University. Under the wings of his famous uncle Mihály Lenhossék, he published scientific essays and carried out experiments. In the First World War, between 1914 and 1918 he was sent to the Russian, then to the Italian front. During his service on the battlefield, he prepared for his doctoral exam in 1917. After the succesful exam he was appointed to Bratislava as an assistant lecturer, but after the disannexation of Bratislava he crossed the border and went to Prague with his family. He was employed in the Institute of Physiology. Not much later – because of financial problems – he left Prague, and visited the Universities of Leiden and Hamburg. In Grooningen he spent 3 years between 1923 and 1926, where he investigated the mechanisms which govern physiological and pharmacological processes. Not much later he moved to Cambridge at the invitation of Frederick Gowland Hopkins. He continued his research and managed to isolate hexuronic acid from some plants and adrenal glands of animals.[1]

In 1927 because of the death of Béla Reinbold, the post of Head of the Institute of Physiology at the University of Szeged became vacant. Kunó Klebelsberg, the Hungarian Minister of Education and Religion asked Szent-Györgyi to take this position. He was given a two-year leave to finish his work in England, so he took his position in Szeged only in 1930.[2] According to some reminiscences, his wife also played a big part in their returning home.[3] He began his job in the State Industrial

1 Szabó Tibor – Zallár Andor: Szent-Györgyi Albert Szegeden és a Szent-Györgyi gyűjtemény. In.: Tanulmányok Csongrád megye történetéből. XV. [Szent-Györgyi Albert in Szeged and the Szent-Györgyi Collection In: Studies on the history of Csongrád county XV.] Szerk: Blazovich László Szeged 1989. 9–14.

2 Hencz Péter: Gróf Klebelsberg Kunó, a szegedi egyetem felépítője. [Count Kunó Klebelsberg, the establisher of the University of Szeged] Szeged, 1998. 40.

3 Marton János: *„Mindig nagy horoggal horgásztam"* Szent-Györgyi Albert Nobel-díja és Szeged. [*"I was always* f *shing with large* f *shhooks"* the Nobel Prize of Albert Szent-Györgyi and Szeged] In: Szeged XVII. (2005.) 2. szám 9.

At the entrance of his institute

High School – it was a kind of technical school, which was given to the University in 1921 – under very dif cult circumstances.[4] The technical equipment of his institute was rather poor, but the fact, that his laboratory, his flat and his family were in the same building – played a great part in overcoming the dif culties. The scientific work was continous, he was in familiar terms with his staff. By 1935 the institute moved to the modern university building on Templom Square. He gathered a very ambitious group of young scientists. These colleagues – Ilona Bangha, Brunó Straub F., Mihály Gerendás, Tamás Erdős, János Gergely – played a significant role not only in his research, but – after the Second World War – in the development of Hungarian biochemistry.[5]

His activity at the University of Szeged

In his laboratory

The always smiling, white-haired professor with his English pipe found his way to the people's heart immediately. Besides educational and research activities, he took an active part in civil life through his love of sports, and his educational reform proposals; and from the forties, through his political activity. After his arrival in Szeged, basically teaching, research and organizational work at the university determined his work.[6] Although he gave lectures several times abroad,

4 In Szeged, the University was opened in 1921. Because of the destruction of the First World War there were very bad circumstances in the town and also in the country. Under these circumstances Szeged couldn't build new buildings for the new University, but it handed over buildings which had other functions earlier. Thanks to the improving economic situation and to Kunó Klebelsberg – who was personally interested in the development of the University of Szeged – the way was found to infrastructural development. As the result of this by 1930 – mainly in case of the Faculty of Science and Medicine – a new infrastructure was built according to Western European standards. KISS RÓBERT KÁROLY: A Ferencz József Tudományegyetem az 1930-as évek elején. [The Ferencz József University of Szeged in the early 1930s.] In: „Mert annyit érek én, amennyit ér a szó" Szegedi Radnóti-konferenciák. Szerk.: OLASZ SÁNDOR, ZELENA ANDRÁS Szeged, 2009. 199–200.

5 VENETIANER PÁL: Szent-Györgyi és öröksége. [Szent-Györgyi and his heritage] In.: Szeged XIX. (2007) 11. szám In: Szeged 45–46.

6 SZABÓ – ZALLÁR 1989. 15.

he became a professor in Szeged. His intellectual and work capacity, his physical appearance immediately made a deep impression on his colleagues. His behaviour and informal relationship with his students, which was against the spirit of the age, caused a general aproar. "*When Albert was appointed to the institute, according to traditions, he had to visit all his professor colleagues in their homes. Albert, with his family went simply by bicycle. This kind of behaviour wouldn't appear as unusual on the Tennis Court Road of Cambridge but in Hungary it was unacceptable.*"[7])

With his Buick, next to his institute in Szeged

The professor playing tennis

Szent-Györgyi carried some kind of easiness not only in his behaviour, but his opinion about science and education also represented a new tendency. He opposed the German academic tendencies – which were similar to the Hungarian way of medical education – with an emphasis on theoretical training. Only a few people were familiar with the French and English model in Hungary, which focused on practical "training, called" medical teams at beside". During the thirties he was mostly interested in the reform of medical education.[8] These ambitions were in harmony with the concept of Kunó Klebelsberg, who wanted to create a campus in Szeged, which was similar to that in Göttingen, based on practical research activity and collective, seminar-type classes.[9]

The work of Szent-Györgyi appeared to break off because of the threat of closing down the University. This was due to the world economic crisis at the beginning of the thirties.[10] Szent-Györgyi tried to calm the public, saying that the Rockefeller Foundation – which was working in

7 Ralf W. Moss: Free radical. New York. 1988. 66–67.
8 Szabó–Zallár 1989. 20–24.
9 Hencz Péter: Klebelsberg Kunó, a harmadik évezred minisztere. [Kunó Klebelsberg, the minister of the third millenium] Szeged 1999. 20.
10 In the session of 1931/32 the investment avalibility of the university was one and a half million pengő, while in the next year it was only 24 500P, and in the year of 1933/34 no financial source was available. The threat of closing down the university was removed from the agenda but the number of its departments was radically decreased. Kiss 2009. 202–203.

Hungary with the help of Szent-Györgyi – got a state guarantee to run the university in return for its financial support.[11] Szent-Györgyi pointed out, that he could not agree with any kind of cut-backs in connection with the Medical Faculty, and if it happened, he would leave the country. This declaration – which created a big scandal – was often cited by those who opposed the reorganization. The public opinion of the town was that Szent-Györgyi played a great part in saving the University.

It was a unique initiative that he was the first in the country who started biochemical training, one year after his arrival. Although there was a similar training, called Medical Chemistry, he thought that teaching Biochemistry shouldn't be entrusted upon doctors who are not qualified enough.[12]

Szent-Györgyi started his research on ascorbic acid in the Netherlands. Although August Krogh Professor from Denmark sent him plenty of adrenal glands, which are known to be the main source of ascorbic acid, and he was also invited to the USA, where huge slaughterhouses could provide the required amount of ascorbic acid, he managed to isolate only a very small amount of it that was not enough for analysis.[13]

Examinations with Ilona Banga

11 SZABÓ–ZALLÁR 1989. 25–26. The Rockefeller Foundation played an important role in equipping of the university and supporting scientific research. On the foundation of the university a single payment of 119.000P an additional annual financial support was promised. As a former Rockefeller student, Szent-Györgyi was motivated to invite the Foundation to the University Ferencz József Tudományegyetem Rektori Hivatalának iratai. Csongrád Megyei Levéltár (1931.VI.25.) VIII.1. 3. d.

12 MOSS 1988. 69.

13 SZABÓ–ZALLÁR 1989. 28–29.

From the point of view of his research it was of great importance when Joe Svirbely, an American scientist came to Szeged and helped him in the analysis of vitamin C. Szent-Györgyi almost gave up vitamin C research because, at this time, the research group was interested in more than 20 other fields and although they were fully aware of the significance of this vitamin's effect, both the isolation and the purification caused a great problem. Svirbely's experiments on guinea-pigs proved that hexuronic acid isolated earlier by Szent-Györgyi was vitamin C.[14] In his report, he describes the bronze (Addison)-disease (one of its symptoms is the hyperpigmentation of the skin) and the effect of the substance isolated from the adrenal glands on the disease. He recognised that this substance is not the hormone of the adrenal glands, but it is of plant origin, which is taken up by food. He found that the substance alone was not able to improve the condition of patients because they bleached out again. Furthermore, he emphasized that the isolation and purification of the discovered substance in a bigger quantity was very expensive, costing several thousand pengős per gramm.[15]

With professor István Rusznyák during work

In those days many other laboratories tried to isolate and analyse vitamin C, among others Charles Glenn King, who was the former mentor of Svirbely. He also made promising experiments but he used a bad approach. After he got information about the discovery in Szeged, he announced in the Science in 1932 that he succesfully isolated vitamin C, which is identical to hexuronic acid. King misled the scientific world, he did not report the details of his results, only those he heard from Svirbely in Szeged. This affair caused a confrontation between the American and English scientists supporting King and Szent-Györgyi, respectively. Later on the scientific world accepted Szent-Györgyi's priority but they became enemies, which disappointed the Hungarian scientist. By the summer of 1932, the hexuronic acid extracted from adrenal glands had been up, therefore the experiments were stopped.[16]

There are numerous "legends" how and why Szent-Györgyi's attention turned to paprika, but it is a fact that he put aside all his other work and started to investigate the paprika in the fall of 1932

14 In short, Svirbely divided the guinea-pigs into two groups. One of the groups received food without hexuronic acid, while the other group received food with hexuronic acid. Those animals which received hexuronic acid remained healthy but the other group displayed the symptoms of scurvy and died.

15 Szegedi egyetemi tanár világhírű orvosi felfedezése. In: Szegedi Új Nemzedék (továbbiakban SzÚN) [The worldfamous discovery of a professor in Szeged In: The New Generation of Szeged (hereinafter to SzÚN)] 1931. III.10.1.

16 Moss 1988. 78–80

Paprika was produced in great quantity and excellent quality around Szeged.[17] Both the inhabitants and the scientific community of Szeged were convinced of the beneficial effect of paprika on health.[18] From the late twenties, more and more papers were published which emphasized the positive effect of the red paprika powder produced by using a special method in Szeged.[19] The discovery of the "hidden treasure" of paprika, however, was due to Szent-Györgyi's research. It was no longer a problem to obtain a large quantity of vitamin C. He proudly announced at a meeting held by the Medical Section of the Society of the Friends of the University that, in contrast with the few grams extracted earlier, 10 kg of vitamin C was available for further research.

From this time on his main purpose was the utilization of this discovery. Under the supervision of the University, the cannery of Szeged produced conserved paprika which was named Vitapric.[20]

The popularity of Szent-Györgyi increased tremendously following the discovery of vitamin C. He gave several lectures in Hungary and all over the world's largest cities. As an extravagant person, he bought a motorcycle in 1934 in order to cross Europe and get to Scotland riding 6000 km. In Northern Scotland he also gave a lecture to a huge audience.[21] Coming back to Hungary he continued his research and succeeded in isolating another substance (marked as substance P) from paprika. He was not sure whether this was a vitamin or not, but it turned out that it had a positive effect on haemophilia.

During the research with vitamin C, he recognised the effects of flavonoids in certain diseases. Patients who suffered from subcutaneous bleeding were treated with non-purified, and in a subsequent experiment with purified vitamin C. It was observed that purified vitamin C was less effective. Therefore, they returned to a non-purified vitamin C treatment upon the suggestion of Szent-Györgyi's colleague, Professor István Rusznyák. This proved to be successful and it became obvious that the effective compound was in the contamination. Afterwards, Szent-Györgyi's attention turned to lemon and he extracted 2 kgs of this substance in crystalline form. The investigations proved that this substance decreased the capillary permeability of patients suffering from vascular or thrombopenic purpura. On the basis of its effect, the new substance was designated as vitamin P (P standing for Capillary Permeability Factor).[22]

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17 MOSS 1988. 90–91.

18 The studies distinguished the sharp, spicy powder made out of wild paprika. This did not become popular in Europe because of its blistering effect.

19 Szeged és a paprika-kérdés. [Szeged and the paprika question] In: SzÚN 1930. VIII. 10. 3.

20 On the basis of experiments, 1 teaspoonful of conserved paprika equals the vitamin C content of 5 oranges.

21 Dr. Szent-Györgyi Albert 6000 km-es motorkerékpár túrája. Szegedi Napló (továbbiakban SzN) [The 6000 km-long motorcycle trip of Dr. Albert Szent-Györgyi In: Szeged Diary (here in after SzN.)] 1934. IX. 18. 4.

22 GÁBOR MIKLÓS: Gondolatok Szent-Györgyi Albert flavonokkal folytatott kutatásairól. Megemlékezés a felfedezés 75. évfordulóján. [Albert Szent-Györgyi's research on flavones – Commemoration on the 75th anniversary of the discovery] In: Gyógyszerészet LV. (2011.) 643.

During his stay in Szeged he mentioned several times that he was not so enthusiastic about the research on vitamin C; he felt that he did not belong to the family of great vitamin researchers.

In the meantime, Szent-Györgyi had begun to investigate muscle tissue respiration using minced pigeon breast muscle. It was already known that fumaric, malic and succinic acid (dicarboxylic acids) played a role in respiration. Szent-Györgyi found that they were not consumed as a fuel in the process but served as catalysts, i.e. they maintained the combustion reaction without being changed. Each of them stimulated the oxidation of a carbohydrate present in the tissue cells. This was an important new idea. By 1937, Szent-Györgyi had identified this process as a cycle and was close to elaborating all the steps that generate adenosine triphosphate (ATP), the energy carrying molecule in all living cells. This work also played a role in his being awarded the Nobel Prize in 1937 in spite of the fact that he could not describe the whole cycle.[23]

Szent-Györgyi's research in muscle tissue respiration led him to the question of how muscles move. He reasoned that the myosin-ATP interaction explains muscle movements. When he added ATP to the myosin extracted from rabbit muscle, it contracted to one-third of its original size. He and his research team discovered that muscle tissue contained a second protein, actin, which combined with myosin to form interlocking fibers. By 1944, the team had elucidated the mechanism of muscle contraction and clarified the role of ATP in the process.

In spite of the significant and important discoveries, he was not satisfied; he wanted to dig deeper into the level of molecular organization because he believed that the secret of life is based on the distribution of electrons.

The Karolinska Institute of Stockholm awarded the Nobel Prize for medical research

On 28th October 1937 Szent-Györgyi got a telegram, which informed him that he was awarded the Nobel Prize for the discoveries about biological oxidation, with special regard to vitamin C and fumaric acid catalization. The Nobel Prize Committee, after a heated debate, did not divide the medical prize, but awarded it only to Szent-Györgyi. According to his confession, it took him by surprise.[24]

23 As it turned out, Szent-Györgyi's focus on malate and oxaloacetate was an error and Hans Krebs soon found that the key link was citric acid. "Szent-Györgyi's cycle" became the citric acid cycle or Krebs cycle and Krebs won a Nobel Prize in 1953.

24 Moss 1988. 98.

Congratulating telegrams

After hearing the news, a huge celebration started in Hungary. In the evening of 28th October, groups of people were speaking about the events on the streets, students were marching to the house of Szent-Györgyi with gipsy musicians and Chinese lanters. The next day, in the morning Szent-Györgyi went to his department. First he went into the Cathedral of Szeged, where the grave of Kunó Klebelsberg can be found, in order to express his thanks to the former Minister of Culture who gave him the chance to carry out this research in Hungary, which made him famous world-wide.[25] Then he went to the department and he addressed the celebrating youth from the balcony. Later that day Rector Gelei and Mayor Pálfy congratulated him in his laboratory. A lot of greeting telegrams arrived in Szeged.[26]

On behalf of the Medical Faculty Dean Rusznyák made the greeting speech. Appreciating Szent-Györgyi's achievements, the Dean emphasized, that the prize is addressed partly to the Hungarian scientific world and the University of Szeged. He commemorated Klebelsberg, the great founder of the University of Szeged, whose spirit had created a favourable and stimulating atmosphere. In his answer the Nobel-prized professor mentioned that "*Not only the feeling of happiness and motion* f *lls my soul. The achivement I made was not only done by me. Two huge forces helped me. One of the forces is the one that created our university,* f *ooded with love and kindness, creating favourable conditions for scienti*f *c work, because a small nation can only defend itself with the weapon of culture. The second force is friendly love, which always surrounded the faculty, relieved my anxiety, forti*f *ed me in the times of desperation, and in this way it put me in an ideal mental state. The present appreciation is not about only one person, it is about the university which encouraged me, about friends, who made my work possible, and about that huge*

25 HENCZ 1999. 48.

26 Szeged város díszközgyűlésén díszpolgárrá választja Szent-Györgyit. [Szent-György is awarded the title Honorary Citizen of Szeged by the Town of Szeged at a festive general assembly.] In: SzN 1930. X. 30. 1.

ideal community, which aimes at getting to know the unknowable and serves the mother country together in a peaceful cultural war."[27]

In the circle of his colleagues

The congratulation of his colleagues on the Nobel Prize

27 A Szegedi Tudományegyetem Orvosi Kara Dékáni Hivatalának iratai. 280/1937–38. (1937. október 28-i kari tanácsülési jegyzőkönyv) SZTE Szaklevéltára – [Documents of the Medical Faculty of the University of Szeged] (Minutes of the Faculty Council Meeting of 28th October, 1937) Specialized Archives of the University of Szeged

During the next few days, because of the endless celebration, he had to cancel his speech on the Hungarian Radio. On 5th November, Governor Miklós Horthy gave a banquet to honour Szent-Györgyi in the Castle of Budapest.[28]

On 1st December, 1937 Szent-Györgyi was given the title of Honorary citizen of Szeged. The special assembly was opened by Bailiff György Imecs. In his speech, he focused on the importance of the Nobel Prize to Szeged. The title had an important influence on souls, as it strenghtened the national identity. "*If the land and material goods were stolen, if this nation was fettered to helplessness, souls couldn't be touched, the brain, the talent, gleaming shine of the greatness of souls radiates across the windows and doors thought to be bricked up, and its brilliance* f *lls all* f *ve continents.*" Mayor József Pálfy spoke in a dignified way about the force of science spanning across borders, while expressed his thanks to the magnificant scientist, who returned on the call of his country and didn't forget Kunó Klebelsberg. "*My speech wouldn't be complete if our memory didn't take wings towards the graves of the Dóm, from where the spirit of the biggest friend of the town that of Kunó Klebersberg waves us approval, as if he just says that I'm together with you, I rejoice together with you, because I could present Albert Szent-Györgyi to you.*"

After receiving the diploma, Szent-Györgyi expressed his gratitude for the sacrifice of the town, and to the community of Szeged, as after the World War, in the time of penury and privation, they opened their doors to the researchers of knowledge and impartial truth, and provided a new place for the university, in accordance with Klebelsberg's idea to fight for the truth with the peaceful weapons of culture. In his opinion you cannot do for the good of the country by stirring up the differences and stressing the importance of slogens, but by peaceful, honest working hands. He described the Nobel Prize as the celebrated moment of connection among Hungarian people.[29]

His lecture in Szeged

In connection with the Nobel Prize, the opinion of the people of Szeged was also interesting. In addition to everyone stressing the importance of the prize, there were some people who pointed out that this was the proof of the country's will to live, some people saw the significance of the University of Szeged in the prize, and some saw the chance to make the paprika production of Szeged more prosperous. The most instructive point of view was from a

28 SZABÓ–ZALLÁR 1989. 36.

29 Ujjongás, lelkesedés, harangzúgás közepette választotta meg a város díszpolgárává Szent-Györgyi Albertet. [The town awarded Szent-Györgyi the title of Honorary citizen of Szeged with triumph, enthusiasm and bell tolling.] SzN 1937. XII. 2. 1.

graduate who spoke about Szent-Györgyi as if he was a role-model, making clear that the youth does not understand the depth of real science and the way which leads to it. The pleasure of scientific research, and not the Nobel Prize, is the real reward for scientific activity. Closing his address he mentioned that, beside the general national considerations, special enthusiasm filled the soul of the youth, because "*the patron of students, the understanding father, our beloved professor was rewarded.*"[30]

Arriving in Stockholm for the Nobel Prize Award Ceremony in 1937

The Nobel Prize Award Ceremony took place according to traditions in the Karolinska Institute of Stockholm. On 10th December, 1937 after 5 p.m. the royal couple arrived at the decorated music hall. The wife and daughter of Szent-Györgyi took their stats in the first row**.** The Swedish professor, Hammalstein spoke about the merits of Szent-Györgyi, who stood up and received the prize deeply touched from the Swedish King while the Hungarian Rákóczi March was being played**.** The ceremony was followed by a banquet and a party, organized by the Swedish Youth Assosiation. The protocol meetings kept Szent-Györgyi busy even on the following day.[31] He got a chance to share his ideas on the Swedish Radio. He expressed his thanks to those colleagues who helped him in his research. As a political confession, he emphasized that in the age of hatred and anxious political situation only the force of understanding, the spirit of peaceful agreements, the respect between nations must prevail. He believed that this could be reached, since hatred is not the collective character of human beings, it only exists in certain souls. Science knows no boundaries and can only work this way.

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30 Szent-Györgyi professzorról beszél a város. [The town speaks about Professor Szent-Györgyi] SzN.: 1937.XI. 7. 2.

31 Személyesen nyújtotta át tegnap Szent-Györgyi professzornak a Nobel díjat a svéd király Stockholmban. [Yesterday Szent-Györgyi recieved the Nobel Prize in Stockholm from the Swedish King himself] In: SzN 1937 XII. 10. 1.

At the ceremony

Recieving the Nobel Prize from the Swedish King

Albert Szent-Györgyi's Nobel diploma with the places where he carried out his research and a "paprika tree"

The two sides of the Nobel Medal in Medicine

Awarding the title of Doctor Honoris Causa at the University of Szeged

Receiving the title Doctor Honoris Causa at Sorbonne

In the following years Szent-Györgyi received numerous awards and honours. First on 7th April, 1938 he received his title from the University of Szeged. Pál Frölich, Dean of the Faculty of Science, gave Szent-Györgyi the title Doctor Honoris Causa of the Faculty of Philosophy for his scientific activity which brought glory to the university.[32] In May he was elected as a member of the Hungarian Academy of Science, he became Doctor Honoris Causa of the University of Padova and Lausanne in the forties.[33] The title of the Sorbonne Institute of Paris had a special importance because some diplomatic and cultural diplomatic considerations could be found behind that.[34] Szent-Györgyi was nominated for the award by Dean Tiffenau of the Medical Faculty, Polonowsky, the professor of Biochemistry and Gabriel Bertrand the retired professor of Chemistry.[35] The nomination was accepted by the Council of Sorbonne on 9th May, 1938.[36]

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32 Szent-Györgyi Albert beszéde a svéd rádióban. (1937. XII. 10.) [The speech of Szent-Györgyi on the Swedish Radio] In.: Szabó–Zallár 1989. 249.

33 Szabó–Zallár 1989. 82–83.

34 In the 1930s the attitude of French diplomacy to the Hungarian matters became a lot warmer. Several occasions could be heard from French issues, that Hungary had already paid for its part in the Second World War by the Trianon Dictate. In 1937 Ambassador Mougrais visited the Hungarian Minister of Culture and Relegion to make a cultural agreement between the two countries, which would be a "*special friendly gesture and serious interest to Hungary*". It was not only a public, but also a civil initiative showing the growing number of Hungarian-French friendly associations. Sándor Márai on the columns of Pesti Hírlap wrote about the background of the title this way: "…the Hungarian society saw the creator of Trianon in the French, it saw the incarnation of peace agreements spirit in the old, ferocious Clemenceau. It is twenty years now that the Hungarian public opinion turned away from the French soul. Yes, I said the tolerant ones of the middle class, maybe the French soul and culture has a deeper and more authentic connection to the Hungarian soul than the German, maybe the modern French spirit is attracted to the new Hungarian art, literature, scientific research. A nice example of the conciliation and propitiatory spirit is when the Nobel Prized Hungarian Professor Szent-Györgyi is rewarded with the biggest French scientific title, the title of Doctor Honoris Causa at Sorbonne, in Paris. Kiss Róbert Károly: Humanista tudós a diplomácia porondján. [Humanist Researcher on the Stage of Diplomacy] In: Szeged XIX. (2007) 11. 18–19.

35 In the life and work of Szent-Györgyi, France didn't seize a special place. Though he did not spend longer time in French research institutes, he gave lectures at French universities and made friendships with the scientists of Sorbonne.

36 Centre des Archives Contemporaines, Fontainebleau. CAC 20020476/399.

The ceremony was on 5th November, 1938. Szent-Györgyi's speech was interrupted many times by the frenetic applause of the audience. According to Lipót Molnos, the Director of the Hungarian Study Center, a special ovation followed one part of the speech, when the Hungarian professor spoke about his country, the country "*which is small considering its extension but became giant in its misfortune, and will be much bigger by the work of its scientists and artists.*" The French Educational Minister and Lebrun, the President of the Republic also took part on the ceremony. Tiffenau, the Dean of Medical Faculty shortly summarized the main points of the professor's work, he drew a paralell with Louis Pasteur saying, that both of them carried out research which opened new ways to more disciplines. He also mentioned his patriotism, which brought him back to Hungary where he made the most marvellous achievements. Since he made a huge effort not just to find connections between disciplines but to promote the peaceful and extensive use of science, Tiffenau called Szent-Györgyi the great friend of humanity.[37]

On the following day Rector Roussy and then the Faculty of Pharmacology gave banquets, and further on he had to accept a lot of invitations. Before his return, in his declaration, given to MTI, he summarized his experience. He said it was regrettable that for historical reasons the Hungarian and the French culture had got so far from each other. Finally, even France began to understand that Hungary devotes all its efforts to get rid of intolerable injustes. "*We only cling to our rights to work for the Western culture in agreement with our neighbours.*"[38]

Professor Szent-Györgyi in the leadership of the University and the crossfire of politics

It was a manifestation of the respect for Szent-Györgyi that the Council of the Faculty elected him as Dean, since the following year he helped the work of the faculty as ProDean. In connection with his position we have to mention that the event; according to the spirit of the age, determined the action of excessively politized associations of youth.[39] The atmosphere of the university was deeply influenced by the extreme right wing associations. From 1920, these protested against the practice which left the orders of the Numerus Clausus Act out of conscideration, opposing all kinds of discrimination in connection with entrance exams.[40] The leadership of the University

37 Ferencz József Tudományegyetem Orvosi Karának iratai. [The documents of the Medical Faculty of the University of Szeged] SZTE Szaklevéltára 483/1938.

38 Kiss 2007. 20.

39 Szabó–Zallár 1989. 26

40 The Numerus Clausus Act ruled the way of admission to university. Its most important point introduced a special quota system at universities and also, beside mental ability, the examination of national loyalty and moral attitudes. There were special quotas for minorities which, in practice, was mainly against Jewish students, who had been represented earlier. This kind of restriction was in use until 1945, althought in 1928 it was reshaped. Kunó Klebelsberg also attempted to absolve the rigour of the Act, but after his death in the thirties the voice of those who supported the restrictions became louder again. Kiss Róbert Károly: A felvételi rendszer változása a szegedi Ferencz József Tudományegyetemen 1920 és 1945 között. [The changing system of admission at the University of Szeged between 1920-1945.] In: Az egyetemi felvételi rendszer változásai a 20. században. Szerk.: Kissné Bognár Krisztina, Molnár László, Osváth Zsolt. Budapest, 2010. 65–80.

had a lot of problems with the militant propaganda of those associations which enforced the discriminations of the Numerus Clausus Act and the Christian character of the university. In the thirties, the number of their actions, which were mainly attacks against Jewish students, increased.[41] Szent-Györgyi took firm steps against these actions. All kinds of actions were introduced in order to discipline those students who were disobedient or sabotaged lessons because of political reasons. These actions ranged from payment of a tuition fee to being expelled from the university. Besides, as Dean he managed to break off the looseness which was due to the bureaucratic functioning of the university. He had a big part in restoring discipline at the university, and in breaking down the bureucratic control.[42]

As the Rector of the University of Szeged in 1940

In the autumn of 1940 a formally new university was established in the town of Szeged, named Horthy Miklós Science University. Szent-Györgyi was elected as Rector of the newborn university. In the first period he had to secure the conditions. As the Faculty of Law did not work at the Horthy Miklós University from 1940, some rooms were cleared. He thought that this may be the way to develop a home for the youth of the university. Because of his special connection with students and his humanistic and anti-fascist attitude, he was very ambitious to create a unified youth movement at the university which was free of all radical political tendencies.[43] The association called the Youth of the University of Szeged was estabilished on 10th October,

41 Kiss 2009. 208–211.
42 Szabó–Zallár 1989. 27–28.
43 He was convinced that the youth really needs some kind of a home inside the university to create a special society, learn the rules of living together, the spirit of comradeship. The university must be the community of students and professors, not only the series of unfriendly classes, laboratories and libraries.

1940. Szent-Györgyi through his special connections to students tried to organize sports and art programmes and events. He set up a student club, which he often visited with his daughter. As soon as it was possible, he established a theatrical company. He invited a very talented young director, János Horváth. The young director and one of the actresses fell in love during the performance of Shakespeare's Hamlet.[44] According to the so-called "Jewish Act" they couldn't merry so they both chose suicide instead. It was a tragical moment for the world-famous professor, althought the main reason for it was the rising of fascism. Szent-Györgyi might have got accustomed to the attacks of the extreme right wing. From the time he arrived in Szeged he was often criticised, because of his easy manner and humanistic attitude. This kind of confrontation got stronger after his election. The performance of Hamlet – which was otherwise a huge succes the suicide of his actors and the activity of the next Rector, Károly Kogutowitz, who tried to ruin everything that Szent-Györgyi achieved, exasparated him.[45] In the following months Szent-Györgyi started to be interestred in political events against the spirit of fascism. In 1943 he went to Istambul on the behalf of the opposition of Hungary. During the debates Szent-Györgyi accepted to be the Prime Minister in case of the collapse of the German forces. The British trusted Szent-Györgyi but didn't trust the chance to change the dominant political stream in Hungary. Besides, after the battle of Stalingrad, the Allied Powers might have been interested in any kind of peace-treaty. Despite these facts, the trip to Istambul was not completely useless. The British diplomacy realized that there were accaptable democratic forces in Hungary. After the German occupation of Hungary on 14th March, 1944, Szent-Györgyi was taken into custody and later he had to hide. By the time of the Russian invasion and the establishment of the caretaker government, he appeared again and was immediately appointed to the Pázmány Péter University in Budapest.[46]

Portrait made at the end of World War II.

Albert Szent-Györgyi at the University of Budapest

Albert Szent-Györgyi in a letter dated 10th February, 1945 through the Medical Faculty applied to the Minister of Religion and Education for a leave without salary from teaching duties

44 Polner Zoltán: A szegedi Hamlet. [The Hamlet of Szeged] In: Szeged XXII. (2010.) 8–9. 27–31.
45 Szabó–Zallár 1989. 58–59.
46 Miklós Péter: „A politika behatolt az életembe" ["*Politics has penetrated into my life*"] In: Szeged XIX. (2007.) 11. 21–24.

at the University of Szeged. Meanwhile a reconciliation started with the Medical Faculty of the Pázmány Péter University of Sciences at Budapest that in the future Albert Szent-Györgyi will do his teaching and research activities in the capital. On 24th March, 1945 the Medical Faculty at the ordinary faculty meeting decided with an unanimous ballot to invite him to be the Head of the reorganized Medical Chemistry Department. One month later Szent-Györgyi of cially declared that he took a new job at the University of Budapest. Most of his co-workers at Szeged (Kálmán Laki, Bruno F. Straub, András Bíró and Ilona Banga) decided to join him. The minutes of the meeting report the events as follows:

"Highly appreciated Professors of the Medical Faculty! May I respectfully suggest that Albert Szent-Györgyi, the professor of the Medical Chemistry Department of the University of Szeged should be invited as the Head of the Physiology and Pathological Chemistry Department, which position is recently vacant. At the same time I also suggest that our faculty ask the Minister of Education to nominate urgently Albert Szent-Györgyi for that position.

I should like to justify my proposal with the following arguments. Our faculty previously, on several occasions tried to invite him to be the head of one of our departments. The f *rst time it was when in 1931/32 Hugó Preisz retired as the Head of Department of General Pathology and Bacteriology. In a very well described presentation Ernő Balogh listed all the potential candidates including Albert Szent-Györgyi. In this report he emphasizes the outstanding capabilities of Albert Szent-Györgyi mentioning his scienti*f *c originality and productivity. He stresses the fact that the personality of Albert Szent-Györgyi is especially capable to collect students with a knowledge of scienti*f *c literature and biochemical methods.*

From 1932 up to now our faculty several times tried to invite Albert Szent-Györgyi to one of our departments. It was the issue when the Departments of Physiology and Pathological Chemistry as well as Physiology chairs became empty due to the deaths of Pál Hári and Géza Farkas.

*The interval between 1932 and 1942 was the period when exceptional qualities of Albert Szent-Györgyi resulted in the most interesting scienti*f *c achievements. In 1932 he experimentally demonstrated that the hexuronic acid which was isolated in 1928 is basically identical with vitamin C. He was the* f *rst who produced pure vitamin C in a crystallized form. (Svirbely J.L. and Szent-Györgyi A. Biochemical Journal 26, 865).*

*His co-worker, László Varga, showed with the puri*f *cation and the study of its physiological affect that the diaceton form of vitamin C can not be a very effective contamination product of the hexuronic acid.*

In a series of studies between 1932 and 1937 he elucidated the role of dicarbonic acids containing four carbon atoms in the cell respiration, described that certain f *avon pigments behave like vitamins (vitamin P), the signi*f *cance of metallic complexes in biological oxidation process, produce the crystallized forms of the main muscle proteins and experimentally showed the basic mechanism of muscle contraction. These results all together are basic discoveries and underline the signi*f *cance of*

works performed by Szent-Györgyi and his co-workers. A detailed description of his work is unnecessary because it is well-known by the researchers of the scientific community as well as by the members of the faculty.

The productivity of a scientist may be measured taking into account the energy turned to the studies. In case of scientific productivity, intensity and capacity can be measured. Intensity would measure that during a given time how the invested work can increase our knowledge in the studied field. The value of capacity can be the fact that from someone's studies how many other works were initiated. The works of Albert Szent-Györgyi from both aspects are extremely valuable. The majority of scientists produce during their lifetime one or two discoveries, however, Szent-Györgyi achieved at least 3 or 4 significant basic findings.

The capacity of his work is also great. During the last 15 years his contributions induced several hundreds of studies in laboratories all over the world. From this point of view, the work showing the role of dicarbonic acids containing four carbon atoms in the hydrogen transport because these acids makes the intracellular molecular changes possible.

Looking at his work and the development of his institute it is obvious that he is an excellent teacher. He is able to convert ordinary young people to first class experts. Ernő Annau is a staff member of the University of Kolozsvár where László Vargha is the professor of Chemistry. Ilona Banga, Kálmán Laki and Bruno Straub, associate professors at the University of Szeged are all the best biochemists. The majority of their activity is connected to Albert Szent-Györgyi but their own research is also of high quality. I show for that as an example, that the fumarase enzyme in crystallized form was produced by Kálmán Laki. He was the one to discover one co-enzyme of blood coagulation and observed one of the causes of haemophilia.

Among his personal abilities I should like to mention his charisma which instigates other people to show their best capabilities. This charisma explains the international honours and appreciations as well as the fact that there were always European and American scientists working in his institute in Szeged.

At the end I summarize a list of his honours: in 1935 a visiting professor at Harvard University (U.S.A.), 1938/39 visiting professor at the Franqui Department of University of Liège. Invited speaker at the following universities: Paris, Zürich, Coppenhagen, Stockholm, Amsterdam, Wiesbaden, Brussels, Ghent, Leuven, New York and Berlin. The winner of Nobel Prize in medical research in 1937. The Honorary Doctor of the Universities of Paris and Padova. The owner of the Belgian Leopold and the Yugoslavian Saint Sava Order and the Claude Bernard Medal. He is the ordinary member of the Hungarian Academy of Sciences and the owner of the Corvin Wreath. He is the honorary member of Societé Phylomatique and Societé de Biologie in Paris, the Academy of Halle, the Biologische Gesellschaft, the Yugoslavian Medical Society and the Finnish Duodecim Medical Society. He is the ordinary member of the Hungarian Council of Natural Sciences, a member of the Advisory Board of External Colleges, the elected president of the Hungarian Physiological Society, the invited member of the Biological and Medical Research Section of the Hungarian Higher Education Council, the

Hungarian Council of Biological Research Institutes, the Hungarian Fellowship Council, the President of the Research Committee of the Natural Sciences Faculty of the University of Szeged, the first Rector of the Horthy Miklós University of Szeged, from 1939 to 1943 the elected member of the Upper House, and from 1938 the Honorary Doctor of the University of Szeged.

Dr. Ernő Balogh professor: He was first informed about Dr. Albert Szent-Györgyi's scientific achievements at the medical session of the St. Mary hospital in London. From that reason he was warmly recommending his invitation in 1926/26 in Szeged and later in Budapest after the retirement of Hugo Preisz. He warmly greets the proposal of the Dean which means the fulfillment of the previous initiatives. The presence of Szent-Györgyi would guarantee the development of our faculty.

Dr. József Frigyesi professor happily welcomes the proposal of the Dean. In the past the faculty did not make any objections in respect of the invitation of Albert Szent-Györgyi. Until now external reasons inhibited his invitation for the vacant department. His place is at our faculty because he is the greatest pride of the nation.

Dr. Ferenc Kovács professor knows that at the faculty in Szeged it was Szent-Györgyi who started a new scientific approach helping the cooperative research between different institutes. His colleagues and students like him.

Dr. Elemér Hainiss professor expresses his appreciation of Albert Szent-Györgyi, who was his colleague in Szeged. Before the winning of Nobel Prize he was a member of the committee who worked on taking home to Hungary and nominate him to the Department of Rumbold. He was aware of the high value of Szent-Györgyi's scientific publications.

Dr. Lajos Bakay professor mentioned that Szent-Györgyi was a co-worker of Mansfeld who was very sorry when Szent-Györgyi left his department. His position at our faculty would be an honour for us and not for Szent-Györgyi.

Dr. Sándor Mossonyi professor asks the Dean if Szent-Györgyi accepts the invitation

The Dean reads the letter written by Albert Szent-Györgyi which is the following:

«Honourable Dean!

Answering your oral inquiries I declare that I happily accept the possible invitation of the Pázmány Péter University of Budapest to the Department of Medical Chemistry supposing that the university is able to supply the necessary facilities and personnel. The establishment of the following jobs is needed: 4 associate professors, not including the Head of the Department; 3 assistant professors, 2 demonstrators, 2 technicians, 2 laboratory assistants, 1 typewriter, 5 technical personnel and 2 cleaning women. I hope that the honorable faculty will support if I ask the Minister of Education to finance the expenses of the reconstruction and installation as well as the maintenance of the research activity. With my best regards to the honorable faculty and you,

Albert Szent-Györgyi 23rd May, 1945»

Dr. Sándor Belák professor suggests that the Physiology and Pathological Chemistry Department has to be renamed as Medical Chemistry Department. The faculty unanimously accepts the suggestion of Dr. Sándor Belák.

After the comments the presiding Dean orders the ballot related to the proposal that for the vacant Head of the Department position Albert Szent-Györgyi has to be invited. All the submitted 15 ballots supported the proposal.

In a conclusion the faculty decided on the reorganization of the Physiology and Pathological Chemistry Department to Medical Chemistry Department and with an unanimous vote decided to invite Dr. Albert Szent-Györgyi as the Head of the new department."[47]

On 30th September, 1945 he wrote a letter to Alan Gregg at the Rockefeller Foundation describing his conditions in Budapest. "We succeed in constructing a nice and spacious laboratory from the ruins. I moved to Budapest taking all my equipment from Szeged. I have 14 well-trained co-workers, 12 of them are graduated and 2 university students. The government is warmly supporting my laboratory and therefore I can buy anything that can be bought by money and if the purchase is legal. This way I have good ideas, good co-workers and a good laboratory."[48] The Hungarian press and newsreel were reporting several times about the research activity of his laboratory.[49]

Besides the activities at the university, Szent-Györgyi took a role in different cultural societies. In September 1945 he became the co-president of the newly established Hungarian-French Society, at the same time he was elected as the President of the Hungarian Public Education Council and in July 1946 he became the Honorary President of the Hungarian-Soviet Cultural Society.[50] After the war he was the busiest cultural diplomat of the country. His role in the Hungarian Academy of Sciences was more important. His main purpose was to increase the weight of the Natural and Engineering Sciences and to decrease the contribution of Humanities and he made efforts to remove the members who compromised themselves during the war. Because he did not succeed in this context, he established the Hungarian Academy of Natural Sciences with Zoltán Bay physicist. In July 1946 at the meeting of the Hungarian Academy of Sciences he was elected as the Vice President and at the same time many new members were elected from the field of Natural Sciences. At the end he was succeeding in the redirection of the Hungarian scientific life to Natural Sciences.[51]

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47 Semmelweis Egyetem Levéltára [Archives of the Semmelweis University] 1/a állag Orvoskari tanácsülési jegyzőkönyvek, 73. kötet 179–188 old.

48 Rockeffeler Alapítvány archívuma [Rockefeller Foundation Archives], RF 1-1/750/2/10.

49 Varga László: Kiválóság és jellem: Szent-Györgyi Albert, az ember [Excellence and character: Albert Szent-Györgyi as a human being]. Magyar Tudomány 169. (2008) 7:850.

50 Nárai-Szabó József: Magyarország nemzetközi kulturális kapcsolatai, 1945 ősze-1946 ősze [The international cultural relationships of Hungary between the autumn of 1945 and the autumn of 1946]. Tiszatáj 43. (1989) 6:82–95.

51 Nárai-Szabó József: Szent-Györgyi Albert tudományszervező és kultúrpolitikai tevékenysége (1945-1946) [The scientific organizing and cultural political activity of Albert Szent-Györgyi between 1945 and 1946]. Tiszatáj 47. (1993) 10: 75–83.

From 1945 to 1947 Szent-Györgyi gradually got disappointed with the Soviet rule. Due to deceptions, his initial enthusiasm ceased and he did not take part in any political activity. In the spring of 1947 he participated in an American lecture tour and after coming home he spent a few weeks in Arosa (Switzerland) on holiday. Meanwhile, he was elected to be a member of the Soviet Academy of Sciences. During his stay in Switzerland his friend István Ráth, a well-known industrialist, who supported the reconstruction of the laboratory of Szent-Györgyi with a considerable amount of money was arrested by the Hungarian authorities for political reasons. Later he was able to help his friend to leave for Switzerland, but he gave up forever his hopes related to the possible improvement of the political conditions in Hungary. Therefore after a short stay in Great Britain he left in the autumn of 1947 to the USA where he continued his research as the Director of the Marine Biology Laboratory of the Institute of Oceanography at Woods Hole. In 1948 he wrote several letters to the University of Budapest asking for further holiday term hoping that his return may be possible again.[52]

52 SZABÓ–ZALLÁR 1989. 75.

Albert Szent-Györgyi in the New York Times

Two Cell-Contr
May Shed New

Gyorgyi, director of the Insti-
tute for Muscle Re
Marine Biological
in Woods Hole, Ma
reporters at the o

NEW LIGHT IS SHED ON MUSCLE ACTION

Quantum Mechanics Helps Solve Energy Mysteries, Nobel Laureate Says

By ROBERT K. PLUMB

Letters to The Times

To Avert Atomic War

Szent-Gyorgyi Says We and Russia Must Join to Halt Arms Spread

15 Minutes to Zero

Man's Prescription For Ending Himself And the World

Biologist Doubts Man's Survival in a Wor

Biologist Doubts the Survi

ALBERT SZENT-GYÖRGYI IN THE NEW YORK TIMES

István Hannus
Department of Applied and Environmental Chemistry, University of Szeged

Albert Szent-Györgyi's scientific activities in Hungary and in Szeged, in particular are well-known and well-documented[1], but much less information is publicly available concerning the second half of his life, which he spent in the US. This is so in spite of an interview-based detailed biography entitled *Free Radical* (published in 1988)[2].

The author of this paper has collected all those articles published in one of the most respected American newspapers, *The New York Times*, which involve the personality, opinions or activities of Szent-Györgyi during his life in the US (and earlier). The 132 newspaper pieces written by or about him provide an excellent picture of his scientific activities and his contributions to the well-being of the wider community.

The journal was founded in 1851, and in the 20th century, especially after World War II, it became one of the best-known and most-respected American newspapers.

The first report about Szent-Györgyi was published in 1933, in the "*Week of science*" section of the Sunday issue, entitled "*The power of sound*". "Astonishing things happened. Small animals and bacteria were killed by vibrations. Liquids boiled and decomposed. Waves were set up in them of a strange order." " … physicists and chemists began to explore the new field. The latest of them is Professor A. Szent-Györgyi, known over the world for his work in trying to find out what vitamins are composed of. In fact, Szent-Györgyi is one of the leaders in organic chemistry."

Today, the ultrasonic chemistry is a flourishing branch of chemistry and Albert Szent-Györgyi was a pioneer of this field.

1 Tibor Szabó, Andor Zallár: Albert Szent-Györgyi in Szeged and the Szent-Györgyi Collection (published in Hungarian), Csongrád Megyei Levéltár, 1989.
2 Ralph W. Moss: Free Radical – Albert Szent-Györgyi and the Battle over vitamin C, Paragon House Publishers, New York, 1988.

THE POWER OF SOUND

High Pitch Vibrations Break Down Starch and Sugar

SOME years ago Alfred L. Loomis, who spends three days a week in Wall Street as the executive of an important bank and the other days in his laboratory in Tuxedo Park, N. Y., reached the conclusion that the physicists had not been paying attention enough to sound. They had discovered about all the more useful ways of producing it and were not interested in any more ways because they had only a curiosity value. Besides, all the laws of propagating sound and converting it into other forms of energy, such as electrical pulsations in a telephone receiver, had been laid down. In fact, sound had become to a physicist what the moon was to an astronomer - something hardly worth the attention of a researcher trying to make a name for himself.

In collaboration with Dr. R. W. Wood of Johns Hopkins, Loomis boldly plunged into the field of ultra sounds—sounds that cannot be heard because of their high pitch, sounds that begin at a point where the ear leaves off, sounds that run into hundreds of thousands of vibrations a second. Astonishing things happened. Small animals and bacteria were killed by the vibrations. Liquids boiled and decomposed. Waves were set up in them of a strange order.

After they had stopped rubbing their eyes in astonishment the physicists and chemists began to explore the new field that Loomis had opened up. The latest of them is Professor A. Szent-Györgyi, known the world over for his work in trying to find out of what vitamins are composed. In fact, Szent-Györgyi is one of the leaders in organic chemistry of a very abstruse kind.

Research In Hungary.

Writing from the University of Szeged, Hungary, to the editor of the British scientific weekly, Nature, Professor Szent-Györgyi reports that he used ultra-sonic radiations or supersonic vibrations to break down cane sugar into simple molecules called monosaccharides, as well as starch, gelatin and gum acacia. All this he did with a quartz plate vibrating 723,000 times a second. The human ear is acoustically unresponsive to vibrations of more than about 200 a second.

How strong are the chemical bonds that hold together the molecules of which starch and sugar are composed? Chemistry can only guess. An engineer can measure the force required to pull a welded joint apart. Szent-Györgyi suggests that "ultra-sonic vibration may furnish in the end a method for the measurement of the strength of chemical links."

. . .

The New York Times
Published: March 26, 1933

The second piece of news came from the Budapest correspondent of The New York Times.

Vitamin C May Be Obtained From Paprika, Chemist Finds

Special Correspondence, THE NEW YORK TIMES.

BUDAPEST, March 17.—General scientific interest has been aroused by the claim of a prominent Hungarian chemist, Dr. Albert Szentgyoergyi, professor at Szegedin University, to have discovered after ten years research a method of producing vitamin C artificially.

Professor Szentgyoergyi says he has established that the vitamin is abundantly present in the Hungarian paprika, or sweet pepper, which he holds contains at least four times as much vitamin C as an orange or a lemon. In his experiments he has used 10,000 paprikas and claims that he has now extracted the vitamin, which can be administered in the form of powder or pills even to tiny babies.

Professor Szentgyoergyi's research work has been financed by wealthy American friends. He has already been invited to lecture on his discoveries in Berlin, Stockholm and Copenhagen.

The New York Times
Published: April 2, 1933
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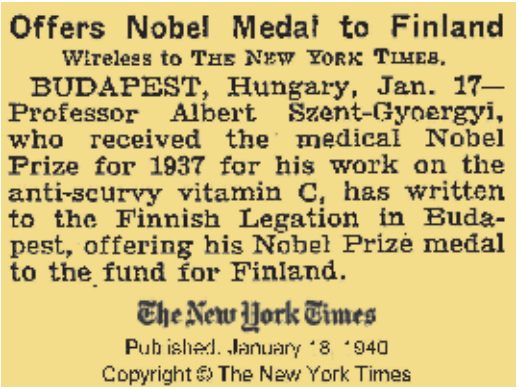
The third article was the news of his winning the Nobel Prize in Stockholm in 1937: "NOBEL PRIZE GOES TO SZENT-GYORGYI; Hungarian wins the award in medicine for discoveries in biological combustion; He isolated vitamin C."

When the Soviet Union invaded Finland in 1940, Szent-Györgyi offered his Nobel Prize medal (206 g, 23 carat gold) to help the Finnish people.



Offers Nobel Medal to Finland

Wireless to THE NEW YORK TIMES.

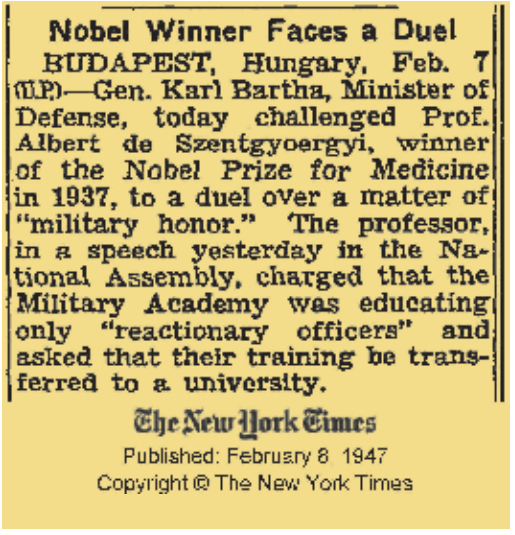
BUDAPEST, Hungary, Jan. 17—Professor Albert Szent-Gyoergyi, who received the medical Nobel Prize for 1937 for his work on the anti-scurvy vitamin C, has written to the Finnish Legation in Budapest, offering his Nobel Prize medal to the fund for Finland.

The New York Times

Published: January 18 1940

Copyright © The New York Times

A Finnish businessman bought the medal. The money remained at the Finnish Legation, the Nobel Prize medal was donated to the Hungarian National Museum, and it is still there. Albert Szent-Györgyi did not know about it. He died to believe that his Nobel Prize medal was lost.
The following news is characteristic of the political life in Hungary after World War II.



Nobel Winner Faces a Duel

BUDAPEST, Hungary, Feb. 7 (U.P.)—Gen. Karl Bartha, Minister of Defense, today challenged Prof. Albert de Szentgyoergyi, winner of the Nobel Prize for Medicine in 1937, to a duel over a matter of "military honor." The professor, in a speech yesterday in the National Assembly, charged that the Military Academy was educating only "reactionary officers" and asked that their training be transferred to a university.

The New York Times

Published: February 8 1947

Copyright © The New York Times

Fortunately, the duel did not take place.

In the following years, The New York Times published a number of articles on his new results concerning muscle contraction, his new research field.

Mechanism of Muscle Contraction

At a protein symposium at the Polytechnic Institute of Brooklyn yesterday Prof. Albert Szent-Györgyi, Nobel Prize winner in medicine, presented a résumé of the important researches on the mechanism of muscle contraction which he carried on during the war at the University of Szeged, Hungary, and more recently at the Marine Biological Laboratory at Woods Hole, Mass. Following are some of the highlights:

The problem of life is not what is put together but how it is put together; it is a problem of structure. In studying the relation of structure and energy the best-suited material is muscle with its violent energy changes.

Structure means not only new possibilities, it also means limitations. The very base of life is a limitation. Within the structure energy-yielding reactions are performed which, outside the structure, would dissipate their energy as heat. Within the structure the freedom of atomic groups is limited in such a way that this does not happen. The study of muscle yielded two examples which show that within the structure these reactions are performed only if the energy liberated can be applied usefully.

Liberation of Energy

This gives a simple explanation of the way in which liberation of energy is regulated. It is the need of energy which entails automatically the liberation of energy. As soon as this need is satisfied the reaction stops automatically. In muscle this finds expression in the fact that contracted muscle only is enzymatically active in splitting adenosine-triphosphate (ATP), a substance closely related to nucleic acid, which supplies the energy for muscular activity from the energy stored in its high-energy phosphate bond.

Thus, Professor Szent-Györgyi concluded, "muscle gives a simple explanation of several of the most basic biological problems and can be expected to throw further light on the nature of life. The detailed knowledge of muscle, its structure, and its relation to energy may serve as a base for a new muscle and heart pathology. At present the immediate cause of death in the greater half of mankind is still the failure of muscle."

Built of Two Proteins

The body muscle is built of thin fibers which are but bundles of still thinner fibers, fibrils, which, in turn, are built of still finer threads. The muscle contracts, the speaker explained, because these smallest threads contract. They are built of two proteins, actin and myosin, which form a complex. In itself this complex shows no sign of motion. It becomes contractile by absorbing ATP.

"The basic functions of life," he said, "are always performed by a combination of protein and nucleic material and the study of muscle-ATP promises to give information about this relation. * * * The frog muscle, at low temperature, does much more work than the calculations permit. This is due to a special mechanism which enables the frog to spend much more energy and to move also at low temperature. These regulation mechanisms, hitherto unknown, regulating the expenditure of energy, probably have not only great biological but also great pathological and medical importance." W. L. L.

The New York Times
Published: December 14, 1947

At the end of 1947 it was not clear whether Szent-Györgyi was a visiting professor or he wanted to emigrate. The Hungarian authorities expected him back and he was nominated for the Kossuth Prize on 15th March, 1948; but he did not return.

$25,000 RESEARCH GRANT

Heart Association to Finance Muscular Contraction Study

The American Heart Association has granted $25,000 to the Szent Gyorgyi Research Foundation, Inc., for studies in muscular contraction regarded as basic to complete understanding of the heart muscle, it was announced yesterday by Dr. Tinsley R. Harrison, association president. The research grant is the first to be made by the association.

The studies are being conducted by Dr. Albert Szent Gyorgyi, physiologist, and his associates at the Marine Biological Institute, Woods Hole, Mass. Dr. Gyorgyi is a Nobel prize winner in physiology and medicine. He is director of research of the foundation bearing his name, which was incorporated this year to aid scientific and educational research.

The New York Times
Published: August 25 1948
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In 1954, a further news item was published in connection with him, illustrated with his photo, indicating the importance of the news and the person: "The 1954 Albert Lasker Award of the American Heart Association will go to Dr. Albert Szent-Gyorgyi, it was announced yesterday. The 60-year-old biochemist was cited for his 'distinguished research achievements in the field of cardiovascular diseases which have led to a new understanding of the basic physiology of the heart.'"

Lasker Award for 1954 Is Won by Biochemist

Dr. Albert Szent-Gyorgyi

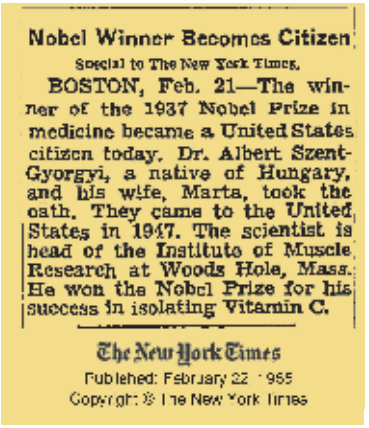
The 1954 Albert Lasker Award of the American Heart Association will go to Dr. Albert Szent-Gyorgyi, it was announced yesterday.

Dr. Szent-Gyorgyi, a Nobel Prize winner in 1937, is director of the Institute for Muscle Research, Woods Hole, Mass. The 60-year-old biochemist was cited for his "distinguished research achievements in the field of cardiovascular diseases which have led to new understanding of the basic physiology of the heart."

The award will be presented at the thirtieth annual scientific meeting of the association in Chicago on April 4. It is conferred annually by the Albert and Mary Lasker Foundation, through the association.

The New York Times
Published: March 15, 1954
Copyright © The New York Times

A very important event in Szent-Györgyi's life again making the pages of The New York Times in 1955 was when he received the American citizenship after spending 8 years in the US. "The winner of the 1937 Nobel Prize in medicine became a United States citizen today. Dr. Albert Szent-Gyorgyi, a native of Hungary, and his wife, Marta, took the oath."



Nobel Winner Becomes Citizen

Special to The New York Times.

BOSTON, Feb. 21—The winner of the 1937 Nobel Prize in medicine became a United States citizen today. Dr. Albert Szent-Gyorgyi, a native of Hungary, and his wife, Marta, took the oath. They came to the United States in 1947. The scientist is head of the Institute of Muscle Research at Woods Hole, Mass. He won the Nobel Prize for his success in isolating Vitamin C.

The New York Times

Published: February 22 1955

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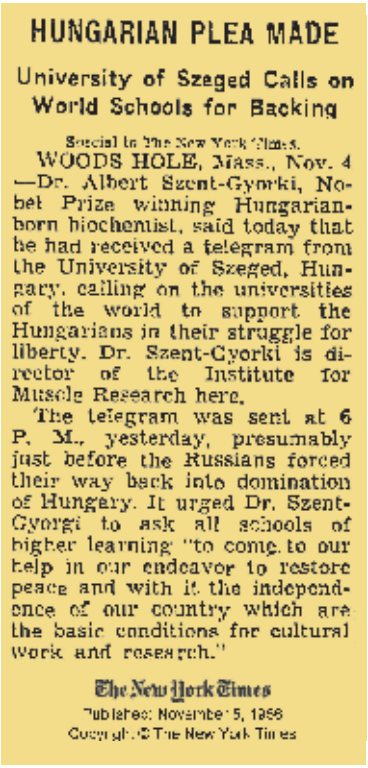
After this, news about him and his work regularly appeared in The New York Times each year, as shown in next table. The items included scientific reports about his new research results, minor news announcements of different events, letters to the editor, philosophical articles of Szent-Györgyi about the future and interviews with him.

Statistics of the Szent-Györgyi's articles in The New York Times

Year	No	Year	No
1933	2	1961	7
1934	1	1962	10
1937	2	1963	11
1939	3	1964	2
1940	1	1965	5
1942	2	1966	8
1944	1	1967	5
1945	2	1968	1
1947	2	1969	3
1948	1	1970	8
1951	6	1971	7
1952	2	1972	6
1953	1	1973	3
1954	2	1974	2
1955	7	1975	3
1956	3	1976	2
1957	4	1978	1
1958	2	1981	1
1959	1	1986	2
Total			**132**



HUNGARIAN PLEA MADE

University of Szeged Calls on World Schools for Backing

Special to The New York Times.

WOODS HOLE, Mass., Nov. 4—Dr. Albert Szent-Gyorki, Nobel Prize winning Hungarian-born biochemist, said today that he had received a telegram from the University of Szeged, Hungary, calling on the universities of the world to support the Hungarians in their struggle for liberty. Dr. Szent-Gyorki is director of the Institute for Muscle Research here.

The telegram was sent at 6 P. M., yesterday, presumably just before the Russians forced their way back into domination of Hungary. It urged Dr. Szent-Gyorgi to ask all schools of higher learning "to come to our help in our endeavor to restore peace and with it the independence of our country which are the basic conditions for cultural work and research."

The New York Times

Published: November 5, 1956

Copyright © The New York Times

There were two interesting pieces of news in the year of 1956 in the journal. Szent-Györgyi sent a telegram he had received from the University of Szeged, calling on the universities of the world to support the Hungarians in their struggle for liberty.

Letters to The Times

Dealing With Soviets

Russians Said to Understand Only Force and to Seek Ruin of U. N.

The writer of the following letter, formerly a professor in Hungary, won 1937 Nobel Laureate in medicine.

TO THE EDITOR OF THE NEW YORK TIMES:

Is it credible that in the twentieth century there should still exist a Government which butchers people by the ten thousands because they want free elections, while the rest of the world watches without intervention?

Is it not incredible that while the civilized world comes with all its generosity to the help of the refugees leaving Hungary on its western border people are deported in equal numbers through its eastern borders in "sealed wagons"?

Human imagination is inadequate to picture the suffering in such deportations in sealed wagons. The technique was introduced by Hitler. It does away with the inconvenience of establishing camps at the destination, since most people arrive dead or dying.

We Hungarians had a slight taste of Russian methods along this line when the Soviet Army took Budapest during the second World War. Most Nazis had fled and the population was friendly to the Russians. At that time Russia needed slave labor for rebuilding her devastated areas.

Slave Laborers

The method for securing labor was to suddenly close off a street and catch all young people, who were then herded into a camp at Czegled. Soon it turned out that there was no food or sanitation for 50,000 inmates and they died by the thousands. Their howling could be heard for a great distance outside the camp. The survivors were then sent to Russia as slave laborers.

Russia now needs no manpower. But only wants to exterminate Hungarians. The probable fate of the deported will be similar to that of the five million Soviet farmers who resisted collectivization and were put into labor camps, with an average life expectancy of six weeks.

Is it credible that after so many years of bitter experience the U. N. still does not understand that civilized methods, based on an unwritten moral code, are ineffective toward an opponent like the Soviets, who understand nothing but force, whose apparent willingness for discussion is but a maneuver to gain time for crimes creating accomplished facts? Their representation in the U. N. had from the beginning no other aim than to paralyze or ruin that body, an organization of the highest accomplishments of human idealism.

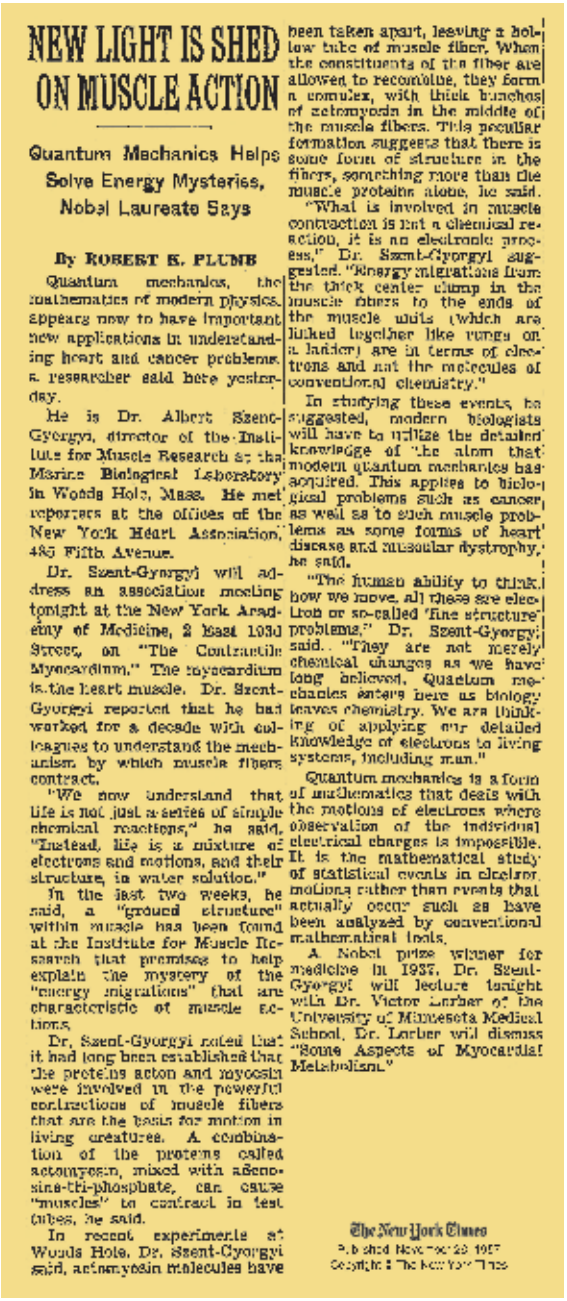
As a minor point: I wish that radios and the newspapers would use more accurate language. I read headlines like "Hungary Refuses U. N. Delegates." Hungary has nothing to do with that. Not even the Hungarian Government has anything to do with it, for there is no Hungarian government. Nobody has elected Mr. Kadar, who is simply a Soviet agent representing the Soviet Army.

Why soil the good name of a country? ALBERT SZENT-GYORGYI.

Woods Hole, Mass., Nov. 17, 1956.

The New York Times
Published: November 27, 1956

After the revolution in Hungary he wrote about his very negative opinion about Russians.



NEW LIGHT IS SHED ON MUSCLE ACTION

Quantum Mechanics Helps Solve Energy Mysteries, Nobel Laureate Says

By ROBERT K. PLUMB

Quantum mechanics, the mathematics of modern physics, appears now to have important new applications in understanding heart and cancer problems, a researcher said here yesterday.

He is Dr. Albert Szent-Gyorgyi, director of the Institute for Muscle Research at the Marine Biological Laboratory in Woods Hole, Mass. He met reporters at the offices of the New York Heart Association, 465 Fifth Avenue.

Dr. Szent-Gyorgyi will address an association meeting tonight at the New York Academy of Medicine, 2 East 103d Street, on "The Contractile Myocardium." The myocardium is the heart muscle. Dr. Szent-Gyorgyi reported that he had worked for a decade with colleagues to understand the mechanism by which muscle fibers contract.

"We now understand that life is not just a series of simple chemical reactions," he said. "Instead, life is a mixture of electrons and motions, and their structure, in water solution."

In the last two weeks, he said, a "ground structure" within muscle has been found at the Institute for Muscle Research that promises to help explain the mystery of the "energy migrations" that are characteristic of muscle actions.

Dr. Szent-Gyorgyi noted that it had long been established that the proteins acton and myosin were involved in the powerful contractions of muscle fibers that are the basis for motion in living creatures. A combination of the proteins called actomyosin, mixed with adenosine-tri-phosphate, can cause "muscles" to contract in test tubes, he said.

In recent experiments at Woods Hole, Dr. Szent-Gyorgyi said, actomyosin molecules have been taken apart, leaving a hollow tube of muscle fiber. When the constituents of the fiber are allowed to recombine, they form a complex, with thick bunches of actomyosin in the middle of the muscle fibers. This peculiar formation suggests that there is some form of structure in the fibers, something more than the muscle proteins alone, he said.

"What is involved in muscle contraction is not a chemical reaction, it is an electronic process," Dr. Szent-Gyorgyi suggested. "Energy migrations from the thick center clump in the muscle fibers to the ends of the muscle units (which are linked together like rungs on a ladder) are in terms of electrons and not the molecules of conventional chemistry."

In studying these events, he suggested, modern biologists will have to utilize the detailed knowledge of the atom that modern quantum mechanics has acquired. This applies to biological problems such as cancer, as well as to such muscle problems as some forms of heart disease and muscular dystrophy, he said.

"The human ability to think, how we move, all these are electron or so-called 'fine structure' problems," Dr. Szent-Gyorgyi said. "They are not merely chemical changes as we have long believed. Quantum mechanics enters here as biology leaves chemistry. We are thinking of applying our detailed knowledge of electrons to living systems, including man."

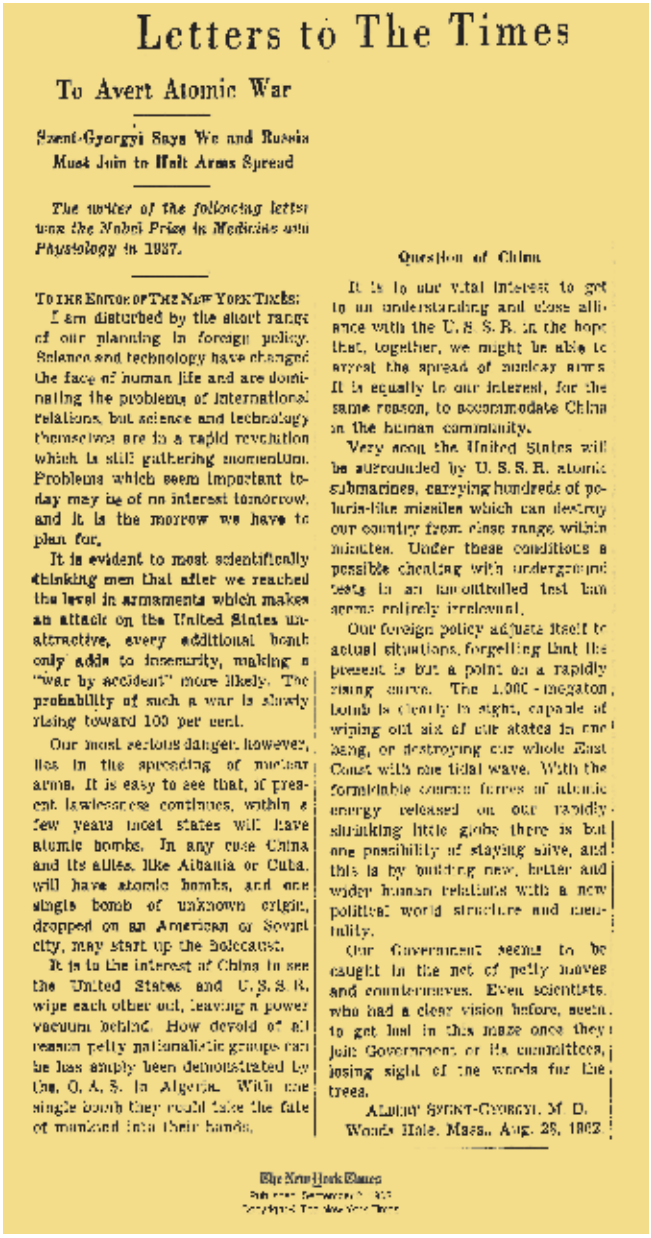
Quantum mechanics is a form of mathematics that deals with the motions of electrons where observation of the individual electrical charges is impossible. It is the mathematical study of statistical events in electron motions rather than events that actually occur such as have been analyzed by conventional mathematical tools.

A Nobel prize winner for medicine in 1937, Dr. Szent-Gyorgyi will lecture tonight with Dr. Victor Lorber of the University of Minnesota Medical School. Dr. Lorber will discuss "Some Aspects of Myocardial Metabolism."

The New York Times
Published November 23 1957

Szent-Györgyi's new idea is qantum mechanics in Biology.

Two maxima are revealed by statistics. The first in the early sixties when, besides the scientific reports (about his cancer research), several "Letters to The Times" were published that warned against the dangers of a nuclear war.



Letters to The Times

To Avert Atomic War

Szent-Gyorgyi Says We and Russia Must Join to Halt Arms Spread

The writer of the following letter won the Nobel Prize in Medicine and Physiology in 1937.

TO THE EDITOR OF THE NEW YORK TIMES:

I am disturbed by the short range of our planning in foreign policy. Science and technology have changed the face of human life and are dominating the problems of international relations, but science and technology themselves are in a rapid revolution which is still gathering momentum. Problems which seem important today may be of no interest tomorrow, and it is the morrow we have to plan for.

It is evident to most scientifically thinking men that after we reached the level in armaments which makes an attack on the United States unattractive, every additional bomb only adds to insecurity, making a "war by accident" more likely. The probability of such a war is slowly rising toward 100 per cent.

Our most serious danger, however, lies in the spreading of nuclear arms. It is easy to see that, if present lawlessness continues, within a few years most states will have atomic bombs. In any case China and its allies, like Albania or Cuba, will have atomic bombs, and one single bomb of unknown origin, dropped on an American or Soviet city, may start up the holocaust.

It is in the interest of China to see the United States and U. S. S. R. wipe each other out, leaving a power vacuum behind. How devoid of all reason petty nationalistic groups can be has amply been demonstrated by the O. A. S. in Algeria. With one single bomb they could take the fate of mankind into their hands.

Question of China

It is to our vital interest to get to an understanding and close alliance with the U. S. S. R. in the hope that, together, we might be able to arrest the spread of nuclear arms. It is equally to our interest, for the same reason, to accommodate China in the human community.

Very soon the United States will be surrounded by U. S. S. R. atomic submarines, carrying hundreds of polaris-like missiles which can destroy our country from close range within minutes. Under these conditions a possible cheating with underground tests in an uncontrolled test ban seems entirely irrelevant.

Our foreign policy adjusts itself to actual situations, forgetting that the present is but a point on a rapidly rising curve. The 1,000-megaton bomb is clearly in sight, capable of wiping out six of our states in one bang, or destroying our whole East Coast with one tidal wave. With the formidable cosmic forces of atomic energy released on our rapidly shrinking little globe there is but one possibility of staying alive, and this is by building new, better and wider human relations with a new political world structure and mentality.

Our Government seems to be caught in the net of petty moves and countermoves. Even scientists, who had a clear vision before, seem to get lost in this maze once they join Government or its committees, losing sight of the woods for the trees.

ALBERT SZENT-GYORGYI, M. D.

Woods Hole, Mass., Aug. 26, 1962

The New York Times

SCIENCE

'GYROSCOPE OF LIFE'

Two Cell-Controlling Substances May Shed New Light on Cancer

By WILLIAM L. LAURENCE

Ten years of experiments at the Institute for Muscle Research of the Marine Biological Laboratories at Woods Hole, Massachusetts, under the direction of Prof. Albert Szent-Gyorgyi, a Nobel Prize winner in medicine and physiology, have culminated in the discovery of two substances in the tissues of animals that appear to serve as a gyroscope of life.

One of the substances, named "promine," was found to promote growth of tissues, while the second, named "retine," was found to retard growth. The two substances were isolated last year from the thymus gland of calves, the organ behind the top of the breastbone. The function of the thymus gland has recently been found to lay the foundation for the all-important mechanism of immunity. The latest studies, however, have revealed that the two substances were not specific products of the thymus, but were also present in other tissues, including muscle, the big blood vessels, and tendon.

These latest studies have shown, Prof. Szent-Gyorgyi and associates report, "that growth promotion and inhibition depended on the balance of the two active substances." The report is published in the June 28 issue of Science, official organ of the American Association for the Advancement of Science.

Growth Promoter

Promine, the growth-promoting substance, they report, makes cancer cells in test animals grow faster, while retine, the growth-inhibiting substance "tends to stop their growth and can make cancer, already developed, regress." This, the scientists add, was equally true for the spontaneous mammary tumor of mice, or transplantable types of mouse cancer.

The value of the ratio between the growth-promoting and growth-inhibiting substance in the same tissue "may be significant," the report points out. To achieve regression of tumors, it was found the ratio of the concentration of retine and promine has to be altered significantly. "Cancer seems to regress when the ratio is doubled—that is, when the amounts of retine injected daily correspond roughly to the quantity of retine present in the animal body."

The two substances are antagonistic to each other, so that when both are present no growth takes place. However, retine was found to be less stable than promine and may decompose on storage, so that the more stable promine in a solution asserts itself. This explains why the same extract may change in a few days from a non-promoter to a promoter of growth.

The discovery of two substances that balance each other's activity, the report states, suggests a solution to a hitherto unexplained puzzle: Why do cells which have been dormant for long periods suddenly start to multiply if a wound is made, and why does this growth stop when the wound is healed? The answer is that retine contains one or more unstable links, and it is therefore possible that on injury some enzyme is liberated that causes the retine's decomposition leaving the uninhibited promine in command. When the wound is healed the balance is restored, since healthy tissues no longer produce the retine-decomposing enzyme.

In one of the experiments the aortas of old animals were found to contain less retine than those of young ones, which suggests a possible connection between a diminished concentration of retine and the increased incidence of cancer with advanced age, the report states.

"In two experiments," it adds, "we found indications of retine in the urine of children. Possibly urine may reflect the ratio of promine and retine in the body and allow the closer study of this ratio in relation to cancer. The variation of this ratio may also alter our concepts of carcinogenesis (cancer causation). Possibly carcinogens may lead to disease in older individuals in whom the ratio is less favorable."

Muscles, tendons and big blood vessels, the report points out, are very rarely seats of cancer. These tissues, it was found, have greater concentrations of retine than promine "so that their extracts, contrary to those from other tissues, are inhibitory even before promine is removed."

This, the report adds, is not true of other tissues.

No Harmful Effects

"No harmful side effects have been found with either retine or promine," the report states. "In this respect these substances seem to differ from all the anti-metabolites used in cancer therapy which are not specific in their action and interfere with some fundamental process or substance common to all cells, so that even if cancer cells may be more sensitive, side effects do result.

"Retine and promine, being substances produced by nature, might perhaps specifically influence cell division; one might have here substances which will stop cancer growth and even produce regression without toxicity."

The growth promoter may also find application in accelerating the healing of wounds, as it does not seem to induce malignancy by itself, the report concludes.

Inhibition of a transplanted cancer in animals was also obtained with tissue extracts by Dr. Mary S. Dorshley, of Columbia University. She also found, the report states, that division of non-malignant cells was also inhibited by her extracts, indicating that the inhibitory activity of the extracts was not specific for malignant growth but acts on any cell division, normal as well as abnormal. However, it is not known whether the inhibitory action of the extracts was due to the presence of retine.

The limited studies so far suggest, the report states, that promine and retine are of small molecular weight and have a high potency. This suggests the likelihood of their eventual synthesis following determination of their chemical composition and structure.

Drs. Andrew Hegyeli and Jane A. McLaughlin are co-signers of the report.

'Aimed at a worthy cause.'

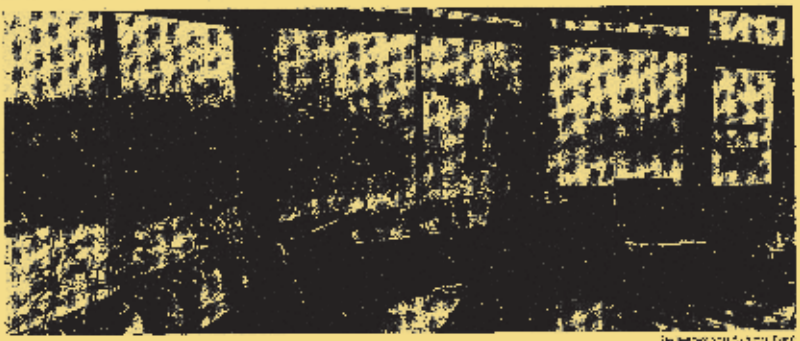
The New York Times

The second maximum occurred in the early seventies when Albert Szent-Györgyi was an activist against the Vietnam War. For example, following the publication of his famous booklet "The Crazy Ape", he participated in a lengthy interview entitled "Biologist Doubts Man's Survival in a World Run by 'Idiots' Too Old to Change" and he also wrote an article "15 Minutes to Zero" at that time.

Biologist Doubts Man's Survival in a World Run by 'Idiots' Too Old to Change

By ROBERT TRUMBULL
Special to The New York Times

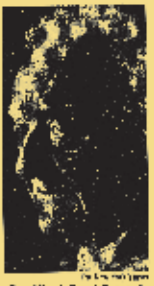
WOODS HOLE, Mass., ...



Albert Szent-Gyorgyi on his porch at Woods Hole. His fascinating book, "The Crazy Ape," is 40 pages. "What the hell has time to mean [illegible]"

Biologist Doubts the Survival of Man

Continued From Page 43



Dr. Albert Szent-Gyorgyi

Continued on Page 65, Column 1

15 Minutes to Zero

Man's Prescription For Ending Himself And the World

By ALBERT SZENT-GYORGYI

WOODS HOLE, Mass.

Erasmus, the sage of the Early Renaissance, distinguished between calm and tumultuous periods of history. The tumultuous ones were the periods of transition. The steeper the transition the greater the turmoil. Never has mankind gone through a more turbulent period than ours, and never has mankind's fate hung, senselessly, on such a thin thread, as it does today. All our institutions have become outdated and age-old ideas fade out overnight. We have reached the maximum of insecurity and the ultimate biological absurdity of preparing to wipe out life created by nature over billions of years.

Two radars, attached to computers, are watching one another, one in the Soviet, the other in the United States, and if the one sees missiles coming it must order the firing of bombs on its own side, to have them in the air before the other's bombs arrive. There are fifteen minutes left for decision and there is no human being who can evaluate such a complex situation in such a short time. So the only thing left is to fire, wipe out mankind, destroy civilization.

We have entrusted our fate, and that of our children and grandchildren, to two machines, both of which can make mistakes; we humans have nothing to say about it. We have spent a trillion dollars to get here. This sum is too big to be imagined; with it we could have lifted all human life. We spent this sum while half of the world's children went to bed hungry and did not have enough protein to build healthy minds and bodies.

One wonders about the mental state of the leaders who brought us here and keep us here. The Soviet has spent only about half as much on "safety" as we have, so it is fair that we should have some "extras." We have them: we have to poison our sea and kill marine life (which feeds us) to get rid of our surplus safety, dumping ten thousand bombs, filled with lethal nerve gas, into the sea in thin containers.

What has happened to set us on this fateful course? Science, with the powerful tools it gave us, made us outgrow our little globe. We can foul it up, bury it in garbage, make cesspools out of the oceans, exhaust our resources and wipe ourselves out. The old rules which worked for thousands of years suddenly fail to work. We were whipped overnight into a new world which demands new rules.

Who should make these rules? Our political leaders all come from a bygone age. Our system of representation is antiquated. Science has changed the face of human life but there is not

Ernesto Corey from "Glass, Guide, Ghost"

a single scientist in the Senate or Congress. Fifty-five per cent of our nation is below 30 but I doubt whether there is a single Representative below 30. Fifty per cent of our nation are women and there is one woman among 100 Senators; it is almost humorous to see old men discuss and decide the subtle sexual problems of women. While running the new world demands wisdom and knowledge there is but one qualification demanded from Representatives: to be able to get votes. The greatest number of votes can be gained by appealing to the lowest common denominator, which means that the qualities necessary for becoming a leader and being one are mutually exclusive.

We have little time to readjust. What we have to do is to realize that our globe has shrunk terribly and we have all become fellow passengers, depending on one another. We must understand that mankind has become a single independent unit. A virus appearing in Hong Kong today kills in Washington tomorrow, and bombs going off in Southeast Asia make bombs go off in New York. We must have rules equally applicable to all men. We must call "murder" the killing of a fellow man, without regard to color, religious or social creed, passport or uniform; while "felony" is the destruction of another man's home or crops, whoever he may be. We must invest our wealth and means in our first priorities and not in instruments of killing and destruction.

What are first priorities? What is the aim of life, if any? Our astronauts have brought home pictures of our globe. There was no trace of man on them. So we can wipe ourselves out and it will make no difference, whatsoever. Our globe may look even prettier, greener without us, and there is nobody out there to shed tears about our disappearance.

If human life has, in itself, no meaning then our first priority must be to give meaning to it by elevating it, by cleaning it from fear and hatred, slums, ghettos, hunger, ignorance and disease, by cultivating all that is good, great and beautiful in us. However grand we may feel, human life is a pretty poor thing.

While our President vetoes millions of dollars for health or education but pushes billions through for war and armament, while we add to our humiliations by demonstrating that the human body can be torn up my metal fragments, there is not much sense in life and endeavor. National prestige is in the gifts one can give to mankind and not in the wounds one inflicts.

I had to resign from participation at a scientific conference abroad recently, being ashamed to go there, feeling myself a criminal who had contributed with his tax dollars to the maintenance of the Tiger Pits on Con Son Island in South Vietnam, who had helped his country to ally itself with a corrupt, anti-democratic government, and had helped to put an underdeveloped nation at the mercy of a technically developed but mentally and morally underdeveloped army. We have become headhunters, fed on body counts by our Defense Department.

We should make a sharp turn but our groove is too narrow to allow us to turn. There is too much vested interest. It is our tragedy that while grave problems of the future loom over the horizon we must struggle with the primitive problems of the past, unable to cope with them. We must make a new beginning.

Albert Szent-Györgyi, a Nobel laureate, is author of "The Crazy Ape."

Obituaries appear on the second page of the second section

The New York Times

Publication Information

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In 1972 Albert Szent-Györgyi joined other rebellious scientists in trying to mount a protest at the Annual Meeting of the American Association for the Advancement of Science (AAAS), the nation's largest scientific organization. Out of 7000 people attending the meeting, 250 signed the petition to President Richard Nixon against the bombing of North Vietnam.

'We Must Tell the President'

The New York Times

At the end of the seventies his activity decreased. In 1978 he was one of the members of the American delegation to bring the crown of St. Stephen back to Hungary, reported the journal. In 1986 The New York Times published his necrology. He was 93 years old.

THE NEW YORK TIMES, SATURDAY, OCTOBER 25, 1986

Albert Szent-Gyorgyi Dead; Research Isolated Vitamin C

BY WALTER SULLIVAN

Dr. Albert Szent-Gyorgyi, who won the Nobel Prize in Physiology or Medicine in 1937 for his isolation of vitamin C, died Wednesday of kidney failure at his home in Woods Hole, Mass., it was reported yesterday. He was 93 years old.

The career of the Hungarian-born biologist was marked by a variety of medical accomplishments and political activities. In 1954 he won an Albert Lasker Award for his research on heart muscle contraction, including his discovery of actomyosin, a complex of the proteins actin and myosin, and its role in muscle contraction. The award, at that time, was given through the American Heart Association.

Dr. Szent-Gyorgyi spent World War II in Hungary and was an anti-Nazi activist, taking refuge in the Swedish Embassy as the war drew to an end to avoid arrest. After liberation by the Soviet army he was offered the presidency of the Hungarian Republic. He declined the post and instead became head of the Hungarian Academy of Science.

"After two years, I became disillusioned and left my country," he later said, adding that he began to dislike the growing Soviet dominance of his native land. He applied for admission to the United States, but acceptance was delayed six months, reportedly because he was thought to be too sympathetic to the Soviet Union.

His most recent associations were with the Marine Biological Laboratory in Woods Hole, Mass., and the National Foundation for Cancer Research in Bethesda, Md., which has explored his bioelectronic theory of cancer. His theory did not gain wide acceptance and after 1974 he was no longer able to obtain Federal financing for his cancer research.

In 1934 Dr. Szent-Gyorgyi (pronounced Saint GEOR-gie) created a sensation at a meeting of the British Association for the Advancement of Science in Aberdeen in Scotland when he spoke of his attempts to identify the ingredient in fruits and vegetables, as well as the adrenal glands of humans and cattle, that prevents scurvy.

His research led him to the slaughter houses of Chicago where, aided by money from the Josiah Macy Jr. Foundation, he said he obtained "literally tons" of cattle adrenals. From them he extracted traces of vitamin C.

He then returned to Hungary and began testing paprika. His tests on paprika yielded substantial amounts of the vitamin, also known as ascorbic acid, which was reported to be effective in treating such ailments as purpura, nephritis, and various hemorrhagic diseases, as well as for scurvy.

Dr. Szent-Gyorgyi was born in Budapest to a prominent family. He entered medical school in 1911. In World War I he served in the medical corps on the Polish front, was wounded and decorated for bravery. He earned his medical degree in 1917 and then obtained a doctorate in physiology at Cambridge University in 1927.

When he became the first resident Hungarian to win a Nobel Prize he became a national hero, but went into hiding when his anti-Nazi activities and British associations became known.

Asked once to define research, he said: "Research is four things; Brains with which to think, eyes with which to see, machines with which to measure, and, fourth, money." He was described by an interviewer as "articulate, witty, and highly convincing," speaking accented but fluent English.

Associated Press 1986

Dr. Albert Szent-Gyorgyi

In later years he spoke out frequently against the war in Vietnam and in favor of disarmament. He wrote 10 books including, "Science, Ethics and Politics," "The Crazy Ape," and "What's Next?." Other books, such as "The Living State and Cancer," dealt with his theory that on the submolecular level electrons play a special role in many biological processes.

In the 1950's he headed the Institute of Muscle Research at Woods Hole. Early this year the Albert Szent-Gyorgyi Institute was formed there to further pursue his electron theory with himself as scientific director. He moved to the United States in 1947 and became a citizen in 1955.

He is survived by his wife, the former Marcia Houston, of Woods Hole.

It is symbolic that one week after his death the Patents section of the journal included a short news item: "Patent No. 4,620,014 was granted for compounds to help stimulate the body's immune system. The work was done by the late Albert Szent-Györgyi, a Nobel Prize winner, and Gabor B. Fodor of the University of West Virginia."


Conference
series

CONFERENCE SERIES ON THE OCCASION OF THE 75TH ANNIVERSARY OF ALBERT SZENT-GYÖRGYI'S NOBEL PRIZE AWARD

The Faculty of Medicine at the University of Szeged, Hungary, is organizing an international conference series on the occasion of the **75th Anniversary of Albert Szent-Györgyi's Nobel Prize Award** which he received in 1937 for isolating vitamin C and for his research on the Krebs cycle. The event is scheduled to start on 22nd March, 2012 (Thursday) and ends on 25th March 2012 (Sunday). There are two main parts of the meeting:

(I) Main Anniversary part – Nobel Conference

There will be nine state-of-the-art lectures delivered by **Nobel Laureates**.

(II) Conference series

There will be six parallel conferences in Cardiology, Gastroenterology, Immunology & Inflammation, Molecular Biology & Genetics, Neuroscience and Tuberculosis Evolution.

Head Organizers and Main Sponsors
(*from left:* **Péter Hegyi** (Secretary General of the Conference, University of Szeged), **László Botka** (Mayor, City of Szeged), **András Varró** (Vice Rector for Science, Research Development and Innovation, University of Szeged), **Gábor Szabó** (Rector, University of Szeged), **Klára Hernádi** (Dean of the Faculty of Science and Informatics, University of Szeged), **László Vécsei** (Dean of the Faculty of Medicine, University of Szeged), **Erik Bogsch** (Managing Director, Gedeon Richter Plc.), **József Pál** (Vice Rector for Foreign Affairs and Public Relations, University of Szeged), **Lajos Kemény** (Vice Dean for General and Scientific Affairs of the Faculty of Medicine, University of Szeged)

STRUCTURE OF THE CONFERENCE(S)

(I) Main Anniversary part – Nobel Conference

There will be nine state-of-the-art lectures delivered by **Nobel Laureates**.

We are very grateful to the **Nobel Laureates** for accepting our invitation to this anniversary meeting:

In this part of the meeting you will also hear

Andrew V. SCHALLY

Nobel Prize in Physiology or Medicine
1977

Prize motivation:
"for their discoveries concerning the peptide hormone production of the brain"

Bert SAKMANN

Nobel Prize in Physiology or Medicine
1991

Prize motivation:
"for their discoveries concerning the function of single ion channels in cells"

Robert HUBER

Nobel Prize in Chemistry
1988

Prize motivation:
"for the determination of the three-dimensional structure of a photosynthetic reaction centre"

Eric WIESCHAUS

Nobel Prize in Physiology or Medicine
1995

Prize motivation:
"for their discoveries concerning the genetic control of early embryonic development"

Peter C. DOHERTY

Nobel Prize in Physiology or Medicine
1996

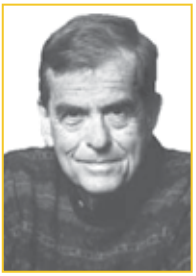
Prize motivation:
"for their discoveries concerning the specificity of the cell mediated immune defence"

John E. WALKER

Nobel Prize in Chemistry
1997

Prize motivation:
"for their elucidation of the enzymatic mechanism underlying the synthesis of adenosine triphosphate (ATP)"

Tim HUNT
Nobel Prize in Physiology or Medicine
2001
Prize motivation:
"for their discoveries of key regulators of the cell cycle"



Aaron CIECHANOVER
Nobel Prize in Chemistry
2004
Prize motivation:
"for the discovery of ubiquitin-mediated protein degradation"

Ada E. YONATH
Nobel Prize in Chemistry
2009
Prize motivation:
"for studies of the structure and function of the ribosome"

– presentations about Albert Szent-Györgyi's life and research activity
– introduction of the University of Szeged and the Biological Research Center
– information about the one-hundred-year-old tradition of pharmaceutical manufacturing in Hungary: the importance of medical chemistry

(II) Conference series

There will be six parallel conferences in Cardiology, Gastroenterology, Immunology & Inflammation, Molecular Biology & Genetics, Neuroscience, and Tuberculosis Evolution.

The programme of all conferences will feature state-of-the-art lectures by invited faculty members and free oral and poster presentations from submitted abstracts.

CARDIOLOGY

FOCUS ON: "Cardioprotection and sudden cardiac death"

Ischemic heart disease and sudden cardiac death are major factors contributing to mortality worldwide causing the premature death of millions of people every year in the western societies. The most common cause of sudden cardiac death is ischaemia-related cardiac arrhythmias as well as malfunction of cardiac ion channels due to genetic origin, electrical remodelling in cardiac hypertrophy or failure, as well as side effects of drug therapy. Therefore, protecting the heart against ischemia and reperfusion injury and its consequences including myocardial infarction and sudden death is a topic of intensive investigation. The present conference provides an excellent opportunity to bring together leading and young scientists to discuss recent advances in the field of cardioprotection and sudden cardiac death.

Faculty:

Name	City	Country
ANTZELEVITCH, Charles	Utica, NY	USA
BAXTER, Gary F.	Cardiff	UK
CERBAI, Elisabetta	Florence	Italy
EISNER, David	Manchester	UK
ESCHENHAGEN, Thomas	Hamburg	Germany
ÉDES, István	Debrecen	Hungary
FERDINANDY, Péter	Budapest	Hungary
FORSTER,Tamás	Szeged	Hungary
HAUSENLOY, Derek	London	UK
HEUSCH, Gerd	Essen	Germany
LATHROP, David	Bethesda, MD	USA
LEFER, David J.	Atlanta, GA	USA
MERKELY, Béla	Budapest	Hungary
MUNTEAN, Danina	Timisoara (Temesvár)	Romania
MURPHY, Elisabeth	Bethesda, MD	USA
NÁNÁSI, Péter	Debrecen	Hungary
PAPP, Zoltán	Debrecen	Hungary
PERNOW, John	Stockholm	Sweden
PIESKE, Burkert	Graz	Austria
PRZYKLENK, Karin	Detroit, MI	USA
RAVENS, Ursula	Dresden	Germany
RAVINGEROVA, Tatiana	Bratislava (Pozsony)	Slovakia
RŐTH, Erzsébet	Pécs	Hungary
SCHULZ, Rainer	Giessen	Germany
SCHULZ, Richard	Edmonton	Canada
SIPIDO, Karin	Leuven	Belgium
TÓSAKI, Árpád	Debrecen	Hungary
TÓTH, Kálmán	Pécs	Hungary
VARRÓ, András	Szeged	Hungary
VÉGH, Ágnes	Szeged	Hungary
VOLDERS, Paul	Maastricht	The Netherlands
VOS, Marc A.	Utrecht	The Netherlands
WILDE, Arthur	Amsterdam	The Netherlands

GASTROENTEROLOGY

FOCUS ON: "Epithelial ion transport in the gastrointestinal tract"

Epithelial ion transports play a fundamental role in the maintenance and integrity of the gastrointestinal tract. They provide proper environment for digestive processes, have a protective function, and are also involved in the homeostasis of body fluids. Importantly, derangement of epithelial secretory processes leads to a number of diseases, including hyperacidity, cystic fibrosis and secretory diarrhoeas. In addition, an increasing number of experimental studies has been published concerning the role of ion transports in the pathogenesis of inflammatory diseases, such as infectious diarrhoea or inflammatory bowel disease. Therefore, we believe that it is crucial to accelerate transfer of laboratory findings to clinical application in this field. This international gastrointestinal conference will bring together leading researchers and experts of the field to summarize recent advances in epithelial ion transport in the gastrointestinal tract.

ORGANIZING COMMITTEE

Faculty:

Name	City	Country
ARATÓ, András	Budapest	Hungary
ARGENT, Barry E.	Newcastle	UK
BARRETT, Kim	San Diego, CA	USA
DANIEL, Hannelore	Munich	Germany
DOCKRAY, Graham	Liverpool	UK
DONOWITZ, Mark	Baltimore, MD	USA
GEIBEL, John P.	New Haven, CT	USA
GRAY, Mike A.	Newcastle	UK
HANSSON, Gunnar C.	Gothenburg	Sweden
HEGYI, Péter	Szeged	Hungary
IZBÉKI, Ferenc	Szeged	Hungary
KEELY, Stephen	Dublin	Ireland
LAMPRECHT, Georg	Tübingen	Germany
LÁZÁR, György	Szeged	Hungary
LERCH, Markus M.	Greiswald	Germany
MEDINA, Juan F.	Pamplona	Spain
MUALLEM, Shmuel	Bethesda, MD	USA
PETERSEN, Ole	Cardiff	UK
QUINTON, Paul	San Diego, CA	USA
RAKONCZAY Jr., Zoltán	Szeged	Hungary
SAHIN-TÓTH, Miklós	Boston, MA	USA
SALUJA, Ashok K.	Minneapolis, MN	USA
SEIDLER, Ursula	Hannover	Germany
TAKÁCS, Tamás	Szeged	Hungary
TULASSAY, Zsolt	Budapest	Hungary
VARGA, Gábor	Budapest	Hungary
VARRÓ, Andrea	Liverpool	UK
VERKMAN, Alan	San Francisco, CA	USA
WELLS, Jerry	Wageningen	The Netherlands
WILLIAMS, John	Ann Arbor, MI	USA
WITTMANN, Tibor	Szeged	Hungary
ZSEMBERY, Ákos	Budapest	Hungary

IMMUNOLOGY & INFLAMMATION

FOCUS ON: "Regulatory mechanisms"

Immunology and inflammation play central roles in all fields of medicine. Since the initiation of smallpox vaccination by Jenner, progress in immunology has been enormous. In nearly all human diseases, immunology and inflammation play fundamental roles. This conference provides a unique opportunity to learn about various aspects of immunology and inflammation from some of the world's leading researchers in these fields. Innate and adaptive immunity, immunoregulation, allergy, mediators of inflammation, antigen presentation, immunogenetics, tumor immunology, regenerative inflammatory processes will all be discussed. Special focus will be on the immunity of the gut and skin. Basic, as well as clinical research will be presented.

Faculty:

Name	City	Country
AKDIS, Cezmi	Davos	Switzerland
AKDIS, Mübeccel	Davos	Switzerland
BATA-CSÖRGŐ, Zsuzsanna	Szeged	Hungary
BENGMARK, Stig	London	UK
BÍRÓ, Tamás	Debrecen	Hungary
BOROS, Mihály	Szeged	Hungary
CHAUDRY, Irshad	Birmingham, AL	USA
ERDEI, Anna	Budapest	Hungary
FALUS, András	Budapest	Hungary
HOMEY, Bernhard	Düsseldorf	Germany
KEMÉNY, Lajos	Szeged	Hungary
KLEIN, Georg	Stockholm	Sweden
MÁNDI, Yvette	Szeged	Hungary
MENGER, Michael D.	Homburg (Saarland)	Germany
OKADA, Hidechika	Nagoya City	Japan
OPPENHEIM, Joost J.	Bethesda, MD	USA
PIVARCSI, Andor	Stockholm	Sweden
PRENS, Errol P.	Rotterdam	The Netherlands
RAJNAVÖLGYI, Éva	Debrecen	Hungary
REDL, Heinz	Vienna	Austria
RUZICKA, Thomas	Munich	Germany
STINGL, Georg	Vienna	Austria
SZEGEDI, Andrea	Debrecen	Hungary
VOLLMAR, Brigitte	Rostock	Germany

MOLECULAR BIOLOGY & GENETICS

"Messages from DNA: fingerprints from the past and prospects for the future"

The tremendous progress in molecular biology and genetics during the recent decades made it possible to gain a DNA-based insight into the past of mankind, and has opened up opportunities for the provision of tailor-made personal medicine in the future. The knowledge we acquired through these disciplines has revolutionized our ideas on our past and revealed previously unforeseen possibilities for future exploitation. The „Conference on Molecular Biology and Genetics" will bring together prominent scientists who will present accounts on the most recent advances in the field. Sessions will be devoted to archeogenomics, gene regulation, oncogenomics, translational medicine including topics on stem cells, gene therapy, nanomedicine, monogenic and multifactorial human diseases and their clinical diagnosis, and animal models of human diseases. We are honored and delighted that leading scientists have accepted our invitation for them to share their results and visions with us. We invite all of those who are interested in molecular biology and genetics to take part in this conference, and we look forward to receiving abstracts for free oral and poster presentations.

Faculty:

Name	City	Country
ARIAS, Alfonso Martinez	Cambridge	UK
BANERJEE, Utpal	Los Angeles, CA	USA
BOROS, Imre	Szeged	Hungary
BRÜSTLE, Oliver	Bonn	Germany
CASSIMAN, Jean-Jacques	Leuven	Belgium
CAVAZZANA-CALVO, Marina	Paris	France
CORNEL, Martina C.	Amsterdam	The Netherlands
DAWSON, Kenneth A.	Dublin	Ireland
DINNYÉS, András	Gödöllő	Hungary
DOWNES, Stephen	Coleraine	Northern Ireland
ERDÉLYI, Miklós	Szeged	Hungary
FUXREITER, Mónika	Debrecen	Hungary
GÁSPÁR, Imre	Heidelberg	Germany
JONES, Peter A.	Los Angeles, CA	USA
KALLIONIEMI, Olli	Helsinki	Finland
KATONA, Róbert	Szeged	Hungary
KAUFMAN, Thomas	Bloomington, IN	USA
KOSZTOLÁNYI, György	Pécs	Hungary
MACEK, Milan	Prague	Czech Republic
MELEGH, Béla	Pécs	Hungary
NAGY, László	Debrecen	Hungary

OLÁH, Edit	Budapest	Hungary
OROSZ, László	Budapest	Hungary
PAGANI, Franco	Trieste	Italy
RASKÓ, István	Szeged	Hungary
REUTER, Gunter	Halle	Germany
SARKADI, Balázs	Budapest	Hungary
SCHMIDTKE, Jörg	Hannover	Germany
SCHÜPBACH, Gertrud	Princeton, NJ	USA
SILVA, Alcino J.	Los Angeles, CA	USA
SKUSE, David H.	London	UK
SZABAD, János	Szeged	Hungary
SZALAI, Csaba	Budapest	Hungary
SZÉLL, Márta	Szeged	Hungary
TAKEDA, Shin'ichi	Tokyo	Japan
THANOS, Dimitris	Athens	Greece
TÚRI, Sándor	Szeged	Hungary
UHER, Ferenc	Budapest	Hungary

NEUROSCIENCE

"The world is a construct of sensation, perception, memories."
(Erwin Schrödinger)

A number of neurological and psychiatric disorders lack effective therapies, in which the use of drugs to prevent or reduce disease progression is questionable. Other disorders of the nervous system inflict damage as a result of a single event in time, including stroke, head trauma and spinal cord injury; in these cases, there is a great need for developing effective therapies to restore lost functions. There are diseases, such as multiple sclerosis, in which drugs have been developed to slow disease progression, but there is a great need to improve or restore functions that continue to decline slowly over time. The transplantation of replacement cells into the adult nervous system or targeted delivery of therapeutic genes to areas of ongoing degeneration have received considerable attention over the last years. The next decade is likely to represent a golden era of molecular medicine that will change the landscape of neurological and psychiatric diagnosis and therapy. The European Brain Council (EBC) is a coordinating council formed by European organisations in neurology, neurosurgery, psychiatry, basic neuroscience, as well as patient organisations and industry. EBC has embarked on a major strategy, along with its other activities, to try and make 2014 the European Year of the Brain. It is our great honour that leading neuroscientists have accepted our invitation. We look forward to meeting basic neuroscientists, neurologists, psychiatrists and neurosurgeons in Szeged.

Faculty:

Name	City	Country
ÁDÁM-VIZI, Veronika	Budapest	Hungary
BÁNHEGYI, Gábor	Budapest	Hungary
BARI, Ferenc	Szeged	Hungary
BEAL, Flint	New York, NY	USA
BLAKEMORE, Colin	Oxford	UK
BORNSTEIN, R. Stefan	Dresden	Germany
BUSIJA, David W.	New Orleans, LA	USA
BUZSÁKI, György	Newark, NJ	USA
CONDORELLI, Daniele Filippo	Catania	Italy
CROW, Timothy	Oxford	UK
EDVINSSON, Lars	Lund	Sweden
FREUND, Tamás	Budapest	Hungary
JANCSÓ, Gábor	Szeged	Hungary
JANKA, Zoltán	Szeged	Hungary
MAGYAR, Kálmán	Budapest	Hungary
MIRNICS, Károly	Nashville, TN	USA
MORRIS, Richard	Edinburgh	UK
OLESEN, Jes	Glostrup	Denmark
PALKOVITS, Miklós	Budapest	Hungary
PAULUS, Walter	Göttingen	Germany
PENKE, Botond	Szeged	Hungary
RAKIC, Pasko	New Haven, CT	USA
RIEDERER, Peter	Würzburg	Germany
RIHMER, Zoltán	Budapest	Hungary
SOMOGYI, Péter	Oxford	UK
SZOLCSÁNYI, János	Pécs	Hungary
TAMÁS, Gábor	Szeged	Hungary
VÉCSEI, László	Szeged	Hungary
VIZI, Szilveszter E.	Budapest	Hungary
WOOD, John	London	UK

TUBERCULOSIS EVOLUTION

"ICEPT-2", Past & Present of Tuberculosis: a multidisciplinary overview on the origin and evolution of TB

The recent progresses in the knowledge of the evolutionary biology of tuberculosis necessitate a new synthesis on this topic. Several questions should be addressed, among them: what is the oldest evidence of this infection on human and animal remains? When did specific mutation(s) of the modern strains arise? What was the relative importance of the different pathogenic species of the *Mycobacterium* genus among past populations? Did the pre-contact American TB differ from the Old Word infection? How can we explore the dynamics of the host-pathogen co-evolution in the case of tubercular infection? Can we reconstruct a consensual phylogeny of the *Mycobacterium* genus? What do we know about the evolution of susceptibility/

resistance pattern among human populations? How paleopathology and paleomicrobiology can contribute in the research of the TB evolution? What are the main strategies to brake or to moderate the re-emergence of TB? How can the molecular phylogenetics contribute in these fights?

Fifteen years after the first international "ICEPT" meeting on the evolution of tuberculosis (1997, Szeged, Hungary), a new international conference ("ICEPT-2") will be held in Szeged and will tackle these issues in order to elaborate a new multidisciplinary synthesis on the evolutionary pattern of this human infection. It will facilitate a better understanding of its past, present as well as its possible future. In choosing the exact date of the 2012 TB Evolution Meeting, we have decided to join the Albert Szent-Györgyi's Nobel Prize Award Anniversary Conference Series (23th-25th March 2012) and the 2012 World TB day (24th March 2012) – the 130th anniversary of Robert Koch's discovery.

Faculty:

Name	City	Country
BLONDIAUX, Joël	Walincourt-Selvigny	France
BROSCH, Roland	Paris	France
BUIKSTRA, Jane E. (Co-President)	Tempe, AZ	USA
CHHEM, Rethy K.	Ulm	Germany
COLE, Stewart T. (Co-President)	Lausanne	Switzerland
DAFFE, Mamadou	Toulouse	France
DONOGHUE, Helen D.	London	UK
DUTOUR, Olivier	Bordeaux	France
GICQUEL, Brigitte	Paris	France
HERSHKOVITZ, Israel	Tel Aviv	Israel
JAKAB, Zsuzsanna	Copenhagen	Denmark
KÉRI, György	Budapest	Hungary
MINNIKIN, David E.	Birmingham	UK
MOKROUSOV, Igor	St. Petersburg	Russia
NIEMANN, Stefan	Borstel	Germany
PÁLFI, György	Szeged	Hungary
PALKÓ, András	Szeged	Hungary
PAP, Ildikó	Budapest	Hungary
PERRIN, Pascale	Montpellier	France
RASTOGI, Nalin	Abymes/Guadeloupe	France
RAVIGLIONE, Mario	Geneva	Switzerland
ROBERTS, Charlotte A.	Durham	UK
SANTOS, Ana Luisa	Coimbra	Portugal
SCHMIDT-SCHULTZ, Tyede	Göttingen	Germany
SCHULTZ, Michael	Göttingen	Germany
SOLA, Christophe	Paris	France
SOMFAY, Attila	Szeged	Hungary
SPIGELMAN, Mark	London	UK
SUPPLY, Philip	Lille	France
TESCHLER-NICOLA, Maria	Vienna	Austria
VADÁSZ, Imre	Budapest	Hungary
VAN SOOLINGEN, Dick	Bilthoven	The Netherlands
ZINK, Albert	Bolzano	Italy

Presidents

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UNIVERSITY OF SZEGED

FACULTY OF SCIENCE AND INFORMATICS

Gábor Szabó	Rector of the University of Szeged
László Vécsei	Dean of the Faculty of Medicine

Head Organizers

Péter Hegyi	General Secretary of the Conference
Klára Hernádi	Dean of the Faculty of Science and Informatics
Lajos Kemény	Vice Dean of the Faculty of Medicine
József Pál	Vice Rector of the University of Szeged
András Varró	Vice Rector of the University of Szeged

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Tibor Wittmann,
Albert Zink

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Chairman: András Varró

Members: Péter Ferdinandy – Ágnes Végh – Tamás Forster

GASTROENTEROLOGY

Chairman: Tibor Wittmann

Members: Tamás Takács – Péter Hegyi – Zoltán Rakonczay Jr.– Ferenc Izbéki

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NEUROSCIENCE

Chairman: László Vécsei

Members: Botond Penke – Zoltán Janka – Ferenc Bari – Gábor Jancsó

TUBERCULOSIS EVOLUTION

Chairmen: György Pálfi & Olivier Dutour

Members: András Palkó – Pascale Perrin – Christophe Sola – Attila Somfay – Albert Zink

CONFERENCE OVERVIEW

THURSDAY, 22nd March

	TIK
	12:00–13:00 PRESS CONFERENCE
AFTERNOON PROGRAMME 13:30-17.30	13:30–14:00 OPENING OF THE MEETING
	14:00–15:30 NOBEL SESSION I.
	COFFEE BREAK
	15:50–17:30 NOBEL SESSION II.

The colours in the programme have the following significance:
Main Plenary Programme – Nobel Conference
Cardiology Conference
Gastroenterology Conference
Neuroscience Conference
Immunology & Inflammation Conference
Molecular Biology & Genetics Conference
Tuberculosis Evolution Conference

FRIDAY, 23rd March

	TIK	HOTEL FORRÁS			HOTEL NOVOTEL	IH EVENT CENTRE	HOTEL TISZA
MORNING PROGRAMME 8.30 –12.30	8:30–10:10 NOBEL SESSION III.						
	COFFEE BREAK						
	10:30–11:50 NOBEL SESSION IV.						
	11:50–12:30 POSTER VIEWING I.						
LUNCH BREAK							
AFTERNOON PROGRAMME 13.50 –18.40		13:50–15:45 Novel approaches to cardioprotection	14:00–15:35 Calcium signalling	13:40–15:45 Neuroscience 1.	13:50–15:45 Pathomechanism of inflammation 1.	14:00–15:20 DNA-encoded messages from the past	13:35–15:35 TB Evolution: Opening session
		COFFEE BREAK					
		16:00–17:55 Sudden cardiac death 1.	16:00–18:05 Regulation of GI secretion	16:00–17:55 Neuroscience 2.	16:00–17:55 Pathomechanism of inflammation 2.	15:40–17:50 Translational medicine: gene therapy, stem cells, nano-medicine 1.	16:05–18:15 TB Evolution II: A multidisciplinary approach

SATURDAY, 24th March

VENUE / TIME	TIK	HOTEL FORRÁS			HOTEL NOVOTEL	IH EVENT CENTRE	HOTEL TISZA
MORNING PROGRAMME 8.30 – 12.30	8:30–10:10 NOBEL SESSION V.						
	COFFEE BREAK						
	10:30–11:50 NOBEL SESSION VI.						
	11:50–12:30 POSTER VIEWING II.						
LUNCH BREAK							
AFTERNOON PROGRAMME 13:40 –18.20		13:50–15:45 Sudden cardiac death 2.	14:00–15:45 Regulation of bicarbonate secretion	13:50–15:45 Neuroscience 3.	14:00–15:45 Bridging innate and adaptive immunity	13:40–16:00 Gene regulation, epigenetics	13:35–15:25 World TB Day 1.
		COFFEE BREAK					
		16:00–17:55 The role of nitric oxide in cardioprotection	16:00–17:55 Mucin and water transport, epithelial interactions	16:00–17:45 Neuroscience 4.	16:00–18:00 Host defense mechanisms	16:20–18:05 Translational medicine: gene therapy, stem cells, nano medicine 2.	15:45–17:55 World TB Day 2.

SUNDAY, 25th March

VENUE / TIME	HOTEL FORRÁS			HOTEL NOVOTEL	IH EVENT CENTRE		HOTEL TISZA
MORNING PROGRAMME 8.00 –12.35	8:00–10:10 Sudden cardiac death 3.	8:00–10:20 Intestinal ion transport	8:30–10:15 Neuroscience 5.	8:30–10:15 Tumor immunology	8:00–9:55 Genomics, multifactorial human diseases		8:30–10:25 Paleopathology of TB and mycobacterial infections
	COFFEE BREAK						
	10:25–12:20 Heart failure	10:35–12:20 Pancreatitis	10:35–12:30 Neuroscience 6.	10:35–12:20 Hypersensitivity	10:15–12:00 Oncogenomics		10:40–12:35 Evolution of mycobacteria
LUNCH BREAK							
AFTERNOON PROGRAMME 13:25 –18.00	13:50–15:45 Cardioprotection in the presence of cardiovascular risk factors	13:25–15:45 Clinical Gastroenterology I.	13:45–15:45 Neuroscience 7.	14:00–15:45 Skin inflammation 1.	13:40–15:50 Messages from model organisms 1.	13:40–15:50 Rare diseases, clinical diagnostics 1.	13:30–15:25 Biology of mycobacteria & its applications in TB evolution research
	COFFEE BREAK						
	16:00–18:10 Cardioprotective signalling and oxidative stress	16:00–17:50 Clinical Gastroenterology II.	16:00–18:10 Neuroscience 8.	16:00–17:45 Skin inflammation 2.	16:10–18:05 Messages from model organisms 2.	16:10–17:55 Rare diseases, clinical diagnostics 2.	15:55–18:00 Different approaches to the study of 'paleo-tuberculosis'

SCIENTIFIC PROGRAMME BY DAY

AFTERNOON PROGRAMME **MAIN PLENARY EVENT**

THURSDAY, 22nd MARCH, 2012

(Venue: TIK Main Lecture Hall)

9.00–17:00 **REGISTRATION**

12:00 **PRESS CONFERENCE**

13:30 **OPENING OF THE MEETING**

14:00–15:30 NOBEL SESSION I.

Chairs: Gábor Szabó *(Szeged, Hungary)*, József Pálinkás *(Budapest, Hungary)*

14:00 **DUX, László** *(Szeged, Hungary)*
Biography of Albert Szent-Györgyi awarded the Nobel Prize in Medicine or Physiology in 1937

14:30 **SIES, Helmut** *(Düsseldorf , Germany)*
Albert Szent-Györgyi's research at Woods Hole and the NFCR: A personal recollection

14:40 **Nob1: SAKMANN, Bert** *(Jupiter, FL, USA)*
Introduction: by Ole Petersen (Cardiff, UK)
Cortical columns – if you don't understand the function, focus on the anatomy and get numbers

15:30–15:50 **COFFEE BREAK**

15:50–17:30 NOBEL SESSION II.

Chairs: Gyula Papp *(Szeged, Hungary)*, András Varró *(Szeged, Hungary)*

15:50 **Nob2: DOHERTY, Peter C.** *(Melbourne, Australia)*
Introduction: by Anna Erdei (Budapest, Hungary)
The continuing challenge of virus infections

16:40 **Nob3: WALKER, John E.** *(Cambridge, UK)*
Introduction: by András Varró (Szeged, Hungary)
Biological combustion today

EVENING PROGRAMME:

19:30 **Welcome party (Venue: Szeged National Theatre)**
Hungarian Folkdance Evening and Dinner
For all participants

MORNING PROGRAMME — MAIN PLENARY EVENT

FRIDAY, 23rd MARCH, 2012

(Venue: TIK Main Lecture Hall)

8:30–10:10 NOBEL SESSION III.

Chairs: Gyula Telegdy *(Szeged, Hungary)*, László Vécsei *(Szeged, Hungary)*

8:30 — **Nob4: CIECHANOVER, Aaron** *(Haifa, Israel)*

Introduction: by Shmuel Muallem (Bethesda, USA)

The Ubiquitin Proteolytic System – From Basic Mechanisms through Human Diseases and on to Drug Development

9:20 — **Nob5: SCHALLY, Andrew V.** *(Miami, FL, USA)*

Introduction: by Gyula Telegdy (Szeged, Hungary)

Hypothalamic Hormones: From Neuroendocrinology to Therapy of Cancer and Other Diseases

10:10–10:30 COFFEE BREAK

10:30–11:50 NOBEL SESSION IV.

Chairs: József Pál *(Szeged, Hungary)*, Klára Hernádi *(Szeged, Hungary)*

10:30 — **SZABÓ, Gábor/ORMOS, Pál** *(Szeged, Hungary)*

Introduction of the University of Szeged and the Biological Research Center

11:00 — **Nob6: YONATH, Ada** *(Rehovot, Israel)*

Introduction: by Mónika Fuxreiter (Debrecen, Hungary)

Combating resistance to antibiotics?

11:50–12:30 POSTER VIEWING I.

12:30–13:30 LUNCH BREAK

AFTERNOON PROGRAMME — PARALLEL CONFERENCES

FRIDAY, 23rd MARCH, 2012 — CARDIOLOGY

(Venue: Hotel Forrás)

13:50–15:45 SESSION I. – Novel approaches to cardioprotection

Chairs: Gerd Heusch *(Essen, Germany)*, Péter Ferdinándy *(Budapest, Hungary)*

13:50 — **C1: HEUSCH, Gerd** *(Essen, Germany)*
Remote ishemic preconditioning

14:15 — **C2: HAUSENLOY, Derek** *(London, UK)*
Mitochondrium as the therapeutic target for cardioprotection

14:40 — **C3: SCHULZ, Richard** *(Edmonton, Canada)*
Inhibition of matrix metalloproteinase-2 to protect the heart from oxidative stress injury

15:05 — **C4: ESCHENHAGEN, Thomas** *(Hamburg, Germany)*
Making 3D heart tissues – state of the art and perspectives

15:30 — **O-C1: T. Csont, V. Fekete, P. Bencsik, E. Aypar, Z. Murlasits, M. Sárközy, Z. Varga, P. Ferdinandy** *(Szeged, Hungary)*
Loss of cardioprotection by ischemic postconditioning in vascular nitrate tolerance: role of survival kinas

15:45–16:00 COFFEE BREAK

16:00–17:55 SESSION II. – Sudden cardiac death 1.

Chairs: Charles Antzelevitch *(Utica, NY, USA)*, Béla Merkely *(Budapest, Hungary)*

16:00 — **C5: ANTZELEVITCH, Charles** *(Utica, NY, USA)*
J wave syndromes as a cause of sudden cardiac death. From cell to bedside

16:25 — **C6: CERBAI, Elisabetta** *(Florence, Italy)*
Arrhythmogenic alterations in familial hypertrophic cardiomyopathy: molecular and functional evidence

16:50 — **C7: WILDE, Arthur** *(Amsterdam, The Netherlands)*
Sudden cardiac death, a matter of genes?

17:15 — **C8: MERKELY, Béla** *(Budapest, Hungary)*
Arrhythmogenic substrate of life threatening arrhythmias

15:40 — **O-C2: R. M. ter Bekke, K. H. Haugaa, A. van den Wijngaard, T. Edvardsen, P. G. Volders** *(Maastricht, The Netherlands)*
Electro-mechanical window is profoundly negative in genotyped long-QT patients: relation to arrhythmogenic risk

FRIDAY, 23rd MARCH, 2012 — GASTROENTEROLOGY

(Venue: Hotel Forrás)

14:05–15:35 SESSION I. – Calcium signalling

Chairs: Péter Hegyi *(Szeged, Hungary)*, Shmuel Muallem *(Bethesda, MD, USA)*

14:05 **Opening of the GI Epithelial Conference**

14:15 **G1: PETERSEN, Ole** *(Cardiff, UK)*
Calcium signalling in the gastrointestinal tract

14:40 **G2: MUALLEM, Shmuel** *(Bethesda, MD, USA)*
Mechanism of epithelial HCO_3^- secretion

15:05 **O-G1: J. Maléth, Z. Rakonczay Jr., V. Venglovecz, C. Orosz, P. Hegyi** *(Szeged, Hungary)*
Non-oxidative ethanol metabolites induce intracellular ATP depletion and inhibit pancreatic ductal bicarbonate secretion in human pancreatic epithelial cell line

15:20 **O-G2: P. Ferdek, J. Gerasimenko, O. Petersen, O. Gerasimenko** *(Cardiff, UK)*
A novel role for Bcl-2 in regulation of cellular calcium extrusion

15:45–16:00 COFFEE BREAK

16:00–18:05 SESSION II. – Regulation of GI secretion

Chairs: Ole Petersen *(Cardiff, UK)*, Graham Dockray *(Liverpool, UK)*

16:00 **G3: DOCKRAY, Graham** *(Liverpool, UK)*
Regulatory peptides and gastric epithelial cell function

16:25 **G4: WILLIAMS, John** *(Ann Arbor, MI, USA)*
Regulating the supply of pancreatic enzymes for digestion

16:50 **G5: VARRÓ, Andrea** *(Liverpool, UK)*
Making sense of stroma

17:15 **G6: BARRETT, Kim** *(San Diego, CA, USA)*
Pathophysiology of intestinal epithelial barrier and transport functions: implications for infectious and inflammatory disease states

17:40 **G7: DANIEL, Hannelore** *(Münich, Germany)*
Intestinal peptide transporters – what are they good for?

FRIDAY, 23rd MARCH, 2012 — IMMUNOLOGY & INFLAMMATION

(Venue: Hotel Novotel)

13:50–15:45 SESSION I. – Pathomechanism of inflammation 1.

Chairs: Hidechika Okada *(Nagoya City, Japan)*, László Vígh *(Szeged, Hungary)*

13:50 — **I1: OKADA, Hidechika** *(Nagoya City, Japan)*
Peptide therapy in sepsis and inflammation: A novel strategy to suppress inflammation

14:15 — **I2: BENGMARK, Stig** *(London, UK)*
Gut microbiota and immune development and function

14:40 — **I3: BÍRÓ, Tamás** *(Debrecen, Hungary)*
The role of endocannabinoids in the regulation of inflammation

15:05 — **I4: CHAUDRY, Irshad** *(Birmingham, AL, USA)*
Sex steroids and receptor antagonists for improving immune functions and decreasing mortality from sepsis following trauma-hemorrhage

15:30 — **O-I1: M. A., Deli** *(Szeged, Hungary)*
Bacterial lipopolysaccharides damage defense mechanisms at the blood-brain barrier

15:45–16:00 COFFEE BREAK

16:00–17:55 SESSION II. – Pathomechanism of inflammation 2.

Chairs: Mihály Boros *(Szeged, Hungary)*, Brigitte Vollmar *(Rostock, Germany)*

16:00 — **I5: REDL, Heinz** *(Wien, Austria)*
Individualized goal-directed therapy for trauma-induced coagulopathy

16:25 — **I6: VOLLMAR, Brigitte** *(Rostock, Germany)*
Hepatic ischemia-reperfusion injury: pathomechanisms and therapeutic strategies

16:50 — **I7: MENGER, Michael D.** *(Homburg, Germany)*
Vascularization in tissue engineering: angiogenesis versus inosculation

17:15 — **I8: BOROS, Mihály** *(Szeged, Hungary)*
Hypoxia-induced non-microbial methane generation: mechanism and significance

17:40 — **O-I2: L. Entz, E. Dósa, G. Széplaki, A. Szabó, G. Füst.** *(Budapest, Hungary)*
The role of inflammation factors in the development of restenosis after carotid endarterectomy

FRIDAY, 23rd MARCH, 2012 — MOLECULAR BIOLOGY & GENETICS

(Venue: IH Event Center)

14:00–15:20 SESSION I. – DNA-encoded messages from the past

Chairs: Stephen Downes *(Coleraine, Ireland)*, Márta Széll *(Szeged, Hungary)*

14:00 — **Welcome notes**

14:05 — **BALÁZS, Anna** *(Budapest, Hungary)*
The power of personalization (sponsored lecture by Roche)

14:15 — **M1: DOWNES, Stephen** *(Coleraine, Northern Ireland)*
Origins of human populations

14:40 — **M2: RASKÓ, István** *(Szeged, Hungary)*
Archeogenetics; to study the Hungarian past

15:05 — **O-M1: D. Nagy, G. Tömöry, B. Csányi, E. Bogácsi-Szabó, I. Raskó** *(Szeged, Hungary)*
Genetic testing of adult-type hypolactasia in present-day and archaic samples

15:20–15:40 COFFEE BREAK

15:40–17:50 SESSION II.
Translational medicine: gene therapy, stem cells, nanomedicine

Chairs: László Dux *(Szeged, Hungary)*, Gyula Hadlaczky *(Szeged, Hungary)*

15:40 — **M3: DAWSON, Kenneth A.** *(Dublin, Ireland)*
Foundation principles of interactions of nanoparticles with cells and biological barriers (including the blood brain barrier)

16:05 — **M4: CAVAZZANA-CALVO, Marina** *(Paris, France)*
Gene therapy for inherited diseases of the hematopoietic system: from bench to the bedside

16:30 — **M5: BRÜSTLE, Oliver** *(Bonn, Germany)*
Stem cell-based models of neurodegenerative disease

16:55 — **M6: PAGANI, Franco** *(Trieste, Italy)*
The pathology of pre-mRNA splicing: mechanistic aspects and development of novel therapeutic correction strategies

17:20 — **O-M2. T. Juhász, É. Katona, C. Matta, C. Somogyi, R. Takács, E. Szentléleky, Á. Radvánszki, P. Kiss, G. Tóth, A. Tamás, D. Regldi, R. Zákány** *(Debrecen, Hungary)*
Effects of PACAP on chondrogenesis in high density mesenchymal cell cultures

17:35 — **O-M3: Z. Simandi, B. L. Balint, L. Nagy** *(Debrecen, Hungary)*
Prmt1 and 8 control cell fate specification of differentiating embryonic stem cells via selectively tuning retinoid-induced gene expression

FRIDAY, 23rd MARCH, 2012 — NEUROSCIENCE

(Venue: Hotel Forrás)

13:40–15:45 SESSION I. – Neuroscience 1.

Chairs: Kálmán Magyar *(Budapest, Hungary)*, László Vécsei *(Szeged, Hungary)*

13:40 — **N1: RIEDERER, Peter** *(Würzburg, Germany)*
The lateralized brain in Parkinson's Disease

14:05 — **N2: BEAL, Flint** *(New York, NY, USA)*
Mitochondria in the pathogenesis of neurodegenerative diseases

14:30 — **N3: ÁDÁM-VIZI, Veronika** *(Budapest, Hungary)*
Metabolic enzyme mutations and oxidative stress in mitochondrial diseases

14:55 — **N4: MAGYAR, Kálmán** *(Budapest, Hungary)*
The pharmacology of selegiline; past, present, future?

15:20 — **N5: VÉCSEI, László** *(Szeged, Hungary)*
Neurological disorders and kynurenines: future therapeutic possibilities

15:45–16:00 COFFEE BREAK

16:00–17:55 SESSION II. – Neuroscience 2.

Chairs: Zoltán Janka *(Szeged, Hungary)*, Botond Penke *(Szeged, Hungary)*

16:00 — **N6: MIRNICS, Károly** *(Nashville, TN, USA)*
Gaba-ergic dysfunction in schrizophrenia: from postmortem studies to animal models

16:25 — **N7: RIHMER, Zoltán** *(Budapest, Hungary)*
Recent advances in suicide prevention – The role of psychopharmacology

16:50 — **N8: JANKA, Zoltán** *(Szeged, Hungary)*
Biological psychiatry research in Szeged

17:15 — **N9: PENKE, Botond** *(Szeged, Hungary)*
The role of intrinsically disordered proteins (IDPs) in neurodegenerative diseases

17:40 — **O-N1: M. J. Molnár** *(Budapest, Hungary)*
New trends in the clinical neurosciences

FRIDAY, 23rd MARCH, 2012 — TUBERCULOSIS EVOLUTION

(Venue: Hotel Tisza)

13:35–15:35 SESSION I. – TB Evolution: Opening session

Chairs: Jane E. Buikstra *(Tempe, AZ, USA)*, Dick van Soolingen *(Bilthoven, The Netherlands)*

13:35 — **Welcome addresses – (From ICEPT to ICEPT-2) – György Pálfi, Olivier Dutour**

13:45 — **T1: BUIKSTRA, Jane E. –** Co-President *(Tempe, AZ, USA)*
A tuberculosis: the intersection of ancient evidence and contemporary strain variation

14:15 — **T2: SPIGELMAN, Mark** *(London, UK)*
Evolutionary changes in the genome of *Mycobacterium tuberculosis* (Mtb) and the human genome from 9000 years BP until modern times

14:40 — **T3: VAN SOOLINGEN, Dick** *(Bilthoven, The Netherlands)*
The evolutionary development of *Mycobacterium tuberculosis* Beijing genotype strains and worldwide emergence of resistance

15:05 — **O-T1: J. Bryant, A. Schürch, H. van Deutekom, V. de Jager, S. Harris, K. Kremer, J. de Beer, S. van Hijum, R. Siezen, M. S. van der Loeff, M. Borgdorff, S. Bentley, J. Parkhill, D. van Soolingen** *(Hinxton, UK)*
Whole genome sequencing of 199 *Mycobacterium tuberculosis* isolates reveals an absence of a molecular clock over short time scales

15:20 — **O-T2: F. Maixner, N. Nicklisch, R. Ganslmeier, S. Friederich, V. Dresely, H. Meller, C. Sola, K. W. Alt, A. Zink** *(Bolzano, Italy)*
Tuberculosis at the onset of agriculture in central Germany

15:35–16:05 COFFEE BREAK

16:05–18:15 SESSION II. – TB Evolution: A multidisciplinary approach

Chairs: Albert Zink *(Bolzano, Italy)*, Philip Supply *(Lille, France)*

16:05 — **T4: ZINK, Albert** *(Bolzano, Italy)*
Evolution of tuberculosis in ancient mummies and skeletons

16:30 — **T5: PERRIN, Pascale** *(Montpellier, France)*
Tuberculosis: molecular and epidemiological insight – What can ancient human remains tell us?

16:55 — **T6: SOLA, Christophe** *(Paris, France)*
CRISPR genetic diversity studies as a mean to reconstitute the evolution of the *Mycobacterium tuberculosis* complex

17:20 — **T7: SUPPLY, Philip** *(Lille, France)*
A glimpse of the early evolution of the tubercle bacillus

17:45 — **O-T3: K. Manchester, S. Wood, C. A. Roberts** *(Durham, UK)*
Stannington sanatorium for TB children

18:00 — **O-T4: J. Eddy** *(Cambridge, UK)*
The city of Rome, its empire, and the spread of tuberculosis in Europe

EVENING PROGRAMME:

19:30 — **Faculty evening – Hosted by the Mayor (by invitation only)**
(Venue: City Hall)

AFTERNOON PROGRAMME — MAIN PLENARY EVENT

SATURDAY, 24th MARCH, 2012

(Venue: TIK Main Lecture Hall)

8:30–10:10 NOBEL SESSION V.

Chairs: Attila Dobozy *(Szeged, Hungary)*, Lajos Kemény *(Szeged, Hungary)*

8:30 — **Nob7: HUNT, Tim** *(South Mimms, UK)*

Introduction: by János Szabad (Szeged, Hungary)

Switches and Latches: The Control of Entry into Mitosis

9:20 — **Nob8: HUBER, Robert** *(Essen, Germany)*

Introduction: by Lajos Kemény (Szeged, Hungary)

Intracellular proteolysis, structures, molecular mechanisms, and drug design

10:10–10:30 COFFEE BREAK

10:30–11:50 NOBEL SESSION VI.

Chairs: Ferenc Fülöp *(Szeged, Hungary)*, Imre Dékány *(Szeged, Hungary)*

10:30 — **BOGSCH, Erik** *(Budapest, Hungary)*

A hundred-year of pharmaceutical manufacturing in Hungary: The importance of medical chemistry

11:00 — **Nob9: WIESCHAUS, Eric** *(Princeton, NJ, USA)*

Introduction: by János Szabad (Szeged, Hungary)

Measuring time and space in early embryonic development

11:50–12:30 POSTER VIEWING II.

12:30–13:30 LUNCH BREAK

AFTERNOON PROGRAMME — PARALLEL CONFERENCES

SATURDAY, 24th MARCH, 2012 — CARDIOLOGY

(Venue: Hotel Forrás)

13:35–15:45 SESSION III. – Sudden cardiac death 2.

Chairs: Mark A. Vos *(Utrecht, The Netherlands)*, Ursula Ravens *(Dresden, Germany)*

13:35 — **C9: VOS, Mark A.** *(Utrecht, The Netherlands)*
Beat-to-beat variability of ventricular repolarization: biomarker to quantify repolarization reserve?

14:00 — **C10: VOLDERS, Paul** *(Maastricht, The Netherlands)*
Cardiac repolarization and arrhythmogenesis during sympathetic nervous stimulation

14:25 — **C11: VARRÓ, András** *(Szeged, Hungary)*
Possible mechanisms of sudden cardiac death in top athletes: a basic cardiac electrophysiological point of view

14:50 — **C12: NÁNÁSI, Péter** *(Debrecen, Hungary)*
Reverse rate-dependent character of action potential duration changes is a genuine property of the myocardium

15:15 — **O-C3: Z. Husti, I. Baczkó, V. Juhász, L. Virág, A. Kristóf, I. Koncz, T. Szél, N. Jost, J. G. Papp, A. Varró** *(Szeged, Hungary)*
The possible proarrhythmic effects of diclofenac

15:30 — **O-C4: A. Zaza** *(Milano, Italy)*
Catecholamines, rate and repolarization. Can we make a complex story simpler?

15:45–16:00 COFFEE BREAK

16:00–17:55 SESSION IV.

The role of nitric oxide in cardioprotection: From the molecule to therapy

Chairs: David Lefer *(Atlanta, GA, USA)*, Ágnes Végh *(Szeged, Hungary)*

16:00 — **C13: MURPHY, Elisabeth** *(Bethesda, MD, USA)*
Role of S-nitrosylation in cardioprotection

16:25 — **C14: PERNOW, John** *(Stockholm, Sweden)*
The importance of arginase as a regulator of NO availability: implications for myocardial ischemia-reperfusion injury

16:50 — **C15: VÉGH, Ágnes** *(Szeged, Hungary)*
Nitrite therapy against acute ischaemia and reperfusion-induced ventricular arrhythmias

17:15 — **C16: LEFER, David** *(Atlanta, GA, USA)*
Cardioprotective actions of hydrogen sulfide

17:40 — **O-C5: A. Görbe, J. Pálóczi, Z. Varga, M. Pirity, A. Dinnyés, T. Eschenhagen, T. Csont, P. Ferdinandy** *(Szeged, Hungary)*
The effect of cardioprotective agents (SNAP, BNP) against simulated ischemia/reoxygenation injury in mouse embryonic stem cell-derived cardiomyocytes

SATURDAY, 24th MARCH, 2012 — GASTROENTEROLOGY

(Venue: Hotel Forrás)

14:00–15:45 SESSION III. – Regulation of bicarbonate secretion

Chairs: Viktória Venglovecz *(Szeged, Hungary)*, Barry Argent *(Newcastle, UK)*

14:00 — **G8: GRAY, Mike A.** *(Newcastle, UK)*
The role of CFTR in pancreatic ductal bicarbonate secretion

14:25 — **G9: SEIDLER, Ursula** *(Hannover, Germany)*
Molecular regulation and physiological functions of intestinal bicarbonate transport

14:50 — **G10: ZSEMBERY, Ákos** *(Budapest, Hungary)*
The role of CFTR in bicarbonate secretion by biliary epithelia

15:15 — **O-G3: P. Pallagi, A. Kumar Singh, V. Venglovecz, R. Engelhardt, B. Riederer, T. Takács, T. Wittmann, U. Seidler, Z. Rakonczay Jr.** *(Szeged, Hungary)*
Na^+/H^+ exchanger regulatory factor-1 mediates pancreatic ductal fluid and bicarbonate secretion by affecting cystic fibrosis transmembrane conductance regulator localization in mice

15:30 — **O-G4: É. Pallagi-Kunstár, K. Farkas, Z. Rakonczay Jr., F. Nagy, T. Molnár, Z. Szepes, V. Venglovecz, Z. Rázga, J. Maléth, K. Orbán, K. Tóth, T. Wittmann, P. Hegyi** *(Szeged, Hungary)*
Non-conjugated bile acids induce ATP depletion, mitochondrial damage and inhibit the ion transport mechanisms in human colonic crypts

15:45–16:00 COFFEE BREAK

16:00–17:55 SESSION IV. – Mucin and water transport, epithelial interactions

Chairs: Mike Gray *(Newcastle, UK)*, Kim Barett *(San Diego, CA, USA)*

16:00 — **G11: QUINTON, Paul** *(San Diego, CA, USA)*
Normal mucin formation requires bicarbonate

16:25 — **G12: HANSSON, Gunnar C.** *(Gothenburg, Sweden)*
The two mucus layers organized by the MUC2 mucin and their relation to colon inflammation

16:50 — **G13: VERKMAN, Alan** *(San Francisco, CA, USA)*
New approaches for therapy of secretory diarrheas in developing countries

17:15 — **G14: WELLS, Jerry** *(Wageningen, The Netherlands)*
Microbe-epithelial signalling in the intestinal tract

17:40 — **O-G5: V. Venglovecz, L. V. Kemény, Z. Rakonczay Jr., I. Dékány, Á. Zvara, L. Puskás, A. Verkman, P. Hegyi** *(Szeged, Hungary)*
The effects of pancreatitis-inducing factors on ductal fluid secretion

SATURDAY, 24th MARCH, 2012 — IMMUNOLOGY & INFLAMMATION

(Venue: Hotel Novotel)

14:00–15:45 SESSION III. – Bridging innate and adaptive immunity

Chairs: Anna Erdei *(Budapest, Hungary)*, Éva Rajnavölgyi *(Debrecen, Hungary)*

14:00 — **I9: HUBER, Robert** *(Essen, Germany)*
Antibodies and antibody receptors, structures and application for therapy

14:25 — **I10: ERDEI, Anna** *(Budapest, Hungary)*
Complement – bridging innate and adaptive immunity

14:50 — **I11: RAJNAVÖLGYI, Éva** *(Debrecen, Hungary)*
The interplay of signalling cascades initiated by membrane and cytosolic pattern recognition receptors in human dendritic cells

15:15 — **O-I3: P. Gál, D. Héja, A. Kocsis, K. Szilágyi, J. Dobó, P. Závodszky, G. Pál** *(Budapest, Hungary)*
Deciphering the mechanism of the complement lectin pathway activation

15:30 — **O-I4: K. Juhász, Á. Zvara, A. Sonnleitner, Z. Balogi, E. Duda** *(Szeged, Hungary)*
Ckip-1 interferes with TNF reverse signaling

15:45–16:00 COFFEE BREAK

16:00–18:00 SESSION IV. – Host defense mechanisms

Chairs: Yvette Mándi *(Szeged, Hungary)*, Joost J. Oppenheim *(Bethesda, MD, USA)*

16:00 — **I12: OPPENHEIM, Joost J.** *(Bethesda, MD ,USA)*
Proinflammatory alarmins promote host defense proteins

16:25 — **I13: KEMÉNY, Lajos** *(Szeged, Hungary)*
The role of immunological factors in the pathogenesis of acne

16:50 — **I14: MÁNDI, Yvette** *(Szeged, Hungary)*
Relevance of defensins in multifactorial diseases

17:15 — **O-I5: E. Klein** *(Stockholm, Sweden)*
Our equilibrated coexistence with the life endangering Epstein Barr virus, EBV

17:30 — **O-I6: F. Banati, T. Tereh, A. Koroknai, N. Kovacs, Z. Ruzics, F. Lemnitzer, J. Minarovits** *(Budapest, Hungary)*
Epigenetic regulation of the lamin a/c promoter in EBV-positive B cell lines

17:45 — **O-I7: D. P. Virok, K. Filkor, T. Mosolygo, A. Bogdanov, K. Burian, V. Endresz, J. Deak, I. Nagy** *(Szeged, Hungary)*
mRNA sequencing of the *Chlamydia trachomatis* infected and interferon-gamma treated human neutrophil granulocyte transriptom

SATURDAY, 24th MARCH, 2012 — MOLECULAR BIOLOGY & GENETICS

(Venue: IH Event Center)

13:40–16:00 SESSION III. – Gene regulation, epigenetics

Chairs: Pál Venetianer *(Szeged, Hungary)*, Tibor Török *(Szeged, Hungary)*

13:40 — **M7: EMBO Lecture: THANOS, Dimitris** *(Athens, Greece)*
Mechanisms of stochastic gene expression

14:05 — **M8: NAGY, László** *(Debrecen, Hungary)*
Nuclear receptors link lipid metabolism to genome expression

14:30 — **M9: SILVA, Alcino J.** *(Los Angeles, CA, USA)*
Molecular and cellular mechanisms of memory allocation in neuronal networks

14:55 — **M10: BOROS, Imre** *(Szeged, Hungary)*
Histone acetyltransferases affect transcription through diverse mechanisms

15:20 — **M11: FUXREITER, Mónika** *(Debrecen, Hungary)*
Fuzzy complexes: ambiguity in protein interactions

15:45 — **O-M4: É. Margittai, P. Löw, I. Stiller, R. Sitia, G. Bánhegyi** *(Budapest, Hungary)*
Hydrogen peroxide, a prooxidant in oxidative protein folding

16:00–16:20 COFFEE BREAK

16:20–18:05 SESSION IV.
Translational medicine: gene therapy, stem cells, nanomedicine 2.

Chairs: András Dinnyés *(Gödöllő, Hungary)*, Lajos Haracska *(Szeged, Hungary)*

16:20 — **M12: UHER, Ferenc** *(Budapest, Hungary)*
The identity, plasticity, and therapeutic potential of mesenchymal stem cells

16:45 — **M13: TAKEDA, Shin'ichi** *(Tokyo, Japan)*
Advances in molecular and cell therapy of Duchenne muscular dystrophy

17:10 — **M14: SARKADI, Balázs** *(Budapest, Hungary)*
Membrane transporters and calcium signaling in human pluripotent stem cells

17:35 — **O-M5: B. Gyurcsik, A. Czene, E. Németh, I. G. Zóka, E. Endreffy, H. E. M. Christensen, K. Nagata** *(Szeged, Hungary)*
Targeting the breakpoint in Duchenne muscular dystrophy

17:50 — **O-M6: B. Hegyi, Z. Környei, G. Kudlik, E. Madarász, F. Uher** *(Budapest, Hungary)*
Anti-inflammatory effects of mouse mesenchymal stem cells on microglia

SATURDAY, 24th MARCH, 2012 — NEUROSCIENCE

(Venue: Hotel Forrás)

13:50–15:45 SESSION III. – Neuroscience 3.

Chairs: Gábor Tamás *(Szeged, Hungary)*, György Buzsáki *(Newark, NJ, USA)*

13:50 — **N10: BUZSÁKI, György** *(Newark, NJ, USA)*
Brain rhythms and cell assembly sequences

14:15 — **N11: MORRIS, Richard** *(Edinburgh, UK)*
The making, keeping and loosing of memories

14:40 — **N12: CONDORELLI, Daniele Filippo** *(Catania, Italy)*
Distribution and function of neuronal gap junctions in the mammalian brain

15:05 — **N13: TAMÁS, Gábor** *(Szeged, Hungary)*
Unitary volume transmission by neurogliaform cells: broadening the functional scope of single neurons

15:30 — **O-N2: B. Rózsa, G. Katona, G. Szalay, P. Maák, A. Kaszás, M. Veress, D. Hillier, B. Chiovini, E. S. Vizi, B. Roska** *(Budapest, Hungary)*
Fast two-photon in vivo imaging with three-dimensional random-access scanning in large tissue volumes

15:45–16:00  **COFFEE BREAK**

16:00–17:45 SESSION IV. – Neuroscience 4.

Chairs: Gyula Telegdy *(Szeged, Hungary)*, Veronika Ádám-Vizi *(Budapest, Hungary)*

16:00 — **N14: FREUND, Tamás** *(Budapest, Hungary)*
Functional roles of endocannabinoid signaling in the cerebral cortex

16:25 — **N15: RAKIC, Pasko** *(New Haven, CT, USA)*
Making maps of the mind: molecular mechanisms of neuronal migration

16:50 — **N16: PAULUS, Walter** *(Göttingen, Germany)*
Modulating human cortical excitability by transcranial stimulation

17:15 — **O-N3: G. Szalai, J. Crossland** *(Columbia, SC, USA)*
The peromyscus audiogenic seizure model

17:30 — **O-N4: Z. T. Kincses, N. Szabó, I. Valálik, Z. Kopniczky, L. Dézsi, P. Klivényi, M. Jenkinson, A. Király, M. Babos, E. Vörös, P. Barzó, L. Vécsei** *(Szeged, Hungary)*
Tractography guided target identification for thalamotomy

SATURDAY, 24th MARCH, 2012 — TUBERCULOSIS EVOLUTION

(Venue: Hotel Tisza)

13:35–15:25 SESSION III. – World TB Day 1.

Chairs: Stewart T. Cole *(Lausanne, Switzerland)*, Zsuzsanna Jakab *(Copenhagen, Denmark)*

13:35 — **T8: COLE, Stewart T.** – Co-President *(Lausanne, Switzerland)*
The evolution of *M. tuberculosis* research since Robert Koch's discovery

14:05 — **T9: JAKAB, Zsuzsanna** *(Copenhagen, Denmark)*
Regional action plan to prevent and combat M/XDR-TB

14:30 — **T10: LIENHARDT, Christian and RAVIGLIONE, Mario** *(Geneva, Switzerland)*
TB in 2012: burden, strategies and research needs

14:55 — **O-T5: A. Somoskövi** *(Geneva, Switzerland)*
Novel laboratory diagnostic tests for tuberculosis and their potential role in an integrated and tiered laboratory network

15:10 — **O-T6: K. Horváti, B. Bacsa, N. Szabó, K. Fodor, G. Balka, M. Rusvai, G. Mező, V. Grolmusz, B. Vértessy, F. Hudecz, S. Bősze** *(Budapest, Hungary)*
Antimycobacterial activity of pyridopyrimidine derivatives against *Mycobacterium tuberculosis* in a series of *in vitro* and *in vivo* models

15:25–15:45 **COFFEE BREAK**

15:45–17:55 SESSION IV. – World TB Day 2.

Chairs: Nalin Rastogi *(Abymes, France/Guadeloupe)*, Helen D. Donoghue *(London, UK)*

15:45 — **T11: RASTOGI, Nalin** *(Abymes, Guadeloupe/France)*
Tuberculosis – a global emergency: tools and methods to monitor, understand and control the epidemic

16:10 — **T12: VADÁSZ, Imre** *(Budapest, Hungary)*
TB in Hungary in the 20th and 21st centuries

16:35 — **T13: KÉRI, György** *(Budapest, Hungary)*
Leads selection and characterization of antitubercular compounds using a Nested Chemical Library of kinase inhibitors

17:00 — **T14: DONOGHUE, Helen D.** *(London, UK)*
Ancient DNA analysis – an established technique in charting the evolution of tuberculosis and leprosy

17:25 — **O-T7: M. Masson, E. Molnár, H. D. Donoghue, D. Minnikin, O.Y. Lee, G. Pálfi** *(Edinburgh, Scotland)*
7000-year-old tuberculosis cases from Hungary – osteological and biomolecular evidence

17:40 — **O-T8: S. Pfeiffer, O. Dutour** *(Toronto, Canada)*
Tuberculous skeletal lesions among precontact longhouse people of the North American Great Lakes

EVENING PROGRAMME:

20:30 **Organ Concert (Venue: Synagogue)**
For all participants

AFTERNOON PROGRAMME — PARALLEL CONFERENCES

SUNDAY 25th MARCH, 2012 — **CARDIOLOGY**

(Venue: Hotel Forrás)

8:00–10:10 SESSION V. – Sudden cardiac death 3.

Chairs: Karin Sipido *(Leuven, Belgium)*, David Eisner *(Manchester, UK)*

8:00 — **C17: RAVENS, Ursula** *(Dresden, Germany)*
Heart failure and arrhythmias

8:25 — **C18: EISNER, David** *(Manchester, UK)*
Calcium in the heart: in and out of control

8:50 — **C19: SIPIDO, Karin** *(Leuven, Belgium)*
Activation of Na/Ca exchange current in microdomains near calcium release sites.

9:15 — **C20: TÓSAKI, Árpád** *(Debrecen, Hungary)*
The role of carbon monoxide signalling in biological processes mediated by hemeoxygenase-1

9:40 — **O-C6: L. Lu, M. Mende, H. Körber, C. Werner, U. Ravens** *(Dresden, Germany)*
Design and validation of a cyclic stretch bioreactor system for simulating the cardiac environment

9:55 — **O-C7: A. Farkas, F. Rárosi, M. Szucs, D. Vincze, T. Forster, A. Varró, A. S. Farkas** *(Szeged, Hungary)*
An increase in the 'absolute' beat-to-beat variability and instability of the ECG intervals predicts dofetilide-induced torsades de pointes independently from the applied anaesthetic in rabbits, in vivo

10:10–10:25 COFFEE BREAK

10:25–12:20 SESSION VI. – Heart failure

Chairs: Burkert Pieske *(Graz, Austria)*, Tamás Forster *(Szeged, Hungary)*

10:25 — **C21: FORSTER, Tamás** *(Szeged, Hungary)*
Experimental and clinical studies in cardiomyopathies

10:50 — **C22: ÉDES, István** *(Debrecen, Hungary)*
Levosimendan the cardioprotective inodilator

11:15 — **C23: PAPP, Zoltán** *(Debrecen, Hungary)*
Oxidative myofilament protein alterations in the postischemic heart

11:40 — **C24: PIESKE, Burkert** *(Graz, Austria)*
Diastolic heart failure – From pathophysiology to new therapeutic options

12:05 — **O-C8: A. Pósafalvi, C. Weidijk, P. A. van der Zwaag, L. G. Boven, M. P. van den Berg, R. A. de Boer, R. M. Hofstra, J. P. van Tintelen, R. J. Sinke, J. D. Jongbloed** *(Groningen, The Netherlands)*
Mutation screening and functional characterisation of RNA-binding motif protein 20 in dilated cardiomyopathy

SUNDAY 25th MARCH, 2012 — GASTROENTEROLOGY

(Venue: Hotel Forrás)

8:00–10:20 SESSION V. – Intestinal ion transport

Chairs: Ursula Seidler *(Hannover, Germany)*, Barry Argent *(Newcastle, UK)*

8:00 — **G15: LAMPRECHT, Georg** *(Tübingen, Germany)*
Intestinal NaCl absorption – the anion exchanger DRA and its interaction with PDZ adapter proteins

8:25 — **G16: MEDINA, Juan F.** *(Pamplona, Spain)*
Role of AE2 in the pathogenesis of primary biliary cirrhosis

8:50 — **G17: VARGA, Gábor** *(Budapest, Hungary)*
Evidence for electrolyte transport of two-dimensional salivary gland engineered from human submandibular tissue

9:15 — **G18: DONOWITZ, Mark** *(Baltimore, MD, USA)*
Regulation of NHE3: a story of signalling complexes and cytoskeleton

9:40 — **G19: KEELY, Stephen** *(Dublin, Ireland)*
Targeting bile acids for treatment of intestinal transport disorders

10:05 — **O-G6: S. Yeruva, J. Goldstein, M. Lünnemann, M. Chen, A. Singh, A. Cinar, M. Luo, G. Chodisetti, L. Ludolph, M. Juric, O. Bachmann, B. Riederer , A. Bleich, M. Gereke, D. Bruder, M. P. Manns, U. Seidler** *(Hannover, Germany)*
Inflammatory cytokines downregulate the Na^+/H^+ exchanger 3 (NHE3) interacting pdz domain protein PDZK1 in ulcerative colitis patients, colitis mice and in Caco2BBE cells: link to inflammation-associated NHE3 dysfunction

10:20–10:35 COFFEE BREAK

10:35–12:20 SESSION VI. – Pancreatitis

Chairs: László Hunyady *(Budapest, Hungary)*, John Williams *(Ann Arbor, MI, USA)*

10:35 — **G20: SALUJA, Ashok K.** *(Minneapolis, MN, USA)*
The cell biology of pancreatitis

11:00 — **G21: RAKONCZAY Jr., Zoltán** *(Szeged, Hungary)*
Early intraacinar events in the pathophysiology of acute pancreatitis

11:25 — **G22: HEGYI, Péter** *(Szeged, Hungary)*
The pathophysiology of pancreatic ductal bicarbonate secretion

11:50 — **O-G7: M. Sahin-Tóth, A. Szabó** *(Boston, MA, USA)*
On the mechanism of hereditary chronic pancreatitis

12:05 — **O-G8: J. V. Gerasimenko, P. E. Ferdek, O. V. Gerasimenko, O. H. Petersen** *(Cardiff, UK)*
Protective role of calmodulin in alcohol-induced trypsinogen activation

SUNDAY 25th MARCH, 2012 — IMMUNOLOGY & INFLAMMATION

(Venue: Hotel Novotel)

8:30–10:15 SESSION V. – Tumor immunology

Chairs: Georg Stingl *(Vienna, Austria)*, Zsuzsanna Bata-Csörgő *(Szeged, Hungary)*

8:30 — **I15: KLEIN, Georg** *(Stockholm, Sweden)*
Tumor resistance

8:55 — **I16: STINGL, Georg** *(Wien, Austria)*
Langerhans cells: new faces – new functions

9:20 — **I17: HOMEY, Bernhard** *(Düsseldorf, Germany)*
Chemokines: from inflammation to metastasis

9:45 — **O-I8: E. Emri, G. Emri, K. Egervari, I. Veres, G. Mehes, E. Remenyik** *(Debrecen, Hungary)*
Prognostic role of CD68, CD163 and CD1a expression in human primary cutaneous malignant melanoma

10:00 — **O-I9: B. Kotlan, G. Liszkay, L. Gobor, L. Toth, V. Plotar, E. Toth, T. Balatoni, A. Ladanyi, O. Csuka, M. Kasler** *(Budapest, Hungary)*
Novel antibody profile analysis based on tracking B lymphocytes in melanomas and breast carcinomas is an asset for the new immunological score for cancer therapeutics

10:15–10:35 COFFEE BREAK

10:35–12:20 SESSION VI. – Hypersensitivity

Chairs: Cezmi Akdis *(Davos, Switzerland)*, András Falus *(Budapest, Hungary)*

10:35 — **I18: AKDIS, Cezmi** *(Davos, Switzerland)*
Role of tissues in immunoregulation and immune tolerance to allergens

11:00 — **I19: AKDIS, Mübeccel** *(Davos, Switzerland)*
T and B regulatory cells

11:25 — **I20: FALUS, András** *(Budapest, Hungary)*
The role of histamine in the regulation of anti-tumour immunity

11:50 — **O-I10: K. Pazmandi, B. V. Kumar, K. Szabo, I. Boldogh, E. Rajnavolgyi, A. Bacsi** *(Debrecen, Hungary)*
Reactive oxygen species generated by NADPH oxidases in ragweed subpollen particles activate human monocyte-derived dendritic cells

12:05 — **O-I11: L. Kohidai, O. Lang, K. B. Bai, E. Lajko, J. Lang, L. Polgar, I. Szabo, G. Mezo, F. Hudecz** *(Budapest, Hungary)*
Chemotactic drug targeting – a novel approach of target cell dependent drug delivery

SUNDAY 25th MARCH, 2012 — MOLECULAR BIOLOGY & GENETICS

(Venue: IH Event Center)

8:00–9:55 SESSION V. – Genomics, multifactorial human diseases

Chairs: Margit Balázs *(Debrecen, Hungary)*, László Nagy *(Debrecen, Hungary)*

8:00 — **M15: SKUSE, David H.** *(London, UK)*
Genetic influences on social communication

8:25 — **M16: CORNEL, Martina C.** *(Amsterdam, The Netherland)*
Professional policy development in genetic health care: the challenge of discerning hopes from hypes

8:50 — **M17: KATONA, Róbert** *(Szeged, Hungary)*
The ACE-ing of gene- and cell therapy

9:15 — **M18: SZALAI, Csaba** *(Budapest, Hungary)*
Evaluation of a partial genome screening of two asthma susceptibility regions using Bayesian network based Bayesian multilevel analysis of relevance

9:40 — **O-M7: Z. Boldogkői, N. Póka, I. Takács, D. Tombácz** *(Szeged, Hungary)*
Transcriptional interference networks coordinate global gene expression

9:55–10:15 COFFEE BREAK

10:15–12:00 SESSION VI. – Oncogenomics

Chairs: Edit Oláh *(Budapest, Hungary)*, Zsuzsa Schaff *(Budapest, Hungary)*

10:15 — **M19: JONES, Peter** *(Los Angeles, CA, USA)*
The cancer epigenome

10:40 — **M20: KALLIONIEMI, Olli** *(Helsinki, Finland)*
Implementing personalized cancer medicine

11:05 — **M21: OLÁH, Edit** *(Budapest, Hungary)*
Human cancer syndromes: lessons learned

11:30 — **O-M8: A. V. Patai, O. Galamb, G. Valcz, A. Kalmar, A. Patai, B. Peterfia, B. Wichmann, K. Leiszter, K. Toth, A. Scholler, S. Spisak, F. Sipos, T. Krenacs, Z. Tulassay, B. Molnar** *(Budapest, Hungary)*
Colorectal cancer epigenetics: characteristic DNA methylation pattern upsets adenoma-dysplasia-carcinoma sequence at the epigenetic level

11:45 — **O-M9: C. G. Ziegler, G. Eisenhofer, A. V. Schally, L. Gebauer, K. Gondek, J. Engel, M. Ehrhart-Bornstein, S. R. Bornstein** *(Dresden, Germany)*
Anti-tumor effects of peptide analogues targeting neuropeptide hormone receptors in rodent pheochromocytoma cells

SUNDAY 25th MARCH, 2012 — NEUROSCIENCE

(Venue: Hotel Forrás)

8:30–10:15 SESSION V. – Neuroscience 5.

Chairs: Péter Somogyi *(Oxford, UK)*, Szilveszter Vizi E. *(Budapest, Hungary)*

8:30 — **N17: VIZI, E. Szilveszter** *(Budapest, Hungary)*
Nonsynaptic interaction between neurons

8:55 — **N18: SOMOGYI, Péter** *(Oxford, UK)*
Co-operative chronocircuits in the hippocampus

9:20 — **N19: BLAKEMORE, Colin** *(Oxford, UK)*
Adaptation and plasticity in the development and evolution of the brain

9:45 — **O-N5: V. Vukicevic, K. Chung, J. Schmid, G. Eisenhofer, S. Bornstein, M. Ehrhart-Bornstein** *(Dresden, Germany)*
Stem/progenitor cells from adult adrenal medulla

10:00 — **O-N6: J. Kálmán** *(Szeged, Hungary)*
Stress screwing neuronal cytoskeleton to Alzheimer's

10:15–10:35 COFFEE BREAK

10:35–12:30 SESSION VI. – Neuroscience 6.

Chairs: Gábor Jancsó *(Szeged, Hungary)* Miklós Palkovits *(Budapest, Hungary)*

10:35 — **N20: PALKOVITS, Miklós** *(Budapest, Hungary)*
Neuroanatomica and functional MRI analysis of cortical and subcortical areas activated by acute pain

11:00 — **N21: SZOLCSÁNYI, János** *(Pécs, Hungary)*
Peppers in drug discoveries: serendipity, concept and breakthrough

11:25 — **N22: WOOD, John** *(London, UK)*
Pain

11:50 — **N23: JANCSÓ, Gábor** *(Szeged, Hungary)*
Of spices, toxins and pain: a personal perspective

12:15 — **O-N7. K. Pajer, G. Feichtinger, G. Márton, D. Klein, H. Redl, A. Nógrádi** *(Szeged, Hungary)*
Cytokine signalling by grafted neuroectodermal stem cells rescues motoneurons otherwise destined to die

SUNDAY 25th MARCH, 2012 — TUBERCULOSIS EVOLUTION

(Venue: Hotel Tisza)

8:30–10:25 SESSION V. – Paleopathology of TB and mycobacterial infections

Chairs: Charlotte A. Roberts *(Durham, UK)*, Ildikó Pap *(Budapest, Hungary)*

8:30 — **T15: ROBERTS, Charlotte A.** *(Durham, UK)*
Old World tuberculosis: evidence from human remains with a review of current research and future prospects

8:55 — **T16: TESCHLER-NICOLA, Maria** *(Vienna, Austria)*
The early mediaeval manor-place Gars/Thunau (Lower Austria): a terrain of endemic tuberculosis

9:20 — **T17: PAP, Ildikó** *(Budapest, Hungary)*
The impact of tuberculosis to the 18th century Vác population, Hungary

9:45 — **T18: PÁLFI, György** *(Szeged, Hungary)*
Paleopathology of mycobacterial infections in Hungary: new results

10:10 — **O-T9: G. Maász, Z. Lutz, J. Schmidt, L. Márk** *(Pécs, Hungary)*
Mycobacterial biomarker discovery

10:25–10:40 COFFEE BREAK

10:40–12:35 SESSION VI. – Evolution of mycobacteria

Chairs: Roland Brosch *(Paris, France)*, Igor Mokrousov *(St. Petersburg, Russia)*

10:40 — **T19: BROSCH, Roland** *(Paris, France)*
ESX/type VII secretion systems of mycobacteria: insights into evolution, pathogenicity and protection

11:05 — **T20: NAMOUCHI, Amine and GICQUEL, Brigitte** *(Paris, France)*
Horizontal transfer in *Mycobacterium tuberculosis* complex

11:30 — **T21: NIEMANN, Stefan** *(Borstel, Germany)*
Pathobiological variability of *M. tuberculosis* complex strains

11:55 — **T22: MOKROUSOV, Igor** *(St. Petersburg, Russia)*
A tale of two genotypes: contrasting phylogeography of *Mycobacterium tuberculosis* Beijing and Ural families

12:20 — **O-T10: C. R. McEvoy, R. Cloete, B. Müller, A. C. Schürch, P. D. van Helden, S. Gagneux, R. M. Warren, N. C. Gey van Pittius** *(Tygerberg, South Africa)*
Evolution of the *Mycobacterium tuberculosis* complex *pe* and *ppe* genes

12:35–13:30 LUNCH BREAK *(Lunch will be served at the venues)*

AFTERNOON PROGRAMME — PARALLEL CONFERENCES

SUNDAY 25th MARCH, 2012 — CARDIOLOGY

(Venue: Hotel Forrás)

13:50–15:45 – SESSION VII.

Cardioprotection in the presence of cardiovascular risk factors

Chairs: Karin Przyklenk *(Worchester, MA, USA)*, Rainer Schulz *(Giesen, Germany)*

13:50 **C25: FERDINANDY, Péter** *(Budapest, Hungary)*
Endogenous cardioprotection is a healthy heart phenomenon? Cardioprotective signaling in hyperlipidemia

14:15 **C26: SCHULZ, Rainer** *(Giesen, Germany)*
Cardioprotection and aging

14:40 **C27: PRZYKLENK, Karin** *(Detroit, MI, USA)*
Cardioprotection in diabetic and aging cohorts: getting to the 'heart' of the matter

15:05 **C28: RAVINGEROVA, Tatiana** *(Bratislava, Slovakia)*
Lifestyle-related risk factors and cardiac response to ischemia: possibilities to restore impaired ischemic tolerance of the heart

15:30 **O-C9: Z. Szelid, Z. Bagyura, P. Soós, O. Szenczi, Z. Andrási, Á. Lux, E. Édes, P. Maurovich-Horvat, N. Pintér, P. Józan, B. Merkely** *(Budapest, Hungary)*
Primary prevention population cohort: Budakalász epidemiology study

15:45–16:00 COFFEE BREAK

16:00–18:10 – SESSION VIII. Cardioprotective signalling and oxidative stress

Chairs: Gary F. Baxter *(Cardiff, UK)*, Erzsébet Rőth *(Pécs, Hungary)*

16:00 **C29: BAXTER, Gary F.** *(Cardiff, UK)*
H_2S and cardioprotection

16:25 **C30: RŐTH, Erzsébet** *(Pécs, Hungary)*
How the inhibition of glutathione S-transferase can modulate stress response of cardiac myocytes

16:50 **C31: TÓTH, Kálmán** *(Pécs, Hungary)*
Myocardial and vascular protection by PARP inhibitors

17:15 **C32: MUNTEAN, Danina** *(Timisoara, Romania)*
The emerging role of magnesium orotate in cardioprotection against acute ischemia-reperfusion injury

17:40 **O-C10: G. Á. Fülöp, I. Rutkai, E. T. Pásztorné, I. S. Mányiné, I. Édes, Z. Papp, A. Tóth** *(Debrecen, Hungary)*
Effects of hydrogen peroxide and MPO in the rat basilar artery

17:55 **O-C11: A. Ziegelhöffer, M. Ferko, J. Mujkošová, M. Cagalinec, I. Waczulíková, D. Kincelová, T. Goliášová, S. Pastoreková, T. Ravingerová, B. Ziegelhöffer** *(Bratislava, Slovakia)*
Regulatory mechanisms in protection of cell energetics in hypoxic and diabetic myocardium: role of calcium and the mitochondrial signaling

SUNDAY 25th MARCH, 2012 — GASTROENTEROLOGY

(Venue: Hotel Forrás)

13:25–15:45 – SESSION VII. Clinical Gastroenterology I.

Chairs: Zsolt Tulassay *(Budapest, Hungary)*, Ferenc Izbéki *(Szeged, Hungary)*

13:25 **G23: WITTMANN, Tibor** *(Szeged, Hungary)*
Novel pathogenetical factors of irritable bowel syndrome (IBS)

13:50 **G24: TULASSAY, Zsolt** *(Budapest, Hungary)*
From chronic inflammation to cancer

14:15 **O-G9: T. Molnár, K. Farkas, F. Nagy, P. L. Lakatos, Z. Szepes, P. Miheller, G. Horváth, M. Papp, K. Palatka, T. Nyári, T. Wittmann** *(Szeged, Hungary)*
High restarting rate among patients with Crohn's disease after cessation of one-year treatment period with biologicals: result of national RASH study

14:30 **O-G10: K. Toth, J. Beck, K. Buser, Z. Tulassay, R. Stöhr, H. Golcher, V. Schellerer, B. Molnar** *(Budapest, Hungary)*
Plasma methylated SEPT9 is a screening marker in both left and right– sided colon cancer. Comparison to FOBT and CEA results

14:45 **O-G11: A. Rosztoczy, F. Izbeki, R. Roka, I. Nemeth, K. Gecse, K. Vadaszi, J. Kadar, E. Vetro, L. Tiszlavicz, T. Wittmann** *(Szeged, Hungary)*
The evaluation of oesophageal function in patients with different types of oesophageal metaplasia

15:00 **O-G12: A. Kalmar, S. Spisak, O. Galamb, B. Wichmann, F. Sipos, K. Toth, K. Leiszter, B. Peterfia, G. Valcz, A. V. Patai, A. Scholler, B. Molnar, Z. Tulassay** *(Budapest, Hungary)*
Methylation-related biomarker identification by gene expression analysis of laser microdissected colonic cells

15:15 **O-G13: T. Várkonyi, É. Börcsök, R. Takács, C. Lengyel, M. Lázár, M. Papós, L. Pávics, P. Kempler, T. Wittmann** *(Szeged, Hungary)*
Determination of gastric emptying, the current glucose levels and neuropathy in patients with type 1 diabetes mellitus

15:30 **O-G14: F. Izbéki, D. Asuzu, H. Yurio, M. Bardsley, T. Wittmann, T. Ördög** *(Szeged, Hungary)*
Gastrointestinal neuromuscular dysfunction in klotho mouse model of ageing

15:45–16:00 COFFEE BREAK

SUNDAY 25th MARCH, 2012 — GASTROENTEROLOGY

(Venue: Hotel Forrás)

16:00–17:50 SESSION VIII. Clinical Gastroenterology II.

Chairs: Tibor Wittmann *(Szeged, Hungary)*, Ákos Pap *(Budapest, Hungary)*

16:00 — **G25: ARATÓ, András** *(Budapest, Hungary)*
Innate and adaptive immunity in the pathogenesis of coeliac disease

16:25 — **G26: LÁZÁR, György** *(Szeged, Hungary)*
The effects of laparoscopic nissen fundoplication on Barrett's esophagus: long-term results

16:50 — **O-G15: K. Leiszter, O. Galamb, F. Sipos, T. Krenács, S. Spisák, G. Veres, B. Wichmann, Á. V. Patai, K. Tóth, G. Valcz, A. Kalmár, B. Molnár, Z. Tulassay** *(Budapest, Hungary)*
Decreased somatostatin production in colorectal cancer with uncontrolled cell proliferation, as compared to controlled cell growth in young and adult colonic mucosa

17:05 — **O-G16: Z. Szepes, K. Farkas, T. Kiss, T. Nyári, F. Nagy, T. Wittmann, T. Molnár** *(Szeged, Hungary)*
Endoscopic activity at the time of diagnosis does not predict disease course in Crohn's disease, while endoscopic finding is worsened by smoking

17:20 — **O-G17: V. Terzin, I. Földesi, L. Kovács, G. Pokorny, T. Wittmann, L. Czakó** *(Szeged, Hungary)*
Association between autoimmune pancreatitis and systemic autoimmune diseases

17:35 — **O-G18: A. Schnúr, P. Hegyi, M. Sahin-Tóth** *(Boston, MA, USA)*
Rare cationic trypsinogen mutations found in patients with chronic pancreatitis are harmless variants

SUNDAY 25th MARCH, 2012 — IMMUNOLOGY & INFLAMMATION

(Venue: Hotel Novotel)

13:50–15:45 – SESSION VII. Skin inflammation 1.

Chairs: Thomas Ruzicka *(Munich, Germany)*, Lajos Kemény *(Szeged, Hungary)*

13:50 — **I21: PRENS, Errol P.** *(Rotterdam, The Netherlands)*
Linking innate and adaptive immunity in psoriasis

14:15 — **I22: PIVARCSI, Andor** *(Stockholm, Sweden)*
MicroRNAs: novel regulators in psoriasis

14:40 — **I23: TSCHACHLER, Erwin** *(Vienna, Austria)*
New aspects of the skin nervous system

15:05 — **I24: RUZICKA, Thomas** *(Munich, Germany)*
Why some get psoriasis while others don't – understanding the Koebner Phenomenon

15:30 — **O-I12: L. Lakatos, E. Szabó, M. Manczinger, A. Göblös, L. Kemény** *(Budapest, Hungary)*
Silencing suppressor activity remodelled

15:45–16:00 COFFEE BREAK

16:00–17:45 – SESSION VIII. Skin inflammation 2.

Chairs: Andrea Szegedi *(Debrecen, Hungary)*, Sarolta Kárpáti *(Budapest, Hungary)*

16:00 — **I25: KÁRPÁTI, Sarolta** *(Budapest, Hungary)*
Transglutaminase pathology in skin diseases

16:25 — **I26: SZEGEDI, Andrea** *(Debrecen, Hungary)*
T cells in atopic dermatitis

16:50 — **I27: BATA-CSÖRGŐ, Zsuzsanna** *(Szeged, Hungary)*
Psoriasis susceptibility factors

17:15 — **O-I13: K. V. Vukman, P. N. Adams, M. Metz, M. Maurer, S. M. O'Neill** *(Dublin, Ireland)*
Fasciola hepatica tegumental antigens suppress TH1-promoting mast cells

17:30 — **O-I14: N. Sándor, A. Erdei, Z. Bajtay** *(Budapest, Hungary)*
Cr3 is the main phagocytic receptor for IC3B opsonized particles on dendritic cells while Cr4 plays supporting role

SUNDAY 25th MARCH, 2012 — MOLECULAR BIOLOGY & GENETICS

(Venue: IH Conference Centre)

Please NOTE that sessions VII.a and VII.b as well as sessions VIII.a and VIII.b will run in parallel!

13:40–15:50 SESSION VII.a – Messages from model organisms 1.

Chairs: Utpal Banerjee *(Los Angeles, CA, USA)*

13:40 — **M22: GÁSPÁR, Imre** *(Heidelberg, Germany)*
Microtubules, motors, mRNAs: the transport of oskar RNP within the Drosophila oocyte

14:05 — **M23: BANERJEE, Utpal** *(Los Angeles, CA, USA)*
Signal transduction and metabolic control of cell fate

14:30 — **M24: REUTER, Gunter** *(Halle, Germany)*
Conserved epigenetic mechanisms control gene silencing in fungi, animals and plants

14:55 — **M25: DINNYÉS, András** *(Gödöllő, Hungary)*
Induced pluripotent stem cells to create 3D neuronal tissue models

15:20 — **O-M10: K. Bakos, Z. Csenki, B. Kovács, R. Kovács, D. Kánainé Sipos, D. Bencsik, Y. Hadzhiev, F. Müller, B.Urbányi** *(Gödöllő, Hungary)*
Establishment of a liver transgenic zebrafish line for screening estrogenic compounds

15:35 — **O-M11: B. Csorgo, T. Fehér, E. Tímár, F. R. Blattner, G. Pósfai** *(Szeged, Hungary)*
Low-mutation-rate, reduced-genome Escherichia coli: an improved host for faithful maintenance of engineered genetic constructs

13:40–15:50 SESSION VII.b – Rare diseases, clinical diagnostics 1.

Chairs: György Kosztolányi *(Pécs, Hungary)*, Béla Melegh *(Pécs, Hungary)*

13:40 — **M30: SCHMIDTKE, Jörg** *(Hannover, Germany)*
A role for Europe in genetic service provision

14:05 — **M31: CASSIMAN, Jean-Jacques** *(Leuven, Belgium)*
EuroGentest: the way forward to quality genetic services

14:30 — **M32: KOSZTOLÁNYI, György** *(Pécs, Hungary)*
Time to take timing seriously in human genetics

14:55 — **M33: MACEK, Milan** *(Prague, Czech Republic)*
Organization of care for genetic diseases in a diverse Europe

15:20 — **O-M12: M. Marazita, A. Czeizel, F. Deleyainnis, J. Resick, M. Ford, C. Brandon, M. Cooper** *(Pittsburgh, PA, USA)*
Velopharyngeal insuf ciency (VPI) in relatives of individuals with cleft lip/palate (CL/CP)

15:35 — **O-M13: N. Szabó, D.J. Morris-Rosendahl, A. Mokánszki, É. Oláh, G. Gergev, S. Túri, L. Sztriha** *(Szeged, Hungary)*
Tubulin-related cerebral dysgenesis, novel paradigms for understanding the tubulin's role in the brain development

SUNDAY 25th MARCH, 2012 — MOLECULAR BIOLOGY & GENETICS

(Venue: IH Conference Centre)

Please NOTE that sessions VII.a and VII.b as well as sessions VIII.a and VIII.b will run in parallel!

15:50–16:10  **COFFEE BREAK**

16:10–18:05 SESSION VIII.a – Messages from model organisms 2.

Chair: Eric Wieschaus *(Princeton, NJ, USA)*

16:10 — **M26: SCHÜPBACH, Gertrude** *(Princeton, NJ, USA)*
Control of EGF receptor activity and axis establishment in Drosophila oogenesis

16:35 — **M27: ERDÉLYI, Miklós** *(Szeged, Hungary)*
Functional analysis of the Drosophila embryonic germ cell transcriptome by RNAi

17:00 — **O-M14: P. Nagy, A. Varga, K. Pircs, G. Juhasz** *(Budapest, Hungary)*
An in vivo, whole-genome RNAi screen for genes involved in autophagy in drosophila

17:15 — **M28: SZABAD, János** *(Szeged, Hungary)*
Poking microtubules bring about nuclear wriggling to position nuclei

17:40 — **M29: OROSZ, László** *(Budapest, Hungary)*
Wonder deer, antler, osteoporosis

16:10–17:55 SESSION VIII.b – Rare diseases, clinical diagnostics 2.

Chairs: János Szabó *(Szeged, Hungary)*, Sándor Túri *(Szeged, Hungary)*

16:10 — **M34: TÚRI, Sándor** *(Szeged, Hungary)*
Rare inherited diseases and newborn screening in Szeged, Hungary

16:35 — **M35: MELEGH, Béla** *(Pécs, Hungary)*
Genetics of Romani people

17:00 — **M36: SZÉLL, Márta** *(Szeged, Hungary)*
Germline and somatic mutations in melanoma pathogenesis

17:25 — **O-M15: A. Gal, V. Remenyi, A. Racz D., A. Kekesi, B. Bereznai, G. Csabi, K. Komlosi, M.J. Molnar** *(Budapest, Hungary)*
Phenotype-genotype correlation in patients with nuclear and mitochondrial intergenomial communication disturbances

17:40 — **O-M16: R. Sepp, L. Losonczi, T. Tóth, V. Nagy, A. Orosz, K. Kádár, M. Hőgye, G. Fekete, M. Csanády, T. Forster** *(Szeged, Hungary)*
Screening for sarcomeric gene mutations in hungarian patients with hypertrophic cardiomyopathy

SUNDAY 25th MARCH, 2012 — NEUROSCIENCE

(Venue: Hotel Forrás)

13:45–15:45 SESSION VII. – Neuroscience 7.

Chairs: József Hámori *(Budapest, Hungary)*, Timothy Crow *(Oxford, UK)*

13:45 — **N24: CROW, Timothy** *(Oxford, UK)*
Dezső Miskolczy & the speciation of modern Homo sapiens

14:10 — **N25: BORNSTEIN, Stefan R.** *(Dresden, Germany)*
The neuro-adrenal stress axis: Role of Vitamin C

14:35 — **N26: BÁNHEGYI, Gábor** *(Budapest, Hungary)*
Ascorbate compartmentation

15:00 — **O-N8: F. Walter, S. Veszelka, C. Ábrahám, G. Rákhely, A. Tóth, B. Ózsvári, L. Puskás, M. A. Deli** *(Szeged, Hungary)*
The effects of tesmilifene, a chemopotentiating agent, on brain endothelial cells

15:15 — **O-N9: I. Krizbai, C. Fazakas, P. Nagyoszi, J. Haskó, J. Molnár, G. Végh, F. Ayaydin, G. Váró, I. Wilhelm** *(Szeged, Hungary)*
Mechanisms of the interaction between melanoma cells and cerebral endothelial cells

15:30 — **O-N10: A. Tóth, L. Kiss, S. Veszelka, B. Ózsvári, L. G. Puskás, A. Tóth, G. Rákhely, S. Dohgu, Y. Kataoka, M. A. Deli** *(Szeged, Hungary)*
Protection against methylglyoxal-induced toxicity in human brain endothelial cells

15:45–16:00 COFFEE BREAK

16:00–18:10 SESSION VIII. – Neuroscience 8.

Chairs: Ferenc Bari *(Szeged, Hungary)*, Jes Olesen *(Copenhagen, Denmark)*

16:00 — **N27: OLESEN, Jes** *(Glostrup, Denmark)*
Migraine from man to molecule

16:25 — **N28: EDVINSSON, Lars** *(Lund, Sweden)*
Role of CGRP and CGRP receptors in migraine pathophysiology

16:50 — **N29: BUSIJA, David W.** *(New Orleans, LA, USA)*
Mitochondrial mechanisms in the cerebral vasculature in health and disease

17:15 — **N30: BARI, Ferenc** *(Szeged, Hungary)*
Neurovascular coupling in the injured barin

17:40 — **O-N11: D. L. Clark, A. Institoris, E. Farkas, F. Bari** *(Szeged, Hungary)*
The impact of aging on focal cerebral ischemia-induced periinfarct depolarization with multimodal imaging in the rat brain

17:55 — **O-N12: F. Domoki, O. Oláh, V. Tóth-Szőki, F. Bari** *(Szeged, Hungary)*
Severe subacute neurovascular dysfunction is alleviated by hydrogen in asphyxiated newborn pigs

SUNDAY 25th MARCH, 2012 — TUBERCULOSIS EVOLUTION

(Venue: Hotel Tisza)

13:30–15:25 SESSION VII.
Biology of mycobacteria & its applications in TB evolution research

Chairs: Mamadou Daffe *(Toulouse, France)*, David E. Minnikin *(Birmingham, UK)*

13:30 — **T23: DAFFE, Mamadou** *(Toulouse, France)*
The cell envelope of tubercle bacilli

13:55 — **T24: MINNIKIN, David E.** *(Birmingham, UK)*
Ancient mycobacterial lipids: key reference biomarkers in charting the evolution of leprosy and tuberculosis

14:20 — **T25: SCHMIDT-SCHULTZ, Tyede** *(Göttingen, Germany)*
AG 85: a major secretion protein of *Mycobacterium tuberculosis* can be identified in ancient bone

14:45 — **T26: HERSHKOVITZ, Israel** *(Tel Aviv, Israel)*
Detection and molecular characterization of 9000-year-old *Mycobacterium tuberculosis* from a Neolithic settlement in the Eastern Mediterranean

15:10 — **O-T11: O.Y. Lee** *(Birmingham, UK)*
Lipid biomarkers provide evolutionary signposts for the oldest known cases of tuberculosis

15:40–15:55 COFFEE BREAK

15:55–18:10 SESSION VIII. – Different approaches to the study of 'paleotuberculosis'

Chairs: Michael Schultz *(Göttingen, Germany)*, Joël Blondiaux *(Walincourt-Selvigny, France)*

15:55 — **T27: SANTOS, Ana Luisa** *(Coimbra, Portugal)*
Sanatoria, archives and skeletons: an interdisciplinary approach to the study of paleotuberculosis

16:20 — **T28: SCHULTZ, Michael** *(Göttingen, Germany)*
Is it possible to diagnose TB in ancient bone using microscopy?

16:45 — **T29: CHHEM, Rethy K.** *(Ulm, Germany)*
Paleopathology and paleoradiology data as sources for the history of tuberculosis: The epistemic and histographical issues?

17:10 — **T30: DUTOUR, Olivier** *(Bordeaux, France)*
Contribution of 3D reconstructions to the paleopathology of tuberculosis

17:35 — **T31: BLONDIAUX, Joël** *(Wallincourt-Selvigny, France)*
Tuberculosis and survival in past populations: a paleo-epidemiological appraisal

18:05 — **Conclusions and closing remarks – Olivier Dutour, György Pálfi**

EVENING PROGRAMME:

20:00 **Gala dinner and closing remarks**
Piano concert and dinner *(Venue: TIK)* – For all participants

POSTER VIEWING I. FRIDAY 23 MARCH 11:50–12:30

FRIDAY 23rd MARCH, 2012 **CARDIOLOGY**

Chairs: Danina Muntean *(Timisoara, Romania)*, Norbert Jost *(Szeged, Hungary)*

P-C1. **A. Adameova, T. Rajtik, S. Carnicka, A. Szobi, S. Jankyova, P. Svec, P. Krenek, T. Ravingerova** *(Bratislava, Slovakia)*
A role of CaMKIIδ in cardiac injury caused by ischemia and reperfusion

P-C2. **B. Balatonyi, V. Kovács, B. Gasz, J. Lantos, G. Jancsó, N. Marczin, E. Rőth** *(Pécs, Hungary)*
The effect of GST inhibition on cell viability and MAPK pathways on cultured cardiomyocytes in the process of ischaemic postconditioning

P-C3. **Á. Balogh, S. Vandenwijngaert, P. Pokreisz, S. Janssens, Z. Papp** *(Debrecen, Hungary)*
Myocardial phosphodiesterase 5 overexpression modulates cardiomyocyte contractility

P-C4. **V. Barsukevich, M. Basalay, A. Mrochek, A. V. Gourine, A. Gourine** *(Minsk, Belarus)*
Cardioprotective effect of delayed ischaemic postconditioning is mediated by mitochondrial KATP channels in the rat heart in vivo

P-C5. **M. Basalay, V. Barsukevich, S. Mastitskaya, A. Mrochek, J. Pernow, P. Sjöquist, G. L. Ackland, A. V. Gourine, A. Gourine** *(Minsk, Belarus)*
Remote ischaemic pre- and delayed postconditioning – similar degree of cardioprotection but distinct mechanisms

P-C6. **V. Csató, Á. Koller, A. Tóth, I. Édes, Z. Papp** *(Debrecen, Hungary)*
Different vascular effects of hydrogenperoxide in rat microvessels

P-C7. **O. Duicu, N. Mirica, D. Gheorgheosu, S. Trancota, O. Fira-Mladinescu, D. Muntean** (Timisoara, Romania)
Ageing associated decrease in cardiac mitochondria functions in healthy rats

P-C8. **A. S. Farkas, S. Orosz, T. Forster, A. Varró, A. Farkas** *(Szeged, Hungary)*
Proarrhythmia predictors in a reduced repolarisation reserve isolated rabbit heart model

P-C9. **M. Gönczi, M. Kovács, G. Seprényi, Á. Végh** *(Szeged, Hungary)*
Role of gap junctions in cardiac pacing induced delayed antiarrhythmic protection

P-C10. **A. Horvath, Z. Kohajda, A. Kristof, C. Corici, L. Virag, F. Fulop, A. Varro, N. Jost** *(Szeged, Hungary)*
R-I3 enantiomers have adverse modulating effects on IKs in rabbit ventricular myocytes

POSTER VIEWING I. FRIDAY 23 MARCH 11:50–12:30

P-C11. **L. Juhász, V. Demeter-Haludka, G. Seprényi, J. Kaszaki, J. Gardi, Á. Végh** *(Szeged, Hungary)*
Acute inhibition of monoamine oxidases does not modify the severity of ischaemia and reperfusion-evoked ventricular arrhythmias in dogs

P-C12. **J. Kalász, Á. Balogh, E. Pásztor, M. Fagyas, S. Pahlavan, A. Tóth, I. Édes, Z. Papp, A. Borbély** *(Debrecen, Hungary)*
Cardiomyocyte contractile dysfunction in the human myocardium: the role of myofilament protein oxidation

P-C13. **G. Kisvári, M. Kovács, J. Kaszaki, Á. Végh** *(Szeged, Hungary)*
The effect of acute simvastatin administration on ventricular arrhythmias in a canine model of ischaemia and reperfusion

P-C14. **Z. Kohajda, A. Kristof, T. Szel, Z. Husti, I. Baczko, A. Varro, N. Jost, L. Virag** *(Szeged, Hungary)*
Transient outward potassium current in dog atrial preparations

P-C15. **Á. Kovács, Á. Balogh, Z. Papp, N. S. Dhalla, J. Barta** (Debrecen, Hungary)
Global and cellular alterations of myocardial contractility in a rat model of calcium paradox

P-C16. **M. Kovács, M. Gönczi, G. Seprényi, Á. Végh** *(Szeged, Hungary)*
Gene expression changes in the canine heart following rapid cardiac pacing

P-C17. **V. Ledvenyiova, D. Pancza, J. Matejikova, T. Ravingerova** (Bratislava, Slovakia)
Influence of maturation on resistance to ischemia-reperfusion injury in langendorff perfused female rat hearts

P-C18. **P. Major, L. Hiripi, N. Jost, A. Varró, V. Szűts, Z. Miklós, T. Ivanics, Z. Bősze** *(Gödöllő, Hungary)*
Transgenic mouse model of LQT5 syndrome

P-C19. **N. Morvay, I. Leprán** *(Szeged, Hungary)*
Effects of a polyunsaturated fatty acid-rich diet on the development of heart failure after myocardial infarction in rats

P-C20. **N. Nagy, A. Kormos, Á. Szebeni, K. Acsai, J. G. Papp, A. Varró, A. Tóth** *(Szeged, Hungary)*
Partial NCX inhibition exerts protective role against Na^+ induced Ca^{2+} load by restricting $[Ca^{2+}]i$ elevation in canine ventricular myocardium

POSTER VIEWING I. FRIDAY 23 MARCH 11:50–12:30

P-C21. **J. Radosinska, V. Knezl, J. Slezak, N. Tribulova** *(Bratislava, Slovakia)*
Implication of electrical coupling protein, connexin-43, in termination of ventricular fibrillation and sinus rhythm restoration demonstrated in isolated perfused rat heart.

P-C22. **A. Sarusi, A. S. Farkas, S. Orosz, T. Forster, A. Varró, A. Farkas** *(Szeged, Hungary)*
Reduced repolarization reserve in langendorff perfused rabbit hearts: a new proarrhythmia model

P-C23. **S. L. Trancota, N. Mirica, O. Duicu, A. Anechitei, O. Fira Mladinescu, D. Muntean** *(Timisoara, Romania)*
Association of diazoxide and cyclosporine A elicit deleterious effects on mitochondrial function after prolonged global ischemia

P-C24. **N. Tribulova, J. Radosinska, B. Bacova, T. Benova1, V. Knezl, J. Slezak** *(Bratislava, Slovakia)*
Implication of myocardial connexin-43 and PKC signaling in antiarrhythmic effects of omega-3 fatty acids demonstrated in sponatenously hypertensive rats.

P-C25. **E. M. Végh, B. Sax, V. Kékesi, V. Wagner, T. Bárány, V. Kutyifa, G. Szücs, B. Merkely** *(Budapest, Hungary)*
Adrenomedullin, ghrelin and leptin as potential biomarkers of chronic heart failure: an experimental study

FRIDAY 23rd MARCH, 2012 GASTROENTEROLOGY

Chairs: Barry Argent *(Newcastle, UK)*, Petra Pallagi *(Szeged, Hungary)*

P-G1. **A. Balázs, P. Hegyi, M. Sahin-Tóth** *(Szeged, Hungary)*
Functional characterization of the p.L104P human cationic trypsinogen variant

P-G2. **A. Geisz, A. Szabó, P. Hegyi, Z. Rakonczay Jr., M. Széll, M. Sahin-Tóth** *(Boston, USA)*
Activation of human chymotrypsinogen isoforms

POSTER VIEWING I. FRIDAY 23 MARCH 11:50–12:30

P-G3. **A. Scholler, S. Spisak, O. Galamb, A. V. Patai, B. Wichmann, A. Kalmar, B. Molnar, Z.Tulassay** *(Budapest, Hungary)*
Detection of methylation profile changes of cfdna fractions in patients with colorectal cancer compaired to adenoma and healthy controls

P-G4. **D. Gheorgheosu, O. Duicu, S. Trancota, N. Nicoleta Mirica, C. Dehelean, D. Muntean** *(Timisoara, Romania)*
Liver mitochondrial respiratory function is decreased in senescent rats

P-G5. **L. Judák, P. Hegyi, Z. Rakonczay Jr., M. A. Gray, V. Venglovecz** *(Szeged, Hungary)*
Ethanol and its non-oxidative metabolites inhibit CFTR activity in guinea pig pancreatic duct cells

P-G6. **L. V. Kemény, P. Hegyi, Z. Rakonczay Jr., K. Borka, A. Korompay, M. A. Gray, B. E. Argent, V. Venglovecz** *(Szeged, Hungary)*
Substance P inhibits ductal bicarbonate secretion in guinea pig pancreatic ducts via neurokinin receptors 2 and 3

P-G7. **G. Kovács, G. Biczó, S. Dósa, N. Shalbuyeva, S. Berczi, Z. Hracskó, Z. Balla, B. Kui, A. Siska, Z. Kukor, V. Venglovecz, I. S. Varga, B. Iványi, T. Wittmann, A. Gukovskaya, T. Takács, P. Hegyi, Z. Rakonczay Jr.** *(Szeged, Hungary)*
The possible role of mitochondial injury in l-lysine-induced acute pancreatitis

FRIDAY 23rd MARCH, 2012 — IMMUNOLOGY & INFLAMMATION

Chairs: Tamás Bíró *(Debrecen, Hungary)*, József Kaszaki *(Szeged, Hungary)*

P-I1. **D. Erces, J. Kaszaki, M. Nogrady, I. Laszlo, E. Nagy, H. Okada, M. Boros** *(Szeged, Hungary)*
Reduced plasma big-endothelin level after complement C5A antagonist treatment accompanied by improved small intestinal microcirculation in experimental model of cardiac tamponade

P-I2. **G. Erős, K. Szentner, P. Hartmann, I. Németh, L. Kemény, G. Szolnoky** *(Szeged, Hungary)*
The role of lymphangiogenesis in wound healing

POSTER VIEWING I. FRIDAY 23 MARCH 11:50–12:30

P-I3. **O. Lang, E. Lajko, L. Polgar, J. Lang, L. Kohidai** *(Budapest, Hungary)*
Cell physiological applications of impedimetry with a special respect to cell adhesion and migration

P-I4. **M. Kürthy, D. Kovács, Z. Miklós, E. Ranczinger, J. Lantos, V. Kovács, G. Jancsó, E. Rőth** *(Pécs, Hungary)*
Effects of hypercholesterolemia induced inflammation and insulin resistance on postconditioned rats.

P-I5. **H. Polyánka, K. Szabó, G. Tax, V. Tubak, R. L. Katona, E. Kusz, Z. Újfaludi, Á. Kinyó, I. Boros, Z. Bata-Csörgö, L. Kemény, M. Széll** *(Szeged, Hungary)*
Primary characterization of a novel immortalized cell line for studying keratinocyte innate immune functions

P-I6. **A. Szabo, K. Bene, R. E. Varga, A. Lanyi, B. Rethi, P. Gogolak, E. Rajnavolgyi** *(Debrecen, Hungary)*
Human CD1a+ dendritic cells mediate ef cient anti-viral immune responses via RIG-I and MDA5 signaling

P-I7. **A. Szabo, R. M. Osman, I. Bacskai, E. Rajnavolgyi** *(Debrecen, Hungary)*
Consecutive treatment of human melanoma cells by ATRA and polyi:C results in distinct inflammatory cytokine and chemokine responses via TLR3 and MDA5

P-I8. **T. Tőkés, G. Varga, E. Tuboly, L. Major, M. Ghyczy, J. Kaszaki, M. Boros** *(Szeged, Hungary)*
Anti-inflammatory effects of l-alpha glycerylphosphorylcholine treatment in a rat model of mesenteric ischaemiareperfusion injury

P-I9. **G. Toldi, A. Bajnok, D. Dobi, A. Kaposi, L. Kovács, B. Vásárhelyi, A. Balog** *(Budapest, Hungary)*
The effects of kv1.3 and IKCA1 potassium channel inhibition on calcium influx of human peripheral T lymphocytes in rheumatoid arthritis

P-I10. **E. Tuboly, G. Varga, T. Tőkés, J. Kaszaki, M. Ghyczy, M. Boros** *(Szeged, Hungary)*
The effects of exogenous methane inhalation on macro- and microcirculatory changes during intestinal ischemia/reperfusion in rats

POSTER VIEWING I. FRIDAY 23 MARCH 11:50–12:30

P-I11. **G. Varga, T. Kovács, T. Tőkes, D. Érces, J. Kaszaki, M. Ghyczy, M. Boros** *(Szeged, Hungary)*
Dietary phosphatidylcholine protects against inflammatory activation in experimental colitis in the rat

P-I12. **K. Vas, B. Guban Konczne, A. Bebes, B. Kormos, N. Belso, R. Kui, M. Szell, L. Kemeny, Z. Bata-Csorgo** *(Szeged, Hungary)*
Alpha5-integrin and its ligand, the oncofetal fibronectin (EDA+FN) are differentially expressed in psoriatic uninvolved and healthy skin

FRIDAY 23rd MARCH, 2012 MOLECULAR BIOLOGY & GENETICS

Chairs: Judit Oláh *(Szeged, Hungary)*, Ildikó Unk *(Szeged, Hungary)*

P-M1. **M. Barath, A. Szoor, E. Rajnavolgyi, M. Geiszt, G. Vereb, A. Lanyi** *(Debrecen, Hungary)*
Modulation of RAC1-dependent cellular functions by the SH3PX-domain adaptor HOFI/TKS4/SH3PXD2B

P-M2. **A. Bebes, I. Németh, T. Nagy, Z. Bata-Csörgö, L. Kemény, M. Széll** *(Szeged, Hungary)*
Overexpression of the ABCG2 protein in nonmelanoma skin cancer could affect photodynamic therapy outcome

P-M3. **B. Bontovics, J. Slamecka, P. Maraghechi, L. Hiripi, A. V. Makarevich, P. Chrenek, Z. Bösze, E. Gócza** *(Gödöllő, Hungary)*
Expression pattern of pluripotency markers in rabbit epiblast and embryonic stem cells

P-M4. **G. Boros, D. Rózsa, E. Miko, E. Emri, G. Nagy, A. Juhász, I. Juhász, G. van der Horst, H. Muramatsu, D. Weissman, K. Karikó, I. Horkay, É. Remenyik, G. Emri** *(Debrecen, Hungary)*
Functional photolyase synthesis in cultured human keratinocytes induced by a novel mRNA-based gene therapy method

P-M5. **K. Csepregi, A. Valasek, Á. Pénzes, Z. Tóth, Í. Kiss, I. Kerepesi, J. Hunyadkürti, B. Horváth, I. Nagy, C. Fekete** *(Pécs, Hungary)*
Structural and functional characterization of polyketide synthase gene clusters found in newly sequenced bacterial genome

POSTER VIEWING I. FRIDAY 23 MARCH 11:50–12:30

P-M6. **J. Deák, V. Papp, C. H. Rama , J. Eluf-Neto** *(Szeged, Hungary)*
Differentiation between Hungarian and Brazil human papillomavirus types among female anogenital HPV infections

P-M7. **Z. Erdei, G. Vofély, T. I. Orbán, A. Péntek, K. Szebényi, A. Sebe, L. Rosivall, Á. Apáti, B. Sarkadi** *(Budapest, Hungary)*
Calcium signals in pluripotent stem cells

P-M8. **K. Farkas, N. Nagy, D. Beke, Á. Kinyó, L. Kemény, M. Széll** *(Szeged, Hungary)*
A newly identified missense mutation of the HR gene is possibly associated with a novel phenotype of marie unna hereditary hypotrichosis 1

P-M9. **A. Göblös, S. Bacsa, K. Szegedi, M. Antal, I. Németh, E. Sonkoly, A. Dobozy, Z. Bata-Csörgö, L. Kemény, M. Széll** *(Szeged, Hungary)*
Prins, the psoriasis susceptibility related non-coding RNA regulates the UV-B-induced intracellular shuttling of nucleophosmin

P-M10. **O. I. Hoffmann, L. Hiripi, L. Mátés, A. Kerekes, Z. Izsvák, Z. Ivics, Z. Bösze** *(Gödöllő, Hungary)*
Rabbit transgenesis with sleeping beauty transposon system

P-M11. **T. Juhász, C. Matta, J. Fodor, Á. Bartók, Z. Varga, P. Gergely, R. Zákány** *(Debrecen, Hungary)*
NMDA-type ionotropic glutamate receptors regulate commitment of chondrogenic cells

P-M12. **O. Kapuy, G. Bánhegyi** *(Budapest, Hungary)*
mTOR pathway-dependent autophagy due to NADPH/$NADP^+$ imbalance in endoplasmic reticulum

P-M13. **L. Képíró, A. Meszes, R. Gyulai, L. Kemény, M. Széll** *(Szeged, Hungary)*
Tnfsf15 single nucleotide polymorphisms and haplotypes in psoriasis and psoriatic arthritis

P-M14. **M. Kósa, E. Zádor** *(Szeged, Hungary)*
Distribution of transfected fibres along the regenerating soleus muscle

P-M15. **G. Kudlik, B. Hegyi, B. Sági, G. Mészáros, É. Monostori, F. Uher** *(Budapest, Hungary)*
Phenotypic and functional switch of peritoneal macrophages induced by mesenchymal stem cells

POSTER VIEWING I. FRIDAY 23 MARCH 11:50–12:30

P-M16. **P. I. Kulcsár, E. Tóth, E. Welker** *(Szeged, Hungary)*
Identification and characterization the functional NLS of Shadoo protein

FRIDAY 23rd MARCH, 2012 TUBERCULOSIS EVOLUTION

Chairs: Maria Teschler-Nicola *(Vienna, Austria)*, Stefan Niemann *(Borstel, Germany)*

P-T1. **O. Baker, B. Chamel, R. Khawam, E. Coqueugniot, D. Helmer, L. Gourichon, F. Le Mort, A. Colombo, B. Dutailly, H. Coqueugniot, O. Dutour** *(Talence, France)*
Evidence of tuberculosis in ancient Syria dating from pre and early domestication

P-T2. **Z. Baranyai, J. Vinšová, N. Szabó, S. Bősze** *(Budapest, Hungary)*
In vitro antimycobacterial activity of substituted salicylanilides against *Mycobacterium tuberculosis* H37RV and multidrug-resistant A8 cultures

P-T3. **A. Béleczki, K. Szalontai, K. Ugocsai, A. Somfay** *(Szeged, Hungary)*
Endobronchial tuberculosis in patients with active disease

P-T4. **K. Holloway, A. Bouwman, K. Link, M. Henneberg, F. Rühli** *(Zürich, Switzerland)*
Changes in the disease profile of tuberculosis during the introduction of antibiotics – a study of 20th century Swiss pathological skeletal samples

P-T5. **A. Buzhilova, N. Berezina** *(Moscow, Russia)*
Spina ventosa: two cases of osteo-articular tuberculosis of children from Königsberg, Prussia

P-T6. **A. Colombo, H. Coqueugniot, C. Saint-Pierre, S. Naji, O. Dutour** *(Talence, France)*
Possible association between Langerhans Cell Histiocytosis and Tuberculosis, in a medieval child from the archaeological site of La Granède (Millau, France)

P-T7. **H. Coqueugniot, O. Dutour, P. Desbarats, B. Dutailly, K. Karlinger, B. Kovács, A. Palkó, E. Riedl, I. Szikossy, I. Pap, G. Pálfi** *(Talence, France)*
From virtuality to reality: 3D reconstructions of tuberculosis processes using VIRCOPAL® chain

P-T8. **S. Évinger, Z. Bernert, T. Hajdu, A. Marcsik, K. K. Kiss, K. Köhler** *(Budapest, Hungary)*
A new spinal tuberculosis case from the Árpád period (11th–13th centuries AD) from Zalavár, western Hungary

POSTER VIEWING I. FRIDAY 23 MARCH 11:50–12:30

P-T9. **M. Faerman, L. Zamstein, C. L. Greenblatt, P. Smith** *(Jerusalem, Israel)*
Growth and disease patterns in infants and children from the Ottoman Dor, northern Israel

P-T10. **W. Frigui, A. Pawlik, D. Bottai, S. Mangenot, L. Fiette, M. Orgeur, R. Siméone, V. Barbe, C. Medigue, R. Brosch** *(Paris, France)*
Variable host susceptibility to infection with *Mycobacterium tuberculosis* linked to the genotype of strain.

P-T11. **M. K. Gomgnimbou, E. Abadia, J. Zhang, G. Refrégier, S. Panaiotov, E. Bachivska, C. Sola** *(Orsay, France)*
Spoligoriftyping – A new DPO-based direct-hybridization assay for effective TB control on a multianalyte microbead-based hybridization system

P-T12. **R. Hirmondó, I. Pécsi, A. Lopata, A. Brown C., T. Parish, B. Vértessy, J. Tóth** *(Budapest, Hungary)*
The mycobacterial dUTPase: biochemistry, physiology and molecular intervention

P-T13. **K. Köhler, I. Zalai-Gaál, A. Osztás, E. Bánffy, K. Kirinó, K. K. Kiss, G. Pálfi, B. G. Mende** *(Budapest, Hungary)*
Skeletal tuberculosis in a Late Neolithic series from Hungary

P-T14. **Á. Lehőcz, K. Szalontai, K. Ugocsai, A. Hajnal, J. Deák, A. Somfay** *(Szeged, Hungary)*
Evaluation of interferon-gamma release assay for the detection of active *Mycobacterium tuberculosis* infection

P-T15. **S. Lösch, M. Kim, O. Dutour, P. Courtaud, T. Romon, C. Sola, A. Zink** *(Talence, France)*
Evidence of *Mycobacterium tuberculosis* at 18th/19th century slaves in Anse Sainte-Marguerite (Guadeloupe)

P-T16. **C. Mitterer, G. Cipollini, A. Graefen, D. Piombino-Mascali, A. Zink, F. Maixner** *(Bolzano, Italy)*
A novel polymer-based DNA purification method supports removal of co-purified PCR-inhibitors from ancient tissue extracts

P-T17. **T. Hajdu, E. Fóthi, I. Kővári, M. Merczi, A. Marcsik, L. Márk** *(Szeged, Hungary)*
Bone tuberculosis in the Roman period Pannonia (western part of Hungary) – case report

POSTER VIEWING II. SATURDAY 24 MARCH 11:50–12:30

SATURDAY 24th MARCH, 2012 CARDIOLOGY

Chairs: István Baczkó *(Szeged, Hungary)*, Tatiana Ravingerova *(Bratislava, Slovakia)*

P-C26. **Z. Bagyura, Z. Szelid, P. Soós, O. Szenczi, Z. Andrási, L. Kiss, P. Józan, B. Merkely** *(Budapest, Hungary)*
Role of a primary prevention cohort based screening in the adherence of the cardiovascular target-values

P-C27. **P. Bencsik, K. Kupai, V. Sasi, T. Csont, I. Ungi, P. Ferdinandy** *(Szeged, Hungary)*
Matrix metalloproteinases and nitrosative stress in patients with coronary artery disease

P-C28. **L. Gellér, S. Szilágyi, E. Zima, T. Tahin, V. Kutyifa, E. Végh, H. Vágó, I. Osztheimer, G. Széplaki, B. Merkely** *(Budapest, Hungary)*
Coronary sinus side branch stenting a new tool for left ventricular lead fixation

P-C29. **Z. Kahán, F. Rárosi, A. Cserháti, Z. Együd, Z. Varga** *(Szeged, Hungary)*
Individual positioning for maximum heart protection during breast radiotherapy: the development of a practical tool based on a complex model

P-C30. **V. Kovács, B. Balatonyi, B. Borsiczky, B. Gasz, J. Lantos, G. Jancsó, N. Marczin, E. Rőth** *(Pécs, Hungary)*
Role of glutathione S-transferase p1 gene polymorphism in patients underwent cardiac surgery

P-C31. **P. Maurovich-Horvat, H. Alkadhi, C. Schlett, M. Kriegel, M. Nakano, F. Isuka, P. Stolzmann, H. Scheffel, M. Ferencik, R. Virmani, B. Merkely, U. Hoffmann** *(Budapest, Hungary)*
Vulnerable plaque detection with coronary CT angiography: the napkin-ring sign

P-C32. **S. N. Mirica, O. M. Duicu, A. Anechitei, O. Fira-Mladinescu, M. D. Muntean** *(Timisoara, Romania)*
Cardioprotection by magnesium orotate and orotic acid at reperfusion: comparable effects on functional recovery but not on infarct size

P-C33. **T. Radovits, G. Veres, B. Németh, R. Tóth, L. Hidi, T. Németh, I. Hartyánszky, B. Merkely, G. Szabó** *(Budapest, Hungary)*
Succesful heart transplantation after 12 hours of ischemic donor organ storage with the new organ preservation solution custodiol-n

P-C34. **G. Széplaki, Z. Bagyura, H. Vágó, A. Tóth, B. Sax, E. Édes, S. Walentin, G. Füst, Z. Prohászka, B. Merkely** *(Budapest, Hungary)*
Serum complement C3 levels are associated with ventricular volumes and mass in top athletes

POSTER VIEWING II. SATURDAY 24 MARCH 11:50–12:30

P-C35. **K. Úri, M. Fagyas, A. Kertész, Z. Csanádi, M. Clemens, G. Sándorfi, I. Ményiné Siket, Z. Papp, A. Tóth, I. Édes, E. Lizanecz** *(Debrecen, Hungary)*
Changes in ACE2 enzyme activity in systolic heart failure

SATURDAY 24th MARCH, 2012 GASTROENTEROLOGY

Chairs: Mark Donowitz *(Baltimore, MD, USA)*, József Maléth *(Szeged, Hungary)*

P-G8. **G. Valcz, F. Sipos, T. Krenács, A. Kalmár, A. V Patai, K. Leiszter, K. Tóth, B. Wichmann, B. Molnár, Z. Tulassay** *(Budapest, Hungary)*
The increasing appearance of epithelial-to-myofibroblast transition in line with transforming growth factor beta II receptor and toll-like receptor 9 protein expression during colorectal carcinogenesis

P-G9. **W. Xia, Y. Qin, B. Riederer, A. K. Singh, R. Engelhardt, P. Song, D. Tian, M. Soleimani, U. Seidler** *(Hannover, Germany)*
The anion transporter slc26a6 (putative anion transporter-1) regulates CO_2/HCO_3^- induced murine small intestinal fluid absorption

P-G10. **K. Farkas, Z. Rakonczay Jr., F. Nagy, T. Molnár, Z. Szepes, L. Varga, T. Takács, T. Wittmann, A. Schnúr, V. Venglovecz, Y. Sunil, J. Hubricht, B. Riederer, M. Király, Á. Zsembery, G. Varga, U. Seidler, P. Hegyi** *(Szeged, Hungary)*
The role of ion transporters in the pathogenesis of ulcerative colitis

P-G11. **L. Kiss, F. Walter, A. Bocsik, S. Veszelka, B. Ózsvári, L. Puskás, A. Szüts, P. Révész, M. Deli** *(Szeged, Hungary)*
Toxicity and absorption enhancer profile of surfactants on a human intestinal barrier model

P-G12. **L. Kotsis, M. Póczi** *(Salgótarján, Hungary)*
Original esophageal surgical procedures

P-G13. **D. Laczkó, A. Rosztóczy, P. Hegyi, Z. Rakonczay Jr., T. Wittmann, M. Katona, V. Venglovecz** *(Szeged, Hungary)*
Functional characterization of human oesophageal epithelial cells

POSTER VIEWING II. SATURDAY 24 MARCH 11:50–12:30

FRIDAY 23rd MARCH, 2012 IMMUNOLOGY & INFLAMMATION

Chairs: Rolland Gyulai *(Szeged, Hungary)*, Kornélia Szabó *(Szeged, Hungary)*

P-I13. **A. Marton, C. Vizler, E. Kusz, Z. Szathmary, K. Nagy, Z. Szegletes, G. Varo, L. Siklos, R. Katona, Z. Howard, E. Duda, J. Minarovits, K. Buzas** *(Szeged, Hungary)*
Melanoma cell-derived exosomes alter macrophage and dendritic cell functions in vitro

P-I14. **K. Szabó, E. Tóth-Molnár, K. Balogh, H. Polyánka, H. Orvos, H. Ócsai, L. Kemény, M. Széll, J. Oláh** *(Szeged, Hungary)*
Neonatal blue light phototherapy and melanocytic nevi: a twin study

P-I15. **R. Gyulai, F. Kovács-Sólyom, J. Prihoda, L. Kemény** *(Szeged, Hungary)*
Interleukin-1 receptors are differentially expressed in normal and psoriatic T lymphocytes

P-I16. **Á. Kinyó, S. Hambalkó, A. Bebes, Z. Kiss-László, Z. Bata-Csörgő, M. Széll, F. Nagy, L. Kemény** *(Szeged, Hungary)*
Cop1, a p53 interacting protein, is strongly expressed by proliferating keratinocytes, its expression decreases as cells differentiate and after UVB irradiation

P-I17. **G. Nagy, K. Gáspár, D. Minh, Z. Bacsó, G. Mócsai, D. Törcsik, E. Gyimesi, T. Bíró, É. Remenyik, A. Szegedi** *(Debrecen, Hungary)*
The role of myeloid dendritic cells in the polarization of effector T cells in atopic dermatitis

P-I18. **I. B. Nemeth, T. Krenacs, G. Kiszner, M. Kurunczi, E. Varga, A. Kinyo, Z. Bata-Csorgo, I. Korom, J. Olah, M. Szell, F. Nagy, L. Kemeny** *(Szeged, Hungary)*
Expression of human constitutive photomorphogenic protein-1 (COP1) in melanocytic and non- melanocytic tumours. An immunohistochemical study.

P-I19. **M. Resch, L. Marsovszky, E. Medgyessi, L. Kovács, J. Németh, A. Balog** *(Budapest, Hungary)*
In vivo examination of corneal langerhans cells in systemic lupus erythematosus (SLE) with confocal microscopy

P-I20. **H. Szabados, K. Uray, P. Silló, F. Hudecz, S. Kárpáti, S. Bösze** *(Budapest, Hungary)*
Determination of T-cell epitope regions of protein desmoglein 3 using synthetic oligopeptides: design, synthesis and in vitro activity

P-I21. **K. Szabó, G. Tax, E. Urbán, L. Kemény** *(Szeged, Hungary)*
The role of keratinocyte activation in acne pathogenesis

POSTER VIEWING II. SATURDAY 24 MARCH 11:50–12:30

P-I22. **P. Szeremy, I. Makai, M. Jani, L. Marton, S. Gedey, K. Jakab, P. Krajcsi, J. Marki-Zay** *(Szeged, Hungary)*
Investigation of transporter interactions of antimalarials in vitro

P-I23. **G. Tax, K. Szabó, E. Urbán, L. Kemény** *(Szeged, Hungary)*
Real-time monitoring of the interaction of keratinocytes and propionibacterium acnes bacterium

SATURDAY 24th MARCH, 2012 MOLECULAR BIOLOGY & GENETICS

Chairs: Judit Deák *(Szeged, Hungary)*, Árpád Lányi *(Debrecen, Hungary)*

P-M17. **C. Matta, J. Fodor, R. Takács, Á. Papp, T. Oláh, L. Csernoch, P. Gergely, R. Zákány** *(Debrecen, Hungary)*
Investigation of high-frequency Ca^{2+} oscillations in chondrifying cell cultures

P-M18. **A. I. Nagy, A. E. Herlihy, R. Gatsi, R. P. Vazquez-Manrique, B. Merkely, H. A. Baylis** *(Budapest, Hungary)*
Manipulating the rnai response by suppressing IP_3 signalling in Caenorrhabditis Elegans

P-M19. **N. Nagy, K. Farkas, Á. Kinyó, A. Meszes, K. Szentner, L. Kemény, M. Széll** *(Szeged, Hungary)*
The rs3185480 polymorphism of the adenomatosis polyposis coli down-regulated 1 (APCDD1) gene is associated with androgenic alopecia

P-M20. **J. Oláh, K. Balogh, E. Nemes, G. Uhercsák, Z. Kahán, G. Lázár, G. Farkas, H. Polyánka, E. Kiss, R. Gyulai, E. Varga, I. Korom, E. Keresztné Határvölgyi, L. Kaizer, L. Haracska, L. Tiszlavicz, L. Kemény, M. Széll** *(Szeged, Hungary)*
Identification of the R24P melanomapredisposing CDKN2A mutation in a patient with multiple primary malignancies

P-M21. **A. Péntek, K. Szebényi, Z. Erdei, G. Vofély, T. I. Orbán, B. Sarkadi, Á. Apáti** *(Budapest, Hungary)*
Directed differentiation of human embryonic stem cells into cardiomyocytes

P-M22. **B. Sági, P. Maraghechi, V. S. Urbán, B. Hegyi, R. Fajka-Boja, G. Kudlik, É. Monostori, E. Gócza, F. Uher** *(Budapest, Hungary)*
Comprehensive analysis of mouse mesenchymal stromal cells derived from various tissues and organs

POSTER VIEWING II. SATURDAY 24 MARCH 11:50–12:30

P-M23. **G. Somlyai, A. Kovács, I. Guller, Z. Gyöngyi, K. Krempels, I. Somlyai** *(Pécs, Hungary)*
Deuterium has a key role in tumour development – a new submolecular regulatory system

P-M24. **J. E. Szabó, G. Merényi, B. Vértessy, J. Tóth** *(Budapest, Hungary)*
Functional adaptation and allosteric regulation of the dUTPase superfamily

P-M25. **Á. Szepesi, Z. Matula, A. Szigeti, K. Német, P. Tátrai** *(Budapest, Hungary)*
An in vitro model for the study of enhanced cyclic AMP signaling in mesenchymal stem cells and their differentiated derivatives

P-M26. **P. Tátrai, Á. Szepesi, Z. Matula, A. Szigeti, F. Uher, K. Német** *(Budapest, Hungary)*
Immortalization of human adipose tissue derived stromal cells with human telomerase reverse transcriptase, BMI-1, and SV40 large T antigen

P-M27. **S. Tóth, A. Füredi, D. Türk, A. Síkhegyi, E. Kanta, G. Szakács** *(Budapest, Hungary)*
Screening and testing compounds killing selectively multidrug resistant cancer cells

P-M28. **Z. Tóth, Á. Pénzes, J. Pongrácz, J. Hunyadkürti, A. Valasek, B. Horváth, I. Nagy, C. F. Fekete** *(Pécs, Hungary)*
Whole transcriptome profiling of mono- and co-cultured two- and three dimensional in vitro liver models

P-M29. **S. Z.Tóth, V. Nagy, R. Tengölics, G. Schansker, G. Rákhely, K. L. Kovács, G. Garab** *(Szeged, Hungary)*
Novel role of ascorbatein the photosynthetic electrontransport. Physiological significance and potential biotechnological application

P-M30. **A. Valasek, K. Csepregi, Z. Tóth, I. Kerepesi, B. Frey, Á. Pénzes, Á. Juhász, B. Horváth, I. Nagy, C. Fekete** *(Pécs, Hungary)*
In silico analysis of thiotemplate multidomain gene clusters in Saccharomonospora Azurea

P-M31. **E. Varga, M. Kiss, K. Szabó, L. Kemény** *(Szeged, Hungary)*
Merkel cell carcinoma and merkel cell polyomavirus: a hungarian experience

P-M32. **I. Vida, A. Borsy, E. Tóth, E. Welker** *(Szeged, Hungary)*
Examination of nucleic acid binding of the newest prion protein, Shadoo, using agarose gel shift assay

P-M33. **B. Vodicska, A. Nyeste, A. Borsy, E.Tóth, E. Welker** *(Budapest, Hungary)*
Examination of the effect of a downstream translation initiation site on the localization of proteins using the secretory pathway

POSTER VIEWING II. SATURDAY 24 MARCH 11:50–12:30

SATURDAY 24th MARCH, 2012 NEUROSCIENCE

Chairs: Péter Klivényi *(Szeged, Hungary)*, János Kálmán *(Szeged, Hungary)*

P-N1. **B. Barkóczi, G. Juhász, Z. Bozsó, B. Penke, V. Szegedi** *(Szeged, Hungary)*
Abeta$_{1-42}$ impairs theta coupled firing of CA1 cells *in vivo*

P-N2. **P. G. Bencsura, A. Nyeste, E. Welker** *(Budapest, Hungary)*
The consequence of PRPC or Shadoo overexpression on the cytotoxic effect of the PRPC DCR mutant phenotype

P-N3. **A. Bocsik, A. N. M. Kablan, S. Veszelka, M. Pásztói, L. Vigh, B. Csiszár, F. Walter, L. Siklós, E. Búzás, A. Falus, D. Virgintino, M. A. Deli**
(Szeged, Hungary)
Injury-induced glial cell reactions in histamine deficient (HDC-KO) mice

P-N4. **E. Borbély, J. Horváth, Á. Kasza, Z. Frank, S. Furdan, G. Főr, T. Szögi, K. Németh, L. Fülöp, Z. Bozsó, Z. Penke, B. Penke** *(Szeged, Hungary)*
Intracerebroventricular administration of the syntethic AB$_{1-42}$ to the rat brain. Connection of spatial memory and spine density.

P-N5. **J. Horváth, T. Szögi, G. Müller, B. Penke, V. Szegedi** *(Szeged, Hungary)*
Different coping strategy of mice having high- or- low-anxiety related behavior

P-N6. **Z. Máté, S. Takács, E. Horváth, A. Szabó, A. Papp** *(Szeged, Hungary)*
Animal experiments on the functional neurotoxicity of metal nanoparticles

P-N7. **K. Pesti, A. Szabo, A. Mike** *(Budapest, Hungary)*
A fast method for assessing the type of sodium channel inhibitors

P-N8. **J. Samardzic, R. Matunovic, D. Obradovic** *(Belgrade, Serbia)*
Memory effects of benzodiazepine-site inverse agonists: are they potential cognition enhancers?

P-N9. **E. Varga, G. Juhász , Z. Bozsó, B. Penke, V. Szegedi** *(Szeged, Hungary)*
How Abeta$_{1-42}$ disrupts synaptic plasticity: effects on ltp and spiking activity in hippocampal slices

P-N10. **S. Veszelka, Z. Datki, A. Toth, F. Walter, E. Mózes, L. Fülöp, Z. Bozsó, B. Penke, M. A. Deli** *(Szeged, Hungary)*
Docosahexaenoic acid reduces beta-amyloid induces toxicity in cells of the neurovascular unit

POSTER VIEWING II. SATURDAY 24 MARCH 11:50–12:30

SATURDAY 24th MARCH, 2012 TUBERCULOSIS EVOLUTION

Chairs: Israel Hershkovitz *(Tel Aviv, Israel)*, Christophe Sola *(Paris, France)*

P-T18. **V. M. Matos, A. L. Santos** *(Coimbra, Portugal)*
Living and dying with tuberculosis as revealed by the archives of the Portuguese sanatorium Carlos Vasconcelos Porto (1918–1991)

P-T19. **E. Molnár, Z. Bereczki, G. Pálfi, A. Marcsik** *(Szeged, Hungary)*
Infants with atypical skeletal tuberculosis from the 8–9th century of Hungary

P-T20. **R. Müller, T. Brown, C. A. Roberts** *(Manchester, UK)*
Tuberculosis across Europe – an ancient DNA study

P-T21. **E. Neparáczki, A. Pósa, T. Török, G. Lovász, Z. Bereczki, E. Molnár, F. Maixner, A. Zink, G. Pálfi** *(Szeged, Hungary)*
Preliminary results from the paleomicrobiological studies of a Hungarian anthropological series

P-T22. **L. Paja, H. Coqueugniot, A. Palkó, G. Farkas L., Z. Bereczki, J. Gervain, O. Dutour, G. Pálfi** *(Szeged, Hungary)*
Tuberculosis as probable etiology of two knee ankyloses from medieval Hungary. Contribution of medical imaging and 3D reconstruction

P-T23. **G. Pálfi, Z. Bereczki, D. J. Ortner, O. Dutour** *(Szeged, Hungary)*
Juvenile cases of skeletal TB from the Terry Anatomical Collection (Smithsonian Institution, Washington DC, USA)

P-T24. **G. Pálfi, E. Molnár, A. Marcsik, Z. Bereczki, I. Pap, E. Fóthi, Á. Kustár, B. G. Mende, D. E. Minnikin, O. Y. Lee, G. S. Besra, M. Spigelman, J. O'Grady, H. D. Donoghue** *(Szeged, Hungary)*
Mycobacterium tuberculosis – Mycobacterium leprae coinfections from Hungary: osteological and biomolecular findings

P-T25. **A. Pósa, G. Lovász, Z. Bereczki, E. Molnár, F. Maixner, A. Zink, O. Dutour, J. Gervain, É. Hunyadi-Gulyás, H. Dürgő, G. Pálfi** *(Szeged, Hungary)*
Tuberculosis infection in a late-medieval Hungarian population

P-T26. **J. Pató, R. Székely, L. Őrfi, S. Magnet, R. C. Hartkoorn, S. T. Cole, G. Kéri** *(Budapest, Hungary)*
Nitroquinoxalines: new potential anti-TB compounds

POSTER VIEWING II. SATURDAY 24 MARCH 11:50–12:30

P-T27. **G. Refrégier, C. Borile, S. Franz, M. Labarre, C. Sola** *(Orsay, France)*
TB lineages: do we have the tools to identify pathogenic specificities?

P-T28. **M-C. Bernard and C. A. Roberts** *(Durham, UK)*
Tuberculosis: a demographic analysis and social study of admissions to a children's sanatorium (1936–1954) in Stannington, Northumberland

P-T29. **R. Siméone, L. Majlessi, F. Sayes, N. Honoré, A. Pawlik, W. Frigui, M. Nilges, C. Leclerc, R. Brosch** *(Paris, France)*
New insights into the complex formation of ESAT-6 and CFP-10 of *M. tuberculosis*

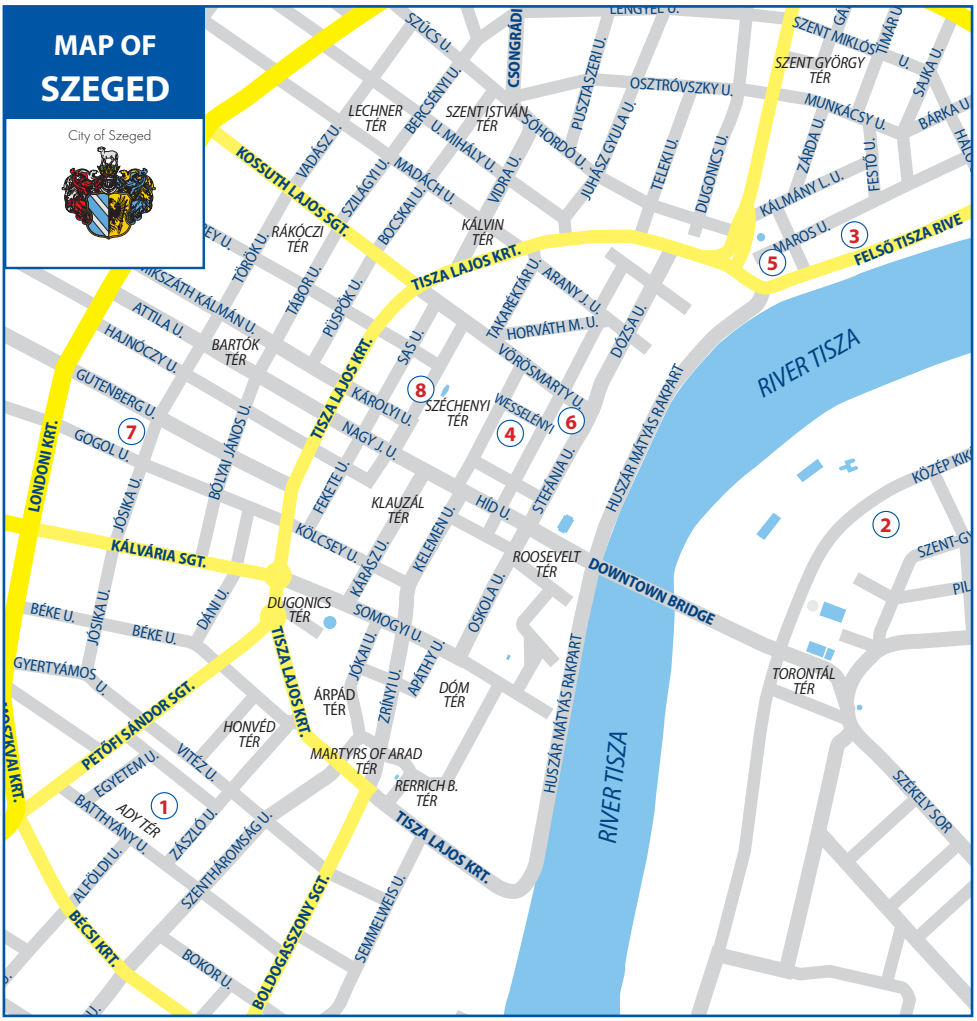
P-T30. **O. Spekker, G. Kozocsay, G. Pálfi, E. Molnár** *(Szeged, Hungary)*
Probable cases of skeletal tuberculosis from the Neolithic period of Hungary – a morphological study

P-T31. **R. Székely, G. Németh, N. Breza, C. Szántai-Kis, J. Pató, S. Magnet, R. C. Hartkoorn, A. Cascioferro, S. T. Cole, R. Brosch, L. Őrfi, G. Kéri** *(Budapest, Hungary)*
Drug development against *Mycobacterium tuberculosis* PknB, PknG and PknA kinases

P-T32. **I. Szikossy, I. Pap, Á. Kustár, G. Pálfi, E. Molnár, K. Karlinger, B. Kovács, M. Spigelman, H. D. Donoghue** *(Budapest, Hungary)*
Two positive TB cases in the late Nigrovits family, 18th century, Vác, Hungary

P-T33. **I. Szikossy, G. Pálfi, L. A. Kristóf, I. Horányi, K. Karlinger, B. Kovács, E. Riedl, M Spigelman, H. D. Donoghue, O. Dutour, H. Coqueugniot, I. Pap** *(Budapest, Hungary)*
The nun without a heart – A TB case from the 18th century, Vác, Hungary

P-T34. **G. Terhes, B. Kele, A. Somfay, J. Deák** *(Szeged, Hungary)*
Molecular detection of *Mycobacterum tuberculosis* infection in patients treated in university hospitals of Szeged



1. **TIK** *(6722 Szeged, Ady tér 10.)*
2. **HOTEL FORRÁS** *(6726 Szeged, Szent-Györgyi Albert u. 16-24.)*
3. **HOTEL NOVOTEL** *(6721 Szeged, Maros u. 1.)*
4. **HOTEL TISZA** *(6720 Szeged, Széchenyi tér 3.)*
5. **IH EVENT CENTRE** *(6721 Szeged, Felso Tisza-part 2.)*
6. **NATIONAL THEATRE** *(6720 Szeged, Vaszy Viktor tér 1.)*
7. **NEW SYNAGOGUE** *(6722 Szeged, Gutenberg u. 20.)*
8. **CITY HALL** *(6720 Szeged, Széchenyi tér 10-11.)*

SOCIAL EVENTS

The **Szeged Folkdance Ensemble and the Duna Art Ensemble** will perform together with the best Hungarian violin players **Ferenc Radics and István Pál** (Thursday), the internationally known Hungarian organ player **Xaver Varnus** (Saturday) and one of Hungary's most appreciated and popular piano players **Csilla Szentpéteri** (Sunday) will follow each other. We ensure everyone that the performances during the social events will be as high level as the presentations during the scientific programme.

On behalf of the organizing committee,

Péter Hegyi,
General Secretary of the Conference

1. Folkdance Evening

delivered by the Szeged Folkdance Ensemble, the Duna Art Ensemble and the Hungarian State Folk Orchestra lead by Ferenc Radics and István Pál.

National Theatre, Szeged, 22nd March, 2012

Dancing provided the primary source of recreation for Hungarian people before the times of electronic entertainment. The captivating motions accompanied by music and/or singing is a spectacular visualization of the Hungarian people's rich emotional world which they strive to preserve in spite of the unstoppable spread of modern lifestyle. Singing folk songs and dancing enlivened not only people's holidays but it also brought some cheerfulness in their workdays. Dancing was also an integral part of a wide range of social occasions. It provided an effective forum for group and couple interaction including courtship.

Nowadays, many young Hungarian people go to folk dance houses to keep folk dance traditions in Hungary. Numerous folk dance schools have been founded, folk dance lessons became part of school lectures, and the Hungarian Dance Academy launched a folk dance course. Today many civil associations, festivals and countless folk ensembles (both professional and amateur) cultivate folk dance traditions in Hungary. During the opening ceremony you can enjoy a composition of Hungarian Folk Dance with one of the top Hungarian Folkdance Ensembles The Szeged Folkdance Ensemble was founded over fifty years ago and has been giving performances all over the world. One of the highlights of the evening is that **Ferenc Radics**, **and István Pál** the best Hungarian violin players (both artists have received the **Cross of Merit of the Republic of Hungary** from the president of Hungary), will entertain you!

2. Organ Concert

delivered by the internationally highly ranked Hungarian organ player Xavér Varnus

New Synagogue, Szeged, 24th March, 2012

Xavér Varnus is an internationally renowned organist who has built up a world-wide reputation as an innovative musician and dazzling performer. He was born in 1964. After his Hungarian music education he became a student of Pierre Cochereau in Paris and Lorenz Stolzenbach in Leipzig. Since 1977 he has had more than 3000 concerts. His concerts are always performed to full house. His performances are known for their musicality, virtuosity and ability to excite and engage audiences of all ages. He is also famous for his art of improvisation. He received the **Officer's Cross Order of Merit of the Republic of Hungary**.

The concert will be held in the New Synagogue. The New Synagogue is the second biggest Synagogue of Hungary. The most beautiful part of the synagogue is the interior of the dome, which symbolizes the world. According to the teachings of Jewish religion, morality is determined by three factors: work, culture, good deeds. In biblical language this can be expressed by four wonds, which are painted in Hebrew on the gussets above the colums holding the dome. The 24 colums of the drum of the cupola represent the 24 hours of a day, above it the briar - bush flowers on a blue background symbolize faith. Above the greenish-brown ornamentation representing vegetation, the experience of infinite space manifests itself in the gradually darkening star-strewn blue glass dome. In the middle is the Star of David (Magen David),

around it the sun's rays, which can be illuminated, crown the firmament. The dome and all the lead glasses were created by Miksa Róth.

3. Piano Concert / Gala Dinner

delivered by the popular Hungarian piano player Csilla Szentpéteri

TIK, Concert Hall, 25th March, 2012

Genre: Csilla Szentpéteri

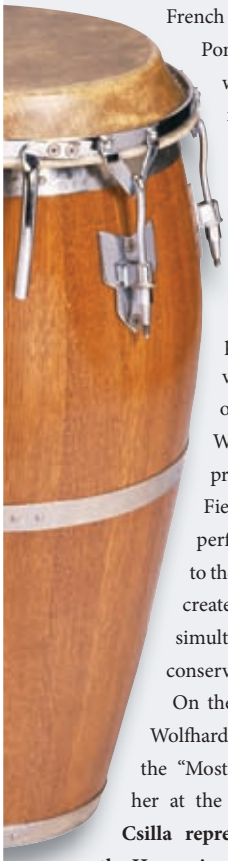
That is to say another way of playing the piano.

Concert of Csilla Szentpéteri and the Latin Trio

At the turn of the Millennium, Csilla Szentpéteri, accomplished pianist, conceived a brave idea and dash into revolutionizing classical music rules otherwise carved in stone. A creator has emerged from beneath the interpreter, who handles original classical work as a co-composer. Pending upon her feelings and mood, sometimes she continues a melody thread, sometimes cuts it, sometimes changes and sometimes amalgamates those with contemporary genres, always into something new. She bravely draws on rock, Latin, and jazz phraseology, adding stirring rhythms and passionate guitar solos to her piano playing and hence re-formulating centuries-old musical essence into a peculiar, and unique expression of world-music.

Csilla's temperament and virtuosity is best demonstrated by "Spiritus", her new record, where she follows her own spirit and freely ventures back and forth between past and present. The repertoire of Csilla Szentpéteri invites us to an exciting wandering across the world of music.

The famous Monti czardas as an Argentinean Tango is a real delicacy, not to mention Beethoven's well-known symphony presented as an alloy with assorted rock colours, the melody of Piazzolla inseminated by



French flavours, and the presentation of Ponchielli's Dance of Hours filled with spiritus. Paganini's fiery melody intoned as a deviously pulsating salsa, while the whirligig melody by Albeniz is delivered in a tempestuous flamenco rhythm.

Via her own compositions, Csilla guides us to a variety of peculiar realms. We can easily visualize a Cuban night-club or an exciting flashback of a Western, we can fully escape the present through a frisky Spanish Fiesta, and even experience the perfect state of mind while listening to the piece titled All Inclusive. Csilla creates something new, something simultaneously modern and artistic, conservative and progressive.

On the 1st of January in 1997, Baron Wolfhard von Boeselager presented with the "Most Talented Young Artist" prize her at the Academy of Music. **In 2004, Csilla represented Hungary along with the Hungarian Prime Minister in Brussels to celebrate Hungary joining the European Union.**

Contributors:

János Kormos guitars
Balázs Szendőfi bass
József Czibere percussion

www.szentpetericsilla.hu

PUBLIC EVENTS

Open Forum

Venue: ***TIK, Concert Hall***
Date: ***14:00, 23rd March, 2012***
Head organizers: ***Ágnes Végh, György Pálfi, József Pál***

The presence of 9 Nobel Prize Winners in Szeged, who visit our city on the occasion of the 75th anniversary of Albert Szent-Györgyi's Nobel prize award, is a great opportunity for a meeting between prominent scientists and young people susceptible of science.

We believe that meeting the Nobel Laureates in person and the open exchanges of views can provide the future generation with not only a life-long experience but it can also strengthen their scientific interest on a long term.

Within the frames of *'Open Forum',* which will take place on **23rd March, 2012** from **2 pm**, hundreds of secondary school students, university students and PhD students will be given the chance to meet the nine Nobel Prize winners.

The *'Open Forum',* includes presentations on the nine Nobel Laureates performed by Hungarian secondary school students coming from 3 counties of Hungary and from Serbia; and an interactive talk show. The main participants of the talk show are secondary students, who won the multi-round contest organized by the University of Szeged.

Tree of Sciences

Venue: ***TIK***
Date: ***14:00, 24th March, 2012***
Head organizers: ***Ferenc Izbéki, György Pálfi, József Pál***

The Nobel Prize Laureates visiting Szeged and the University of Szeged made a resolution that it is essential to commemorate such a special anniversary in a way that future generations will be able to experience their respect and commitment for science.

The *'Tree of Sciences'* will be planted on **24th March, 2012** at **2 pm**; in a memorial planned by István Novák – former senior architect of the City of Szeged, who has also been awarded the *Prima Primissima Prize* – located in the park of the *University of Szeged József Attila Study and Information Centre.*

The *'Tree of Sciences'* – an oak from the *Botanical Garden of the University of Szeged* – will be planted by the Nobel Laureates and the leaders of the University of Szeged together.

Mihály Fritz – sculptor and medalist, awarded with the Ligeti Prize – designed a memorial tablet, which will perpetuate the names and the main data of the Nobel Prizes of the nine laureates who visited Szeged and saluted the reminiscence of Albert Szent-Györgyi.

TUDOMÁNYOK FÁJA - TREE OF SCIENCES

SZENT-GYÖRGYI ALBERT NOBEL-DÍJ ÁNAK
75. ÉVFORDULÓJA ALKALMÁBÓL ÜLTETTE
A SZEGEDI TUDOMÁNYEGYETEM
ÉS 9 NOBEL-DÍJAS TUDÓS

PLANTED BY THE UNIVERSITY OF SZEGED
AND 9 NOBEL LAUREATE SCIENTISTS
ON THE OCCASION OF THE 75TH ANNIVERSARY OF
ALBERT SZENT-GYÖRGYI'S NOBEL PRIZE AWARD

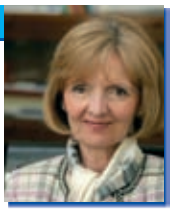
2012. március 24. 24th March 2012

Laureate	Nobel Prize	Date	Affiliation
ANDREW V. SCHALLY	Physiology or Medicine	1977	Veterans Administration Hospital, New Orleans, LA, USA
ROBERT HUBER	Chemistry	1988	Max-Planck-Institut für Biochemie, Martinsried, Germany
BERT SAKMANN	Physiology or Medicine	1991	Max-Planck-Institut für Medizinische Forschung, Heidelberg, Germany
ERIC WIESCHAUS	Physiology or Medicine	1995	Princeton University, Princeton, NJ, USA
PETER C. DOHERTY	Physiology or Medicine	1996	St. Jude Children's Research Hospital, Memphis, TN, USA
JOHN E. WALKER	Chemistry	1997	M.R.C. Laboratory of Molecular Biology, Cambridge, United Kingdom
TIM HUNT	Physiology or Medicine	2001	Imperial Cancer Research Fund, London, United Kingdom
AARON CIECHANOVER	Chemistry	2004	Technion - Israel Institute of Technology, Haifa, Israel
ADA E. YONATH	Chemistry	2009	Weizmann Institute of Science, Rehovot, Israel

Biography of the invited faculty

ÁDÁM VIZI VERONIKA

NEUROSCIENCE



AFFILIATION
Department of Medical Biochemistry, Semmelweis University – **Budapest, Hungary**

RESEARCH INTERESTS
The pathomechanism of oxidative stress and the protecting mechanisms in the nervous system.

MOST IMPORTANT DISCOVERIES
Characterisation of the role of mitochondrial complex I in ROS production and neurodegeneration.
Describing the consequences of a $[Na^+]i$ load and oxidative stress in isolated nerve terminals.
Exploring the significance of α-Ketoglutarate dehydrogenase in conditions involving oxidative stress.
The excessive ROS generation of selected dihydrolipoamide dehydrogenase (LADH) mutants could be an important factor in the pathology and clinical presentation of human LADH deficiency and raises the possibility of an antioxidant therapy in the treatment of this condition.

PRIZES
1998: AJK János Szentágothai Prize
2000: László Batthyány-Strattmann Prize
2000: Gold cross of merit of the Republic of Hungary
2005: Arnold Ipolyi Prize (OTKA)
2005: Genersich Prize
2010: Széchenyi prize

MOST IMPORTANT PUBLICATIONS
1. Adam-Vizi V, Chinopoulos C. Bioenergetics and the formation of mitochondrial reactive oxygen species. ***Trends in Pharmacological Sciences*** 2006; 27:639-645
2. Chinopoulos C, Tretter L, Rozsa A, Adam Vizi V. Exacerbated responses to oxidative stress by an Na^+ load in isolated nerve terminals: the role of ATP depletion and rise of $[Ca^{2+}](i)$. ***Journal of Neuroscience*** 2000; 20:2094-2103
3. Tretter L, Adam Vizi V. Inhibition of Krebs cycle enzymes by hydrogen peroxide: A key role of alpha-ketoglutarate dehydrogenase in limiting NADH production under oxidative stress. ***Journal of Neuroscience*** 2000; 20:8972-8979
4. Ambrus A, Torocsik B, Tretter L, Ozohanics O, Adam-Vizi V. Stimulation of reactive oxygen species generation by disease-causing mutations of lipoamide dehydrogenase. ***Human Molecular Genetics*** 2011; 20:2984-2995

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AKDIS, Cezmi A

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Swiss Institute of Allergy and Asthma Research (SIAF) Zurich University Medical Faculty European Academy of Allergy Clinical Immunology (EAACI). Christine Kühne Center for Allergy Research and Education (CK-CARE) – **Davos, Switzerland**

RESEARCH INTERESTS
Immune regulation, immune tolerance. T cell interaction with tissue cells. Novel vaccines for the treatment and prevention of allergy.

MOST IMPORTANT DISCOVERIES
Human T regulatory cells. Immunoregulation by histamine. Mechanisms of eczema.
Multiple mechanisms of immune tolerance to allergens.

PRIZES
1992: Best study in Viral Hepatitis, 1996: Ferdinand Wortman Prize, 1998: Hoechst Marion Roussel Award, 1998: Professor Hans Storck Award, 1998: Dr.-Karl Heyer-Preis, 1998: Sedat Simavi Medicine Award
2001: Allergopharma Award, 2004: European Allergy Research "Gold Medal", 2007: National Academy of Sciences of Turkey, Exclusive Award

MOST IMPORTANT PUBLICATIONS
1. Akdis CA, Blesken T, Akdis M, Wüthrich B, Blaser K. Role of interleukin 10 in specific immunotherapy. ***J. Clin. Invest.*** 1998; 102:98-106.
2. Trautmann A, Akdis M, Kleemann D, Altznauer F, Simon HU, Gaeve T, Noll M, Bröcker EB, Blaser K, Akdis CA. T cell-mediated, Fas-induced keratinocyte apoptosis plays a key pathogenetic role in eczematous dermatitis. ***J. Clin. Invest.*** 2000; 106: 25-35.
3. Jutel M, T. Watanabe T, Klunker S, Akdis M, Thomet OAR, Malolepszy J, Zak-Nejmark T, Koga R, Kobayashi T, Blaser K, & Akdis CA. Histamine regulates T-cell and antibody responses by differential expression of H1 and H2 receptors. ***Nature.*** 2001; 413:420-425.
4. Klunker S, Chong MM, Mantel PY, Palomares O, Bassin C, Ziegler M, Rückert B, Meiler F, Akdis M, Littman DR, Akdis CA. Transcription factors RUNX1 and RUNX3 in the induction and suppressive function of Foxp3+ inducible regulatory T cells. ***J. Exp. Med.*** 2009; 206:2701-15.

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Swiss Institute of Allergy and Asthma Research (SIAF), Obere Strasse 22, CH-7270 Davos, Switzerland
e-mail: akdisac@siaf.uzh.ch – www.siaf.uzh.ch – Tel.: 00 41 81 4100848, Fax: 00 41 81 4100840

AKDIS, Mübeccel

IMMUNNOLOGY & INFLAMMATION

AFFILIATION

Swiss Institute of Allergy and Asthma Research (SIAF) **Davos** – **Switzerland**

RESEARCH INTERESTS

Allergic diseases and asthma affect almost one third of the European population, with a substantial social and economic impact on the society. Understanding the mechanisms of immune response that prevent disease occurrence in non-allergic individuals and evidence for treatment by healing of altered regulatory mechanisms in allergic diseases offers promises for new immune interventions. Our research is concentrated on cellular and molecular mechanisms that play a role in the generation of immune tolerance versus reactivity due to changing balance between the regulatory and effector B cell subsets. In addition, my group is aiming to develop new pathophysiological insights into interaction of the immune system cells in humans, particularly recently identified effector T cell subsets, the Th22 cells. Human tonsils provide a useful microenvironment for the generation of aeroallergen and food antigen-specific immune tolerance and enable a suitable model to study human effector and regulatory arms of T cells and B cells and their interaction. Most studies reported so far have been conducted in mice, and there is no specific report that directly analyses human effector and regulatory B cells.

MOST IMPORTANT DISCOVERIES

Role of histamine in immune regulation. Mechanisms of healthy immune response to allergens. Role of skin homing T cells in allergy.

PRIZES

1996: Ferdinand Wortman Prize, Swiss Society of Allergy Immunology, given for the best study.
1998: Professor Hans Storck Award: In occasion of the 50th Anniversary of the Allergy Unit, University Hospital Zürich
2006: Sedat Simavi Medicine Award: Sedat Simavi Foundation, Turkey, given for major contributions in medical research.

MOST IMPORTANT PUBLICATIONS

1. Akdis M, Verhagen J, Taylor A, Karamloo F, Karagiannidis C, Crameri R, Thunberg S, Deniz G, Valenta R, Fiebig H, Kegel C, Disch R, Schmidt-Weber CB, Blaser K, Akdis CA. Healthy or allergic immune response characterized by fine balance between allergen-specific T regulatory 1 and T helper 2 cells. ***J. Exp. Med.*** 2004; 199:1567-1575.
2. Meiler F, Zumkehr J, Klunker S, Rückert B, Akdis C.A, Akdis M. In vivo switch to IL-10-secreting T regulatory cells in high dose allergen exposure. ***J. Exp. Med.*** 2008; 205:2887-98
3. Akdis M, Trautmann A, Klunker S, Daigle I, Kucuksezer UC, Deglmann W, Disch R, Blaser K and Akdis CA. T helper (Th)2 predominance in atopy is due to preferential Th1 memory/effector cell apoptosis. ***FASEB J.*** 2003; 17:1026-35.
4. Jutel M*, Akdis M*, Budak F, Aebischer-Casaulta C, Wrzyszcz M, Blaser K and Akdis CA. IL-10 and TGF-b cooperate in regulatory T cell response to mucosal allergens in normal immunity and specific immunotherapy. ***Eur. J. Immunol.*** 2003; 33:1205-1214*: First co-authors

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ANTZELEVITCH, Charles

CARDIOLOGY

AFFILIATION

Masonic Medical Research Laboratory – **Utica, USA**

RESEARCH INTERESTS

Cardiac Electrophysiology and Pharmacology. Electrophysiological and pathophysiological basis of cardiac arrhythmias. Sudden Cardiac Death. Genetic, Cellular and Ionic Basis for Inherited Cardiac Arrhythmia DiseasesBrugada. Sudden Infant Death Syndrome (SIDS). Electrical heterogeneity as the basis for electrocardiographic (ECG) manifestations. Molecular Biology of ion channels in the heart. Ionic distinctions among different cell types in the heart. Molecular Genetics of inherited cardiac arrhythmia syndromes.

MOST IMPORTANT DISCOVERIES

Discovery and characterization of reflected reentry, phase 2 reentry, and late phase 3 EADs as mechanisms of extrasystolic activity capable of precipitating life–threatening ventricular tachycardia and fibrillation. Pioneered delineation of electrical heterogeneity within ventricular myocardium, particularly transmural dispersion of repolarization and discovered a unique population of cells, named M cells, opening new doors to our understanding of cardiac electrophysiology and pharmacology. Delineated the cellular and ionic basis for the long QT, Brugada, and short QT syndromes as well as catecholaminergic VT; and design of novel approaches to therapy of these syndromes. Delineated the cellular and ionic basis fore the J wave and T wave of the ECG. Uncovered the genetic basis for Brugada, Short QT, Long QT and Early Repolarization syndromes and design of novel therapeutic modalities.

PRIZES

2001: Distinguished Achievement Medal-Grand Lodge of Masons of NYS; 2002: Distinguished Scientist Award-NASPE (Heart Rhythm Society)
2003: Excellence in Cardiovascular Science Award- NE Affiliate American Heart Association; 2007: Carl J. Wiggers Award-American Physiological Society
2011: Distinguished Scientist Award-American College of Cardiology

MOST IMPORTANT PUBLICATIONS

1. Antzelevitch C, Sicouri S, Litovsky SH, Lukas A, Krishnan SC, Di Diego JM, Gintant GA, Liu D-W: Heterogeneity within the ventricular wall. Electrophysiology and pharmacology of epicardial, endocardial and M cells. ***Circ Re***s 1991; 69: 1427-1449.
2. Sicouri S, Antzelevitch C. A subpopulation of cells with unique electrophysiologic properties in the deep subepicardium of the canine ventricle. The M cell. ***Circ Res*** 1991; 68:1729-1741.
3. Antzelevitch C, Brugada P, Borggrefe M, Brugada J, Brugada R, Corrado D, Gussak I, LeMarec H, Nademanee K, Riera ARP, Tan H, Shimizu W, Schulze-Bahr E, Wilde A. Brugada Syndrome. Second Consensus Report. ***Circulation and Heart Rhythm***, 2005.
4. Antzelevitch C, Yan GX. J wave syndromes. ***Heart Rhythm***, 2010; 7:549-558.

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ARATÓ, András

GASTROENTEROLOGY

AFFILIATION
First Department of Paediatrics, Semmelweis University – **Budapest, Hungary**

RESEARCH INTERESTS
Innate and adaptive immunity in the pathogenesis of coeliac disease and IBD.

MOST IMPORTANT DISCOVERIES
I was part of that research group which discovered in 1989 that the number of gamma/delta receptor positive T-cells is increased among the intraepithelial lymphocytes of patient with coeliac disease. It was also proved that their number is elevated even on a gluten free diet and so the detection of these cells helped to diagnosis of coeliac disease in controversial cases. Our group proved also that the expression of toll-like receptors 2 and 4 is increased in untreated coeliac patients and their number remains elevated in gluten-free diet. TLR2 and TLR4 expression are also elevated in the involved colonic mucosa of patients with IBD.

PRIZES
Best reviewer of JPGN in 2006, distinguished tutor of Student Scientific Organization at Semmelweis University

MOST IMPORTANT PUBLICATIONS
1. Arató A, Savilahti E, Tainio V-M., Verkasalo M, Klemola T. HLA-DR expression, NK cells and IgE containing cells in the jejunal mucosa of children with coeliac disease. **Gut**, 1987; 28:988-994.

2. Savilahti E, Arató A, Verkasalo M. Intestinal gamma/delta bearing T lymphocytes in coeliac disease and inflammatory bowel disease in children. Constant increase in coeliac disease. ***Pediatr. Res***., 1990; 28:579-581.

3. Szebeni B, Veres G, Dezsőfi A, Rusai K, Vannay Á, Bokodi G, Vásárhelyi B, Korponay-Szabó IR, Tulassay T, Arató A. Increased mucosal expression of toll-like receptor (TLR)2 and TLR4 in coeliac disease. ***J Pediatr Gastroenterol Nutr*** 2007; 45:187-193.

4. Vannay A, Sziksz E, Prókai A, Veres G, Molnár K, Nagy Szakál D, Onódy A, Korponay-Szabó IR, Szabó A, Tulassay T, Arató A, Szebeni B. Increased expression of hypoxia inducible factor 1alpha in coeliac disease. ***Pediatr Res*** 2010; 68:118-122

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ARGENT, Barry E

GASTROENTEROLOGY

AFFILIATION
Institute for Cell & Molecular Biosciences University Medical School, University of Newcastle – **Newcastle upon Tyne, UK**

RESEARCH INTERESTS
My research is focused on the physiology and pathophysiology of the pancreatic ductal epithelium. This unique epithelium secretes an alkaline fluid containing about 140 mM sodium bicarbonate that is essential for the effective digestion of food in the gut. I am particularly interested in studying the involvement of the ductal epithelium in two diseases: cystic fibrosis and acute pancreatitis.

MOST IMPORTANT DISCOVERIES
My major contribution lies in the development of techniques for the isolation and culture of pancreatic ducts, and in the application of cellular physiology techniques to study the mechanisms of ductal bicarbonate secretion. In 1988 my laboratory at the University of Newcastle discovered the cyclic AMP-activated, low conductance, chloride channel on the apical membrane of pancreatic duct cells that later turned out to be CFTR. More recently I have been studying the regulation of ductal bicarbonate secretion (particularly inhibitory mechanisms which are important in protecting the ductal system from over expansion) and also the pathophysiology of the ducts in pancreatitis. Much of this latter work has been carried out in collaboration with colleagues at the University of Szeged.

PRIZES
2004: Hungarian Gastroenterological Society. Elected to Honorary Membership for contributions to pancreatic research.
2006-2007: European Pancreatic Club President

MOST IMPORTANT PUBLICATIONS
1.Gray MA, Greenwell JR, Argent BE. Secretin-regulated chloride channel on the apical plasma membrane of pancreatic duct cells. ***J Membr Biol*** 1988; 105:131-142.

2. Gray MA, Harris A, Coleman L, Greenwell JR, Argent BE. Two types of chloride channel on duct cells cultured from human fetal pancreas. ***Am J Physiol*** 1989; 257:C240-C251.

3. Gray MA, Pollard CE, Harris A, Coleman L, Greenwell JR, Argent BE. Anion selectivity and block of the small-conductance chloride channel on pancreatic duct cells. ***Am J Physiol*** 1990; 259:C752-C761.

4. Gray MA, Plant S, Argent BE. cAMP-regulated whole cell chloride currents in pancreatic duct cells. ***Am J Physiol*** 1993;2 64:C591-C602.

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Framlington Place, Newcastle upon Tyne, NE2 4HH, UK
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ARIAS, Alfonso Martinez

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Department of Genetics, University of Cambridge – **Cambridge, UK**

RESEARCH INTERESTS
Molecular devices for information processing in cells.

MOST IMPORTANT DISCOVERIES
Molecular links between Wnt and Notch signalling. Role of noise in the maintenance of heterogeneities in gene expression during changes of cell state. Morphological constraints in the relationships between gene expression and embryo patterning.

PRIZES
2010: ERC Advanced Research Grant
2007: Elected EMBO member

MOST IMPORTANT PUBLICATIONS
1. Kalmar T, Lim C, Hayward P, Muñoz Descalzo S, Garcia Ojalvo J. and Martinez Arias A. Regulated fluctuations in Nanog expression mediate cell fate decisions in embryonic stem cells. ***PLoS Biol*** 2009; 7:e1000149.
2. Sanders PG, Muñoz-Descalzo S, Balayo T, Wirtz F, Hayward P and Martinez Arias A. Ligand independent traffic of Notch buffers the activity of Armadillo in Drosophila. ***PLoS Biol.*** 2009; 7:e1000169
3. Martinez Arias A and Hayward P. Filtering transcriptional noise during development: concepts and mechanisms. ***Nature Reviews Genetics*** 2006; 7:34-44.
4. Couso JP, Bate CM and Martinez Arias A. A wingless dependent polar coordinate system in the imaginal discs of Drosophila. ***Science*** 1993; 259:484-489.

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BANERJEE, Utpal

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Broad Stem Cell Research Center University of California – **Los Angeles, USA**

RESEARCH INTERESTS
Signal Transduction, oncogenic and metabolic control of cell fate, stress response and hematopoietic development.

MOST IMPORTANT DISCOVERIES
Earlier work from Banerjee's laboratory identified the Son of sevenless (Sos) gene that links RTKs to the oncogene Ras. His laboratory has also identified novel means by which different signal transduction cascades combine to distinguish between neural and non-neural cell types. They have also made critical discoveries in identifying transcription factors and signaling components that are responsible for hematopoiesis in *Drosophila*. The current goal of the laboratory is to explore the intersection of cell signaling with metabolism, particularly that of mitochondria, in the contexts of normal development and dysfunction.

PRIZES
2011: NIH Director's Pioneer Award

2002, 2006, 2010: Howard Hughes Medical Institute Professors Award

2010: Elizabeth W. Jones Award for Excellence in Education, Genetics Society of America

2009: Fellow of the American Association for the Advancement of Science

2008: Fellow of the American Academy of Arts and Sciences

MOST IMPORTANT PUBLICATIONS
1. Mukherjee T, Kim W, Mandal L, Banerjee U. Ligand independent activation of Notch mediated by Sima/Hif-1α during Drosophila hematopoiesis. ***Science*** 2011; 332:1210-1213.
2. Owusu-Ansah E, Banerjee U. Reactive oxygen species prime Drosophila hematopoietic progenitors for differentiation. ***Nature*** 2009; 461:537-541.
3. Owusu-Ansah, E., Yavari, A., Mandal, S.,and Banerjee, U. Distinct mitochondrial retrograde signals control the G1-S checkpoint in mitosis. ***Nature Genetics*** 2008; 40:356-361.
4. Mandal, L., Augusto-Martinez,J., Evans, C., Hartenstein, V., and Banerjee, U. A Hedgehog and Antennapedia dependent niche controls Drosophila hematopoietic precursors. ***Nature*** 2007; 446:320-324.

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e-mail: banerjee@mbi.ucla.edu– Tel.: 00 1 310 206 5439, Fax: 00 1 310 206 9062

BÁNHEGYI, Gábor

NEUROSCIENCE

AFFILIATION
Department of Medical Chemistry, Molecular Biology and Pathobiochemistry, Semmelweis University – **Budapest, Hungary**

RESEARCH INTERESTS
Endoplasmic reticulum redox.

MOST IMPORTANT DISCOVERIES
Description and characterization of the glutathione and dehydroascorbate transport in the endoplasmic reticulum; demonstration of the role of dehydroascorbate in oxidative protein folding; demonstration of the uncoupling of the glutathione and pyridine nucleotide redox systems in the endoplasmic reticulum lumen; verification of the functional coupling between 11β-hydroxysteroid dehydrogenase type 1 and hexose-6-phosphate dehydrogenase in the lumen of the endoplasmic reticulum.

PRIZES
1998-2001: Széchenyi Professorial Fellowship
1999: Huzella Award and Medal of Semmelweis University
2005-2010: "Rientro dei Cervelli" Fellowship

MOST IMPORTANT PUBLICATIONS
1. Piccirella S, Czegle I, Lizák B, Margittai E, Senesi S, Papp E, Csala M, Fulceri R, Csermely P, Mandl J, Benedetti A, Bánhegyi G. Uncoupled redox systems in the lumen of the endoplasmic reticulum. Pyridine nucleotides stay reduced in an oxidative environment. ***J Biol Chem*** 2006; 281:4671-7.
2. Bánhegyi G, Benedetti A, Fulceri R, Senesi S. Cooperativity between 11β-hydroxysteroid dehydrogenase type 1 and hexose-6-phosphate dehydrogenase in the lumen of the endoplasmic reticulum. ***J Biol Chem*** 2004; 279:27017-21.
3. Bánhegyi G, Lusini L, Puskás F, Rossi R, Fulceri R, Braun L, Mile V, di Simplicio P, Mandl J, Benedetti A. Preferential transport of glutathione versus glutathione disulfide in rat liver microsomal vesicles. ***J Biol Chem*** 1999; 274:12213-6.
4. Bánhegyi G, Marcolongo P, Puskás F, Fulceri R, Mandl J, Benedetti A. Dehydroascorbate and ascorbate transport in rat liver microsomal vesicles. ***J Biol Chem*** 1998; 273:2758-62.

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BARI, Ferenc

NEUROSCIENCE

AFFILIATION
University of Szeged, Faculties of Medicine, Science & Informatics Department of Medical Physics and Informatics
Szeged, Hungary

RESEARCH INTERESTS
Microcirculation, cerebrovascular regulation, neurovascular coupling, experimental stroke, neuroprotection.

MOST IMPORTANT DISCOVERIES
In animal studies characterization of:
- dynamics of autoregulation in the cerebral cortex and the cochlea
- neurovascular coupling and its modulation by hypoxia in the newborn brain
- neuroprotective properties of several antioxidant compounds and
- COX-2 dependent vascular responses in the newborn brain
- differences in hypoxia sensitivity of the K+ channels in the cerebrovascular smooth muscle
- neuroprotective properties of agents acting on mitochondrial KATP channels.

PRIZES
1999-2002: Széchenyi Professorship
2003: Fulbright Research Fellowship
2009: Master Teacher "Gold Medal" awarded by the Minister of Education and Culture

MOST IMPORTANT PUBLICATIONS
1. Bari F, Louis TM, Meng W, Busija DW. (1996) Global ischemia impairs ATP sensitive K+ channel function in cerebral arterioles in piglets. ***Stroke*** 1996; 27:1874 81.
2. Bari F, Errico RA, Louis TM, Busija DW. Interaction between ATP sensitive K+ channels and nitric oxide on pial arterioles in piglets. ***J Cerebral Blood Flow Metab*** 1996; 16:1158 64.
3. Domoki F, Perciaccante J,Veltkamp R, Bari F, Busija DW. Mitochondrial potassium channel opener diazoxide preserves neuronal – vascular function after cerebral ischemia in newborn pigs. ***Stroke*** 1999;30:2713-9.
4. Farkas E, Luiten PGM, Bari F Permanent, bilateral common carotid artery occlusion in the rat: a model for chronic cerebral hypoperfusion-related neurodegenerative diseases ***Brain Res Rev*** 2006; 54:162-80.

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BARRETT, Kim E.

GASTROENTEROLOGY

AFFILIATION
University of California – **San Diego, USA**

RESEARCH INTERESTS
The Barrett lab is interested in the physiology and pathophysiology of the intestinal epithelium, with a particular focus on ion transport and barrier function in the setting of infectious and inflammatory diseases.

MOST IMPORTANT DISCOVERIES
Basic mechanisms underlying the secretion of chloride by the gastrointestinal epithelium, and the regulatory signaling mechanisms that control this process in response to hormones, inflammatory mediators and growth factors. Determination of the mechanisms whereby invasive bacteria cause diarrheal symptoms. Basis of diarrheal symptoms in inflamamtory bowel diseases. Mechanisms underpinning the beneficial effects of probiotics in gastrointestinal disease states.

PRIZES
American Physiological Society Henry Pickering Bowditch Award; McKenna Memorial Lecturer, Canadian Association of Gastroenterology
Doctor of Medical Science, *honoris causa*, Queen's University Belfast; Davenport Lecturer, American Physiological Society
Elected as Foreign Member of the Swedish Royal Society of Sciences; AGA Outstanding Women in Science Award

MOST IMPORTANT PUBLICATIONS
1. Keely SJ, Uribe JM, and Barrett KE. Carbachol stimulates transactivation of epidermal growth factor receptor and MAP kinase in T84 cells: implications for carbachol-stimulated chloride secretion. ***J. Biol. Chem***. 1998; 273: 27111-27117.
2. Resta-Lenert S and Barrett KE. Live probiotics protect intestinal epithelial cells from the effects of infection with enteroinvasive E. coli (EIEC). ***Gut*** 2003; 52:988-997.
3. McCole DF, Rogler G, Varki N, and Barrett KE. Epidermal growth factor partially restores colonic ion transport responses in mouse models of chronic colitis. ***Gastroenterology*** 2005; 129:591-608.
4. McCole, D.F., A. Truong, M. Bunz, and K.E. Barrett: Consequences of direct vs. indirect activation of EGFR in intestinal epithelial cells are dictated by protein tyrosine phophatase 1B. ***J. Biol. Chem***. 2007; 282:13303-13315.

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BAXTER, Gary F

CARDIOLOGY

AFFILIATION
School of Pharmacy and Pharmaceutical Sciences, Cardiff University – **Cardiff, UK**

RESEARCH INTERESTS
Regulation and actions of local chemical mediators in heart muscle (autacoids), with particular emphasis on their regulatory actions in ischaemic and reperfused myocardium. The underlying goal of this research is to understand the biosynthesis, catabolism and physiological effects of autacoids (notably adenosine, kinins, adrenomedullin and natriuretic peptides) with specific reference to the application of pharmacological approaches to studying the biological roles of autacoids.
Intracellular signalling mechanisms in ischaemia-reperfusion injury and in adaptations of myocardium to ischaemia-reperfusion (preconditioning and postconditioning)
Experimental modelling of myocardial infarction and acute coronary syndromes, the molecular and cellular pathology of reversible and irreversible myocardial injury, methods of marking and assessing the extent of injury, and the interactions between myocardial ischaemia and other cardiovascular morbidities.

MOST IMPORTANT DISCOVERIES
The role of endogenous adenosine as a mediator of delayed preconditioning and the ability of transient A1 receptor activation to induce a genomically-mediated increase in myocardial tolerance to ischaemia-reperfusion stress over several days. The effects of natriuretic peptide/cGMP signalling as an exploitable cardioprotective pathway in myocardial ischaemia-reperfusion.

PRIZES
1996: Bowman Prize of the British Pharmacological Society
2011: Naranjan Dhalla Award of the International Academy of Cardiovascular Sciences

MOST IMPORTANT PUBLICATIONS
1. Baxter GF, Marber MS, Patel VC, Yellon DM. Adenosine receptor involvement in a delayed phase of myocardial protection 24 hours after ischemic preconditioning. ***Circulation*** 1994; 90: 2993-3000
2. D'Souza SP, Yellon DM, Martin C, Schulz R, Heusch G, Onody A, Ferdinandy P, Baxter GF. B-type natriuretic peptide (BNP) limits infarct size in rat isolated heart via KATP channel opening. ***Am J Physiol*** 2003; 284: H1592-H1600
3. Ferdinandy P, Schulz R, Baxter GF. Interactions of cardiovascular risk factors with ischemia/reperfusion injury, preconditioning and postconditioning. ***Pharmacol Reviews*** 2007; 59: 418-458
4. Giricz Z, Gorbe A, Pipis J, Burley DS, Ferdinandy P, Baxter GF. Hyperlipidaemia induced by a high-cholesterol diet leads to the deterioration of guanosine-3',5'-cyclic monophosphate/protein kinase G-dependent cardioprotection in rats. ***Br J Pharmacol*** 2009; 158: 1495-1502

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BEAL, M. Flint

NEUROSCIENCE

AFFILIATION
Weill Medical College of Cornell University – **New York, USA**

RESEARCH INTERESTS
Neurodegnerative diseases, Alzheimer's, Parkinson's, Huntington's ALS

PRIZES
Denny-Brown Neurological Scholar
First Mirapex Award
Vice-President American Neurologic Assoication
Institute of Medicine

MOST IMPORTANT PUBLICATIONS
1. Beal MF, Kowall NW, Ellison DW, Mazurek MF, Swartz KJ, Martin JB. Replication of the neurochemical characteristics of Huntington's disease with quinolinic acid. ***Nature*** 1986; 321:168-171.
2. Klivenyi P, Ferrante RJ, Matthews RT, Bogdanov MB, Klein AM, Andreassen OA, Mueller G, Wermer M, Kaddurah-Daouk R, Beal MF. Neuroprotective effects of creatine in a transgenic animal model of amyotrophic lateral sclerosis. ***Nature Med***. 1999; 5:347-350.
3. Lin MT and Beal MF. Mitochondrial dysfunction and oxidative stress in neurodegenerative diseases. ***Nature*** 2006; 443:787-795
4. Yin F, Dumont M, Banerjee R, Ma Y, Li H, Lin MT, Beal MF, Nathan C, Thomas B, Ding A. Behavioral deficits and progressive neuropathology in progranulin-deficient mice: a mouse model of frontotemporal dementia. ***FASEB J*** 2010; 24:4639-4647 PMID:20667979

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BENGMARK, Stig

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Division of Surgery and Interventional Science,UCL – University College London, London University – **London, UK**

RESEARCH INTERESTS
Acute and chronic phase response – its mechanisms and role in disease. Complications to surgical interventions, espec infections, Clustering of chronic diseases and mechanisms behind. Lifestyle, effects on inflammation and etiology of disease. The role and effects of various plant-based antioxidants and vitamins. Effects of advanced glycation end products (AGEs) and advanced lipoxidation end products (ALEs) on inflammation and pathogenesis of espec chronic diseases. Effects of pre-, pro- and synbiotics on inflammation and development of disease. Effects of vitamin D in prevention of disease.

MOST IMPORTANT PUBLICATIONS
1. Bengmark, S. Bioecological control of inflammation and infection in critical illness. ***Anaesthesiology Clinics of North America*** 2006; 24:299-323
2. Bengmark S. Synbiotics in human Medicine. In Therapeutic Microbiology: Probiotics and Related Strategies Edited by J. Versalovic and M. Wilson 2008 ***ASM Press***
3. Bengmark S. Control of systemic inflammation and chronic disease – the use of turmeric and curcumenoids. In Nutrigenomics and proteonomics in health and disease. Food factors and gene interaction. Edited by Y Mine, K Miyashita, F Shahidi, Wiley-Blackwell 2009
4. Bengmark S. Modified Amino Acid-Based Molecules: Accumulation and Health Implications. In Amino Acids in Human Nutrition and Health. Ed Mello JFD, CABI Wallingford, UK, 2011.

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BÍRÓ, Tamás

IMMUNNOLOGY & INFLAMMATION

AFFILIATION

DE-MTA "Lendület" Cellular Physiology Research Group, Department of Physiology, University of Debrecen, Medical and Health Science Center, Research Center for Molecular Medicine – **Debrecen, Hungary**

RESEARCH INTERESTS

Our research focuses on defining the regulation the barrier forming and neuro-immuno-endocrine functions of the human skin under physiological and pathological conditions. Specifically, we have been investigating
Molecular and functional properties of certain transient receptor potential (TRP) ion channels on various skin cell populations;
• Regulatory role on the cutaneous (endo)cannabinoid system; • Potential therapeutic effects of plant-derived substances and preparations;
• Transmembrane and intracellular signal transduction pathways

MOST IMPORTANT DISCOVERIES

In the past decade, we
• Identified the expressions of numerous TRP channels on certain non-neuronal cell populations
• Defined the roles of these channels in epidermal and adnexal (hair follicle, sebaceous gland) growth control and in skin immune functions
• Assessed the differential functions of protein kinase C isoforms in cellular proliferation and tumor genesis
• Described the expression and regulatory roles of the endocannabinoid system in various cutaneous processes (hair growth, sebaceous lipid synthesis, epidermal differentiation)

PRIZES

Selected prizes and awards: 1998 and 2007: János Bolyai Research Scholarship of the HAS; 2001 and 2003: NATO Research Fellowship; 2001: György Békésy Post-doctoral Scholarship; 2011: "Lendület" Award of the HAS

MOST IMPORTANT PUBLICATIONS

1. Bíró T, Maurer M, Modarres S, Lewin NE, Brodie C, Ács G, Ács P, Paus R, Blumberg PM. Characterization of functional vanilloid receptors expressed by mast cells. ***Blood*** 1998; 91:1332-40.

2. Dobrosi N, Tóth IB, Nagy G, Dózsa A, Géczy T, Nagy L, Zouboulis CC, Paus R, Kovács L, Bíró T. Endocannabinoids enhance lipid synthesis and apoptosis in human sebocytes via cannabinoid receptor-2-mediated signaling. ***FASEB J*** 2008; 22:3685-95.

3. Bíró T, Tóth IB, Haskó G, Paus R, Pacher P. The endocannabinoid system of the skin in health and disease: Novel perspectives and therapeutic opportunities. ***Trends Pharmacol Sci*** 2009; 30:411-20.

4. Moran MM, McAlexander MA, Bíró T, Szallasi A. Transient receptor potential channels as therapeutic targets. ***Nature Rev Drug Discov*** 2011; 10:601-20.

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BLAKEMORE, Colin

NEUROSCIENCE

AFFILIATION

Department of Physiology, Anatomy and Genetics, University of Oxford – **Oxford, UK**

RESEARCH INTERESTS

My research has been concerned with many aspects of vision, early development of the brain, plasticity of the cerebral cortex and neurodegenerative disease.

MOST IMPORTANT DISCOVERIES

The neural basis of stereoscopic vision. Detection of spatial frequency selective 'channels' in human vision.
Neurophysiological explanations of geometric visual illusions. Discovery of a sensitive period for environmental influences on orientation selectivity in the visual cortex. Discovery that the effects of monocular deprivation in the visual cortex can be reversed by reverse deprivation during the sensitive period. Discovery of the neural basis of defects of acuity and contrast sensitivity in amblyopia. Studies on the neural basis of alternations of visual perception in binocular rivalry. Work on the neural correlate of consciousness during observation of perceptually ambiguous stimuli.
Work on activation of visual areas of the cortex by specific tactile stimuli in blind subjects. Discovery that visual cortical areas are activated by visual synaesthetic experience in blind subjects. Discovery that environmental enrichment very significantly delays the onset of symptoms in the transgenic mouse model of Huntington's disease. Discovery that transport of BDNF from cortex to corpus striatum is specifically compromised in the transgenic mouse model of Huntington's disease. Discovery of a previously undescribed category of very precocious neurons in the human embryonic forebrain.

PRIZES

Robert Bing Prize (Swiss Acad Med Sci); Prix Netter (Acad Nat de Médecine); Cairns Memorial Medal; Norman McAlister Gregg Award; Michael Faraday Prize (Royal Society); GL Brown Prize (Physiological Society); Osler Medal (Royal College of Physicians); Alcon Prize (Alcon Research Institute); Charter Medal (Society of Biology); Baly Gold Medal (Royal College of Physicians); Outstanding Contribution to Neuroscience Award (Brit Neurosci Assn); Menzies Medal; BioIndustry Association Award; Science Educator Award (Soc for Neurosci); Ferrier Prize (Royal Society)

MOST IMPORTANT PUBLICATIONS

1. Barlow HB, Blakemore C, Pettigrew JD. The neural mechanism of binocular depth discrimination. ***J Physiol*** 1967; 193:327-342.

2. Blakemore C, Campbell FW. On the existence of neurones in the human visual system selectively sensitive to the orientation and size of retinal images. ***J Physiol*** 1969; 203:237 260.

3. Blakemore C, Cooper GF. Development of the brain depends on the visual environment. ***Nature*** 1970; 228:477 478.

4. Bysron I, Rakic P, Molnar Z, Blakemore C. The first neurons of the human cerebral cortex. ***Nature Neuroscience*** 2006; 9:880-6.

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BLONDIAUX, Joël

TUBERCULOSIS EVOLUTION

AFFILIATION
Centre d'Etudes Paléopathologiques du Nord – **Walincourt-Selvigny, France**

RESEARCH INTERESTS
Paleodemography, Paleopathology, Paleoepidemiology.

MOST IMPORTANT DISCOVERIES
Paleopathology od rheumatic diseases (rhumatoid arthritis, ankylosing gout), battered child syndrome in Antiquity, paleocytology of putrefaction fluid deposits and tartar, applications of tooth cement annulations to paleoepidemiology.

PRIZES
2006: Second Eve Cockburn Poster Prize (PPA)

MOST IMPORTANT PUBLICATIONS
1. Blondiaux J, Cotten A, Fontaine C, Hänni C, Bera A, Flipo RM. Two Roman and Medieval cases of symmetrical erosive polyarthropathy from Normandy: Anatomico-pathological and radiological evidence for rheumatoid arthritis. ***Int J Osteoarchaeology*** 1997; 7:451-466.
2. Blondiaux G, Blondiaux J, Secousse F, Cotten A, Danzé PM, Flipo RM. Rickets and Child Abuse: The Case of a Two Year Old Girl from the 4th Century in Lisieux (Normandy). ***Int J Osteoarcheol*** 2002; 12:209-215
3. Blondiaux J, Alduc-Le Bagousse A, Niel C, Gabard N, Tyler E. Relevance of Cement Annulations to Paleopathology. ***Paleopathology Newsletter*** 2006; 135: 4-13
4. Blondiaux J, Charlier P. Palaeocytology in Skeletal Remains: Microscopic Examination of Putrefaction Fluid Deposits and Dental Calculus of Skeletal Remains from French Archaeological Sites. ***Int J of Osteoarchaeology*** 2008; 18:1-10

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BOLDOGKŐI, Zsolt

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Department of Medical Biology Faculty of Medicine, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Molecular biology of herpesviruses.

MOST IMPORTANT DISCOVERIES
The development of herpesvirus vectors for biological applications, including gene delivery to cells and transneuronal tract tracing. Revealing the functional importance of key regulatory herpes viral genes in the global gene expression.

PRIZES
Aujeszky Medallion; Honored by the Hungarian Society for Microbiology

MOST IMPORTANT PUBLICATIONS
1. Tombácz D, Tóth JS, Boldogkői Z. The virion host shut-off gene of the pseudorabies virus acts to suppress the early gene expression of the virus at the late stage of infection. ***Genomics*** 2011; 98:15-25.
2. Tombácz D, Tóth JS, Petrovszki P, Boldogkői, Z. Genome-wide analysis of pseudorabies virus gene expression by Real-time Quantitative RT-PCR assay. ***BMC Genomics*** 2009; 10:491.
3. Boldogkői Z, Bálint K, Awatramani G, Balya D, Busskamp V, Viney T, Lagali PS, Duebel J, Pásti E, Tombácz D, Tóth JS, Takács IF Scherf BG, Roska B. Genetically timed, Activity sensor and Rainbow transsynaptic tools for the analysis of neural circuits. ***Nature Methods*** 2009; 6:127-130.
4. Boldogkői Z, Sík A, Dénes Á, Reichart A, Toldi J, Gerendai I, Kovács K, Palkovits M. Novel tracing paradigms – Genetically engineered herpesviruses as tools for mapping functional circuits within the CNS: present status and future prospects. ***Progress in Neurobiology***, 2004; 72:417-445.

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BORNSTEIN, Stefan R

NEUROSCIENCE

AFFILIATION
University Hospital Carl Gustav Carus at the Technical University Dresden – **Dresden, Germany**

RESEARCH INTERESTS
Adrenal cancer and endocrine tumors, steroid and catecholamine metabolism, immune endocrine interactions, neuroendocrinology of obesity and diabetes, endocrine system of the skin, and geronto-endocrinology.

MOST IMPORTANT DISCOVERIES
Predisposing factors for adrenal insufficiency. Role of toll-like receptors in adrenal stress responce. Adrenomedullary dysplasia and hypofunction in patients with classic 21-hydroxylase deficiency. Role of vitamin c transport in adrenal. Communication of endocrine cells in adrenal. Adrenal stem cells. New therapeutic strategies for type 1 diabetes.

PRIZES
Prize for the new generation of academics from the Verband der Metallindustrie Baden Württemberg e.V.
Marius Tausk Award of the German Society of Endocrinology for the scientific work: Human adrenal cells express TNFα mRNA: evidence for a paracrine control of adrenal function.
Heisenberg Award of the German Research Foundation (DFG)
„Einfach genial Preis" des MDR für das MediROBO Projekt
MediROBO Health Information System Patent: M394 01 931:8
Computer-based Touch-Screen-System providing 25 hours of health-care information from all fields of medicine

MOST IMPORTANT PUBLICATIONS
1. Bornstein SR. ***N Engl. J. Med.*** 2009; 360:2328-39.

2. Dupuis J, Bornstein SR et al. ***Nat Genet.*** 2010; 42:105-16.

3. Schmid J, Ludwig B, Schally AV, Steffen A, Ziegler CG, Block NL, Koutmani Y, Brendel MD, Karalis KP, Simeonovic CJ, Licinio J, Ehrhart-Bornstein M, Bornstein SR. ***Proc Natl Acad Sci USA***. 2011; 108:13722-7.

4. Ehret GB, Bornstein SR et al. ***Nature*** 2011; 478:103-9.

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BOROS, Imre M

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
University of Szeged Faculty of Science and Informatics, Department of Biochemistry and Molecular Biology
Szeged, Hungary

RESEARCH INTERESTS
My primary research interest is exploring new molecular mechanisms by which gene expression in eukaryotic cells is regulated. Earlier, I studied the mechanisms by which trans-acting transcriptional regulators of HTLV and BLV type retroviruses recruit bZIP transcription factors and associated proteins to activate viral and cellular gene expression. Recently, I use Drosophila and mammalian cell culture models to analyze the roles of chromatin modifying complexes in transcription regulation.

MOST IMPORTANT DISCOVERIES
At the start of my scientific carrier I isolated and characterized one of the strongest promoters of E. coli and used it to construct highly effective plasmid vectors for foreign protein production in bacteria. With the use of these vectors, in collaboration with Hungarian and foreign colleagues we produced HIV protease and were among the firsts to report on its self-maturation. While working in American laboratories I contributed to exploring the mechanism by which the Human T-cell Leukemia virus activator, Tax turns on viral transcription specifically. In the last decade my laboratory identified and characterized histone acetyltransferase complexes in Drosophila cells. We demonstrated the roles of different histone modifying complexes in transcription regulation and chromatin structure modifications.

PRIZES
Szörényi Imre Award of the Hungarian Biochemical Society; NCI Oncology Research Faculty Development Award, USA; Széchenyi Professor Fellowship of the Hungarian Ministry of Culture and Education; Straub Award of the Biological Research Centre; Ipolyi Arnold Award of the Hungarian Science Fund

MOST IMPORTANT PUBLICATIONS
1. Giam CZ, Boros I. In vivo and in vitro autoprocessing of human immunodeficiency virus protease expressed in E. coli. ***J. Biol. Chem*** 1988; 263:14617-20.

2. Jeang KT, Boros I, Brady J, Radonovich M, Khoury G. Characterization of cellular factors that interact with the human T-cell leukemia virus type I p40x-responsive 21-base-pair sequence. ***J. Virol*** 1988; 62:4499-4509.

3. Ciurciu A, Komonyi O, Pankotai T, Boros I. The Drosophila histone acetyltranferase gcn5 and transcriptional adaptor ada2a are involved in nucleosomal histone h4 acetylation. ***Mol Cell Biol*** 2006; 26:9413-23.

4. Pankotai T, Popescu C, Martin D, Grau B, Zsindely N, Bodai L, Tora L, Ferrús A, Boros I. Genes of the ecdysone biosynthesis pathway are regulated by the dATAC histone acetyltransferase complex in Drosophila. ***Mol Cell Biol*** 2010, 30:4254-4266.

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BOROS, Mihály

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
University of Szeged, Institute of Surgical Research – **Szeged, Hungary**

RESEARCH INTERESTS
Experimental surgery, microcirculation, hypoxia and oxido-reductive stress conditions, ischemia-reperfusion injuries, sepsis, gastrointestinal inflammation and anti-inflammation, gas mediators in inflammation.

MOST IMPORTANT DISCOVERIES
The role of endothelin-1 peptide in hypoxia-induced leukocyte activation. Non-microbial methane formation in anoxic mitochondria and eukaryote cells Bioactivity and anti-inflammatory potential of exogenous methane.

PRIZES
Howard Hughes Medical Institute, International Research Scholar Széchenyi Professorship

MOST IMPORTANT PUBLICATIONS
1. Boros M, Karácsony G, Kaszaki J, Nagy S. Reperfusion mucosal damage following complete intestinal ischemia in the dog. The effects of antioxidant and phospholipase A2 inhibitor therapy. ***Surgery*** 2002; 113:184-191.
2. Baranyi L, Campbell W, Ohshima K, Fujimoto S, Boros M, Okada H. The antisense homology box. A new motif within proteins that encodes biologically active peptides. ***Nat Med*** 1995; 1:894-901.
3. Boros M, Massberg S, Baranyi L, Okada H, Messmer K. Endothelin-1 induces leukocyte adhesion in submucosal venules of the rat small intestine: the effects of selective receptor antagonists. ***Gastroenterology*** 1998; 114:103-114.
4. Ghyczy M, Torday C, Boros M. Simultaneous generation of methane, carbon dioxide and carbon monoxide from choline and ascorbic acid – a defensive mechanism against reductive stress? ***FASEB J*** 2003; 17:1124-1126.

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BROSCH, Roland

TUBERCULOSIS EVOLUTION

AFFILIATION
Institut Pasteur, Unit for Integrated Mycobacterial Pathogenomics – **Paris, France**

RESEARCH INTERESTS
Genome evolution and pathogenicity of tubercle bacilli; *Mycobacterial* secretion systems involved in virulence with particular focus on the ESX-1 secretion system of *Mycobacterium tuberculosis*; Analysis of early branched tubercle bacilli with smooth colony morphology named *Mycobacterium canettii* and/or *Mycobacterium prototuberculosis*.

MOST IMPORTANT DISCOVERIES
First insights into the genome of *Mycobacterium tuberculosis* and the attenuated vaccine BCG; Key evolutionary markers among tubercle bacilli; Insights into the organisation and function of the ESAT-6 secretion system of *Mycobacterium tuberculosis*; Insights into the genome organisation of *Mycobacterium canettii*/*Mycobacterium prototuberculosis*.

PRIZES
Laureate of the Prix Georges, Jacques and Elias Canetti, 2007, Institut Pasteur

MOST IMPORTANT PUBLICATIONS
1. Cole ST, Brosch R, Parkhill J, Garnier T, Churcher C, Harris D, Gordon SV, Eiglmeier K, Gas S, Barry CE, III Tekaia F, Badcock K, Basham D, Brown D, Chillingworth T, Connor R, Davies R, Devlin K, Feltwell T, Gentles S, Hamlin N, Holroyd S, Hornsby T, Jagels K, Krogh A, McLean A, Moule S, Murphy L, Oliver K, Osborne J, Quail MA, Rajandream M-A, Rogers J, Rutter S, Seeger K, Skelton J, Squares R, Squares S, Sulston JE, Taylor K, Whitehead S, Barrell BG. Deciphering the biology of *Mycobacterium tuberculosis* from the complete genome sequence. ***Nature*** 1998; 393:537-44.
2. Brosch R, Gordon SV, Marmiesse M, Brodin P, Buchrieser C, Eiglmeier K, Garnier T, Gutierrez C, Hewinson G., Kremer K., Parsons LM, Pym AS, Samper S, van Soolingen D, Cole ST. A new evolutionary scenario for the *Mycobacterium tuberculosis* complex. ***Proc Natl Acad Sci*** USA 2002; 99:3684-689.
3. Brosch R, Gordon SV, Garnier T, Eiglmeier K, Frigui W, Valenti P, Dos Santos S, Duthoy S, Lacroix C, Garcia-Pelayo C, Inwald JK, Golby P, Nunez Garcia J, Hewinson RG, Behr MA, Quail MA, Churcher C, Barrell BG, Parkhill J, Cole ST. Genome plasticity of BCG and impact on vaccine efficacy. ***Proc Natl Acad Sci USA***. 2007; 104:5596-601.
4. Frigui W, Bottai D, Majlessi L, Monot M, Josselin E, Brodin P, Garnier T, Gicquel B, Martin C, Leclerc C, Cole ST, Brosch R. Control of *M. tuberculosis* ESAT-6 Secretion and Specific T Cell Recognition by PhoP. ***PLoS Pathog*** 2008; 4:e33.

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BRÜSTLE, Oliver

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Institute of Reconstructive Neurobiology, Life & Brain Center, University of Bonn – **Bonn, Germany**

RESEARCH INTERESTS
Trained as M.D., Oliver Brüstle conducted research and clinical work in neuropathology and neurosurgery at the universities of Zurich and Erlangen, respectively. In 1993 he joined the laboratory of Ron McKay at the NIH to study neural stem cells. Upon his return to Germany in 1997, he started his own lab and, in 2002, became director of the newly founded Institute of Reconstructive Neurobiology. His field of interest is stem cell research with a particular focus stem cell-based disease modeling and nervous system repair.

MOST IMPORTANT DISCOVERIES
Oliver Brüstle was the first to show, in an animal model of a human disease, that neural cells derived from pluripotent stem cells can be used nervous system repair (Science 1999). His lab was also the first to establish stably proliferating neural stem cells from human ES cells and human iPS cells that can still be patterned (PNAS 2009). More recently, his lab has exploited reprogramming and patient-specific iPS cells to decipher the pathomechanisms of neurodegenerative disorders such as polyglutamine diseases (Nature 2011).

PRIZES
1993-95: Fellowship award from the Deutsche Forschungsgemeinschaft
1995-97: Visiting Associate Fellowship from the NIH
2000: Bennigsen-Foerder-Preis

MOST IMPORTANT PUBLICATIONS
1. Koch P*, Breuer P*, Peitz M*, Jungverdorben J*, Kesavan J, Poppe D, Doerr J, Ladewig J, Mertens J, Tüting T, Hoffmann P, Klockgether T, Evert BO, Wüllner U, Brüstle O. Excitation-induced ataxin-3 aggregation in neurons from patients with Machado-Joseph disease. ***Nature*** 2011; 480:543-6.

2. Koch P, Opitz T, Steinbeck J, Ladewig J, Brüstle O. A rosette-type, self-renewing human ES cell-derived neural stem cell with potential for in vitro instruction and synaptic integration. ***Proc Natl Acad Sci USA*** 2009; 106:3225-3230.

3. Nolden L, Edenhofer F, Haupt S, Wunderlich TF, Siemen H, Brüstle O. Genetic engineering of human embryonic stem cells by cell-permeable Cre recombinase. ***Nature Methods*** 2006; 3:461-467.

4. Brüstle O, Jones KN, Learish RD, Karram K, Choudhary K, Wiestler OD, Duncan ID, and McKay RDG. Embryonic stem cell-derived glial precursors: a source of myelinating transplants. ***Science*** 1999; 285:754-756.

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BUIKSTRA, Jane E

TUBERCULOSIS EVOLUTION

AFFILIATION
Arizona State University, School of Human Evolution & Social Change, Center for Bioarchaelogical Research – **Tempe, USA**

RESEARCH INTERESTS
Dr. Buikstra's research encompasses bioarchaeology, paleopathology, forensic anthropology and paleodemography, and spans North America, the Iberian Peninsula, Colonial Argentina, the west-central Andes and Mayan Mesoamerica.

MOST IMPORTANT DISCOVERIES
Dr. Jane Buikstra created the discipline of Bioarchaeology, naming and defining the field and practice as the study of human remains in cultural contexts. Bioarchaeology's visionary influence can be found around the world as scholars work to enrich archaeological knowledge of past peoples with forensics, pathology, medicine, population studies, bio-geochemistry and genetics on every continent. Professor Buikstra is renowned for her investigation of the evolutionary history of ancient tuberculosis in the Americas based on archaeologically-recovered pathogen DNA. She designed and executed projects that led to the first identification of *Mycobacterium tuberculosis* in the New World through ancient DNA analysis.

PRIZES
1987: National Academy of Sciences, elected • 2005: Pomerance Award for Scientific Contributions to Archaeology, Archaeological Institute of America • 2008: T. Dale Stewart Award, American Academy of Forensic Sciences • 2008: Charles R. Darwin Lifetime Achievement Award, American Association of Physical Anthropologists • 2010: Fryxell Award for Interdisciplinary Research, Society for American Archaeology

MOST IMPORTANT PUBLICATIONS
1. Buikstra JE, Ubelaker D, eds., Standards for Data Collection from Human Skeletal Remains: Proceedings of a Seminar at the Field Museum of Natural History. Arkansas Archaeological Survey Press 1994; Fayetteville.

2. Komar D, Buikstra JE. Forensic Anthropology: Contemporary Theory and Practice. Oxford University Press; 2007

3. Charlotte A. Roberts, Buikstra JE. The Bioarchaeology of Tuberculosis: A Global View on a Reemerging Disease. University Press of Florida. 2003

4. Salo WL, Aufderheide AC, Buikstra JE, Holcomb TA, "Identification of *Mycobacterium tuberculosis* DNA in a Pre-Columbian Peruvian Mummy. Proceedings of the National Academy of Sciences 1994; 91:2091-2094

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BUSIJA, David William

NEUROSCIENCE

AFFILIATION

Department of Pharmacology, Tulane University School of Medicine – **New Orleans, USA**

RESEARCH INTERESTS

My research program focuses on
The mechanisms involved in the regulation of the cerebral circulation; • the mechanisms of damage to the brain following injury; • therapeutic strategies to restore vascular responses during disease processes such as insulin resistance and ischemia/reperfusion; • development of methods to protect cells of the neurovascular unit (endothelium, smooth muscle, perivascular nerves, astroglia, neurons, etc.) against potentially lethal stimuli.These unrelated topics are unified by the focus on the role of mitochondria in health and disease.

MOST IMPORTANT DISCOVERIES

My colleagues and I consider these important discoveries:
Amino acids are important regulators of cerebral vascular tone and ischemia/reperfusion impairs responses through actions of reactive oxygen species (ROS). • Nitric oxide from physiologically activated neurons is an endogenous regulation of cerebral vascular tone. • Prostanoids are important regulators of the neonatal cerebral circulation. • Insulin resistance impairs potassium channel function in smooth muscle of arteries due to actions of ROS. • Directly targeting ATP-sensitive potassium channels protects cells of the neurovascular unit against potentially lethal stimuli by limited surges in intracellular calcium and ROS. • Insulin resistance is able to prevent protection of cells due to impairment of mitochondrial function. • Mitochondrial depolarization, which leads to immediate and prolonged protection of cells, is not linked to release of ROS.

PRIZES

1981: NIH New Investigator Award • 1990: Fellow of the American Physiological Society; • 2002: Bugher Foundation Award for Stroke Research; • 2004: Distinguished Lectureship, Korean Physiological Society • 2005: Wake Forest University Research Excellence Award • 2009: Doctorem Medicinae Honoris Causa, University of Szeged Medical School (formerly Albert Szent-Györgyi Medical School), Hungary

MOST IMPORTANT PUBLICATIONS

1. Katakam PVG, Domoki F, Lenti L, Gaspar T, Snipes JA, Busija DW. Cerebrovascular responses to insulin in rats. ***J Cereb Blood Flow Metabol*** 2009; 29:1955-67.
2. Katakam PV, Domoki F, Snipes JA, Busija AR, Jarajapu YP, Busija DW. Impaired mitochondria dependent vasodilation in cerebral arteries of Zucker obese rats with insulin resistance. ***Am J Physiol Regul Integr Comp Physiol*** 2009; 296:R289-98.
3. Gaspar T, Snipes JA, Busija AR, Kis B, Domoki F, Bari F, Busija DW. ROS-independent preconditioning in neurons via activation of mitoKATP channels by BMS-191095. ***J Cereb Blood Flow Metab*** 2008; 28:1090-1103.
4. Domoki F, Perciaccante JV, Veltkamp R, Bari F, Busija DW. Mitochondrial potassium channel opener diazoxide preserves neuronal-vascular function after cerebral ischemia in newborn pigs. ***Stroke*** 1999; 30:2713-2718.

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BUZSÁKI, György

NEUROSCIENCE

AFFILIATION

Institute of Neuroscience, New York University Medical School – **Newark, USA**

RESEARCH INTERESTS

Dr. Buzsáki's main interest is how neuronal circuitries support the brain's cognitive capacities. His continued goal is to provide rational, mechanistic explanations of cognitive functions. Perhaps the most promising area of cognitive faculties for scientific inquiry is memory, since it is a well-circumscribed term, can be studied in animals and substantial knowledge has accumulated about the molecular mechanisms of synaptic plasticity. These fundamental processes have implications for brain diseases such as epilepsy, schizophrenia and depression.

MOST IMPORTANT DISCOVERIES

György Buzsáki has led the way in analyzing the functional properties of cortical neurons acting within their natural networks. He pioneered the experimental exploration of how coordinated, rhythmic neuronal activity serves physiological functions in the cerebral cortex, and in particular, how information is exchanged between the hippocampus and neocortex. He discovered several novel inhibitory cell types in the hippocampus and established the role of the GABAergic basket cells in theta, gamma and ripple oscillations. Hid most influential work is the two-stage model of memory trace consolidation: neocortex-mediated information during learning transiently modifies hippocampal networks, followed by reactivation and consolidation of memory traces during sleep.

PRIZES

2001: Krieg Cortical Discoverer Award; 2001: ISI's "Most Cited Group in Neuroscience", Foreign member. HAS; 2004: Elected Fellow, AAAS; 2006: Opening Plenary Lecture, FENS; 2009: The Hans-Lucas Teuber Lecture, MIT; 2010: The Talairach Lecture, Human Brain Mapping Soc; 2011: The Brain Prize; 2011: Lord Adrian Lecture, Cambridge

MOST IMPORTANT PUBLICATIONS

1. Buzsáki, G. Two-stage model of memory trace formation: a role for "noisy" brain states. ***Neuroscience*** 1989; 31: 551-570
2. Freund, T. F. and Buzsáki, G. Interneurons of the hippocampus. ***Hippocampus*** 1996; 6:347-470
3. Harris, K. D., Csicsvari, J., Hirase, H., Dragoi, G. and Buzsáki, G. Organization of cell assemblies in the hippocampus. ***Nature*** 2003; 424:552-556
4. Pastalkova E, Itskov V, Amarasingham A, Buzsáki G. Internally generated cell assembly sequences in the rat hippocampus. ***Science*** 2008; 321:1322-7

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CASSIMAN, Jean-Jacques

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Center for Human genetics, Catholic University Leuven – **Leuven, Belgium**

RESEARCH INTERESTS
Molecular basis of inherited diseases and of rare cancers.

MOST IMPORTANT DISCOVERIES
Mutaion spectrum of CFTR in Belgium. Association of HLA alleles and ; Beta catenin mutations in desmoid tumors.

PRIZES
1978: Award of the Belgian Society for Cystic Fibrosis 1 (Anne-Rose Award) • 1979: Award Effel - Cancer Research - FGWO - Medical Research Council - Belgium • 1977-1978: Prix d'un Concours Ordinaire de l'Académie Royale de Médecine de Belgique, 2e Section, La Mucoviscidose • 1998: Francqui Chair – UnivCatholique Louvain • 2002: Doctor Honoris Causa - University of Medicine and Pharmacy, Cluj-Napoca, Romania
2003: Professor Honorario, Univ Santiago de Guayaquil, Ecuador

MOST IMPORTANT PUBLICATIONS
1. Dequeker E, Cassiman JJ. Genetic testing and quality control in diagnostic laboratories. ***Nature Genetics*** 2000: 25:259-260.
2. Vankeerberghen A, Cuppens H and Cassiman JJ. The cystic fibrosis transmembrane conductance regulator: an intriguing protein with pleiotropic functions. ***J. Cystic Fibrosis*** 2002: 1:13-29.
3. Vankeerberghea A, Scudiero O, De Boeck K, Macek M JR, Pignatti PF, Van Hul N, Nuytten H, Salvatore F, Castaldo G, Zemkova D, Vavrova V, Cassiman JJ, Cuppens H. Distribution of human beta defensin polymorphisms in different control and cystic fibrosis populations. ***Genomics*** 2005: 85:574-581.
4. Cassiman J.J. EuroGentest - a European network of excellence aimed at harmonizing genetic testing services. ***Eur. J. Hum. Genet.*** 2005: 13:1103-1105.

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CAVAZZANA-CALVO, Marina

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Department of Biotherapy, Hopital Necker Enfants-Malades **Paris, France**

RESEARCH INTERESTS
Main areas of research: pediatric immuno-haematology, regenerative medicine, cell and gene therapy, human haematopoiesis, stem cell transplantation. Our activity is aiming at developing and implementing clinical projects concerning adoptive immunotherapy, haematopoietic stem cell transplantation and gene therapy protocols essentially for patients affected with acquired and inherited diseases of the lymphohaematopoietic system.

MOST IMPORTANT DISCOVERIES
Specific allo-depletion of the donor's anti-host T lymphocytes: in the study (Lancet 2002), we accumulated preliminary evidence that it was possible to prevent acute graft-versus-host disease (GvHD) in the setting of haploidentical haematopoietic stem cell transplantation (HSCT), while preserving memory T cells able (once injected to the patients) to expand in vivo and clear ongoing viral infections. 2000-2010: first protocol of gene therapy for SCID-X1 affected children (Science 2000). Gene therapy for X-linked Adrenoleucodystrophy (Science 2009).A phase I/II open label study with anticipated clinical benefit evaluating genetic therapy of the b-hemoglobinopathies by transplantation of autologous CD34+ stem cells modified ex vivo with a lentiviral bA-T87Q-globin (LentiglobinTQ) vector.

PRIZES
1999: Philip Morris scientific award in Gene Therapy; 1999: American Society of Hematology award for clinical research in Gene Therapy; 2000: Academy of Sciences Special Medical Award; 2007: Clinical & Therapeutic Research INSERM Award; 2009: Outstanding Achievements Award of the European Society of Gene and Cell Therapy

MOST IMPORTANT PUBLICATIONS
1. Cavazzana-Calvo M*, Payen E*, Negre O, Wang G, Hehir K, Fusil F, Down J, Denaro M, Brady T, Westerman KA, Cavallesco R, Gillet-Legrand B, Caccavelli L, Sgarra R, Maouche-Chrétien L, Bernaudin F, Girot R, Dorazio R, Mulder GJ, Polak A, Bank A, Soulier J, Larghero J, Kabbara N, Dalle B, Gourmel B, Socie G, Chretien S, Cartier N, Aubourg P, Fischer A, Cornetta K, Galacteros F, Beuzard Y, Gluckman E, Bushman F, Hacein-Bey-Abina S*, Leboulch P* (* These authors contributed equally to this work). Transfusion independence and HMGA2 activation after gene therapy of human β-thalassaemia. ***Nature*** 2010; 467:318-22.
2. Cartier N*, Hacein-Bey-Abina S*, Bartholomae CC, Veres G, Schmidt M, Kutschera I, Vidaud M, Abel U, Dal-Cortivo L, Caccavelli L, Mahlaoui N, Kiermer V, Mittelstaedt D, Bellesme C, Lahlou N, Lefrère F, Blanche S, Audit M, Payen E, Leboulch P, l'Homme B, Bougnères P, Von Kalle C, Fischer A, Cavazzana-Calvo M*, Aubourg P* (*These authors contributed equally to this work). Hematopoietic stem cell gene therapy with a lentiviral vector in X-linked adrenoleukodystrophy. ***Science*** 2009; 326:818-23.
3. Lagresle-Peyrou C, Six EM, Picard C, Rieux-Laucat F, Michel V, Ditadi A, Demerens-de Chappedelaine C, Morillon E, Valensi F, Simon-Stoos KL, Mullikin JC, Noroski LM, Besse C, Wulffraat NM, Ferster A, Abecasis MM, Calvo F, Petit C, Candotti F, Abel L, Fischer A, Cavazzana-Calvo M. Human adenylate kinase 2 deficiency causes a profound haematopoietic defect. ***Nat Genet*** 2009; 41:106-11.
4. Cavazzana-Calvo M, Hacein-Bey S, de Saint-Basile G, Gross F, Yvon E, Nussbaum P, Selz F, Hué C, Certain S, Casanova JL, Bousso P, Ie Deist F, Fischer A. Gene Therapy of human severe combined immunodeficiency (SCID)-X1 disease. ***Science*** 2000; 288:669-72.

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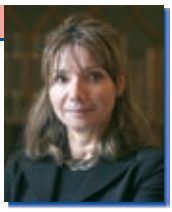
CERBAI, Elisabetta

CARDIOLOGY



AFFILIATION
Department of Pharmacology, Center of Molecular Medicine (CIMMBA) Università degli Studi di Firenze – **Firenze, Italy**

RESEARCH INTERESTS
Arrhythmogenic mechanisms, cardiac cellular electrophysiology, myocardial hypertrophy, heart failure, cardiovascular pharmacology.

MOST IMPORTANT DISCOVERIES
Electrophysiological alterations in cardiac hypertrophy and heart failure. Discovery and functional/pharmacological/molecular characterization of overexpression of hyperpolarization activated current (HCN channels) in ventricular/atrial cardiomyocytes from human hearts and animal models of cardiac disease. Synthesis of HCN isoform-selective blockers. Electrophsysiological characterization of human embryonic stem cell-derived cardiomyocytes.

MOST IMPORTANT PUBLICATIONS
1. Cerbai E, Barbieri M, Li Q, Mugelli A. Ionic basis of action potential prolongation of hypertrophied myocytes isolated from the heart of hypertensive rats of different ages. ***Cardiovasc Res***, 1994; 28:1180-1187.
2. Cerbai E, Pino R, Porciatti F, Sani G, Toscano M, Maccherini M, Giunti G, Mugelli A. Characterization of the hyperpolarization-activated current, If, in ventricular myocytes from human failing heart. ***Circulation***, 1997; 95:568-571.
3. Sartiani L, Bettiol E, Stillitano F, Mugelli A, Cerbai E, Jaconi M.E. Developmental changes in cardiomyocytes differentiated from human embryonic stem cells: a molecular and electrophysiological approach. ***Stem Cells***, 2007; 25:1136-44.
4. Stillitano F, Lonardo G, Zicha S, Varro A, Cerbai E, Mugelli A, Nattel S. Molecular basis of funny current (If) in normal and failing human heart. ***J Mol Cell Cardiol***, 2008; 45:289-99.

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CHAUDRY, Irshad H

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
University of Alabama at Birmingham – **Birmingham, Alabama, USA**

RESEARCH INTERESTS
Mechanisms responsible for cellular/sub-cellular alterations following trauma, hemorrhage and sepsis. Additional interests include the use of novel, readily available, FDA-approved inexpensive therapeutic agents to attenuate such alterations in patients after trauma, with an emphasis on: (1) gender dimorphism in the immunological and cardiovascular responses to trauma; (2) trauma-induced alterations in the hypothalamus-pituitary-adrenal axis; (3) bone and wound healing following trauma; and (4) application of novel therapeutic modalities clinically after trauma.

MOST IMPORTANT DISCOVERIES
Developed and introduced a rodent model of polymicrobial sepsis (cecal ligation and puncture) which mimics human sepsis-peritonitis. This model produces high cardiac output, hyperdynamic and hyperinsulinemia in the early stages and if uncorrected leads to low cardiac output, hypodynamic and hyopinsulinemic state in the late stages of sepsis. This is the most widely used model of sepsis-peritonitis. We have also developed and introduced a unique non-heparinized model of soft-tissue trauma and severe hemorrhage in rats and mice. We have shown that administration of a single dose of estrogen as an adjunct following trauma in males, aged or ovariectomized females restores immunological/cardiovascular functions and decreases the susceptibility to subsequent sepsis. We have also shown that estrogen mediates its salutary effects after trauma-hemorrhage not only via genomic but also non-genomic pathway.

PRIZES
1992: Senior Faculty Meritorious Research Award, Sigma Xi, Michigan State University Chapter • 1993: Distinguished Faculty Award, Michigan State University • 1997: Shock Society Scientific Achievement Award • 1999: NIH MERIT AWARD • 2005: American Heart Association Lifetime Achievement Award for Trauma Science

MOST IMPORTANT PUBLICATIONS
1. Zellweger R, Wichmann W, Ayala A, Stein S, DeMaso CM, Chaudry IH. Females in proestrus state maintain splenic immune functions and tolerate sepsis better than males. ***Crit Care Med*** 1997; 25:106-10.
2. Hildebrand F, Hubbard WJ, Choudhry MA, Frink M, Pape H-C, Kunkel SL, Chaudry IH. Kupffer cells and their mediators: The culprits in producing distant organ damage following trauma-hemorrhage. ***Am J Pathol*** 2006; 169:784-94.
3. Hsieh Y-C, Yu H-P, Frink M, Suzuki T, Choudhry MA, Schwacha MG, Chaudry IH. G Protein-coupled receptor 30-dependent protein kinase A pathway is critical in non-genomic effects of estrogen in attenuating liver injury after trauma. ***Am J Pathol*** 2007; 170:1210-18.
4. Akabori H, Moeinpour F, Bland KI, Chaudry IH. Mechanism of the anti-inflammatory effect of 17β-estradiol on brain following trauma-hemorrhage. ***Shock*** 2010; 33:43-48.

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CHHEM Rethy Keith

TUBERCULOSIS EVOLUTION

AFFILIATION
University of Ulm, Institute for History, Theory, and Ethics of Medicine
Medical School of Vienna, Radiology Department – **Ulm, Germany**

RESEARCH INTERESTS
Paleoradiology: Use of radiology/CT as diagnostic modalities for detecting diseases in ancient skeletons and mummies either from archaeological sites or from museums.
Use of paleopathological and paleoradiological data as sources for writing history of medicine and history of diseases.
History of ancient medicine in Southeast Asia.

MOST IMPORTANT PUBLICATIONS
1. Karlik SJ, Bartha R, Kennedy K, Chhem R. MRI and multinuclear MR spectroscopy of 3,200-year-old Egyptian mummy brain. ***AJR Am J Roentgenol.*** 2007; 189:W105-10.
2. Chhem RK, Woo JK, Pakkiri P, Stewart E, Romagnoli C, Garcia B. CT imaging of wet specimens from a pathology museum: How to build a "virtual museum" for radiopathological correlation teaching. ***Homo***. 2006; 57:201-8.
3. Chhem RK, Schmit P, Fauré C. Did Ramesses II really have ankylosing spondylitis? A reappraisal. ***Can Assoc Radiol J.*** 2004; 55:211-7.
4. Chhem RK. Paleoradiology: imaging disease in mummies and ancient skeletons. ***Skeletal Radiol.*** 2006; 35:803-4

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CIECHANOVER, Aaron J

NOBEL LAUREATE

AFFILIATION
Faculty of Medicine, Technion-Israel Institute of Technology – **Haifa, Israel**

RESEARCH INTERESTS
The ubiquitn proteolytic system.

MOST IMPORTANT DISCOVERIES
The ubiguitin proteolytic system.

PRIZES
2000: Albert Laskert Award for Basic Medical Research

2004: Nobel Prize in Chemistry.

MOST IMPORTANT PUBLICATIONS
1. Ciechanover A, Hod Y, Hershko A. A Heat-stable Polypeptide Component of an ATP-dependent Proteolytic System from Reticulocytes. ***Biochem. Biophys. Res. Commun.*** 1978; 81:1100-1105.
2. Ciechanover A, Heller H, Elias S, Haas AL, Hershko A. ATP-dependent Conjugation of Reticulocyte Proteins with the Polypeptide Required for Protein Degradation. ***Proc. Natl. Acad. Sci. USA*** 1980; 77:1365-1368.
3. Hershko A, Heller H, Elias S and Ciechanover A. Components of Ubiquitin-protein Ligase System: Resolution, Affinity Purification and Role in Protein Breakdown. **J. Biol. Chem.** 1983; 258:8206-8214.
4. Ciechanover A, Finley D, Varshavsky A. Ubiquitin Dependence of Selective Protein Degradation Demonstrated in the Mammalian Cell Cycle Mutant ts85. ***Cell*** 1984; 37:57-66.

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Efron Street, POB 9649, Haifa 31096, Israel
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COLE, Stewart T.

TUBERCULOSIS EVOLUTION

AFFILIATION
Global Health Institute, Ecole Polytechnique Fédérale de Lausanne – **Lausanne, Switzerland**

RESEARCH INTERESTS
Drug discovery, tuberculosis, leprosy, phylogeography.

MOST IMPORTANT DISCOVERIES
Elucidated basis of isoniazid and multidrug resistance in *Mycobacterium tuberculosis*. First to sequence genomes of major mycobacterial pathogens (*M. tuberculosis, M. leprae, M. bovis, M. ulcerans*, etc.). Discovery of ESX-1 secretion system. Development of a TB drug candidate. Established phylogeography of leprosy and demonstrated zoonotic origin in USA.

PRIZES
Fellow of the Royal Society; Stop-TB Kochon Prize; Prix Jean-Pierre Lecocq, Academie des Sciences, France; Prix Thérèse Lebrasseur, Fondation de France, France; Marjory Stephenson Prize Lecture, Society for General Microbiology, UK; Robert Koch Lecture, International Union against Tuberculosis and Lung Disease; EMBO Member; Snell Memorial Lecture, British Thoracic Society.

MOST IMPORTANT PUBLICATIONS
1. Makarov V, Manina G, Mikusova K, Mollmann U, Ryabova O, Saint-Joanis B, Dhar N, Pasca MR, Buroni S, Lucarelli AP, Milano A, De Rossi E, Belanova M, Bobovska A, Dianiskova P, Kordulakova J, Sala C, Fullam E, Schneider P, McKinney JD, Brodin P, Christophe T, Waddell S, Butcher P, Albrethsen J, Rosenkrands I, Brosch R, Nandi V, Bharath S, Gaonkar S, Shandil RK, Balasubramanian V, Balganesh T, Tyagi S, Grosset J, Riccardi G, Cole ST. Benzothiazinones kill *Mycobacterium tuberculosis* by blocking arabinan synthesis. ***Science*** 2009; 324:801-804.
2. Cole ST, Eiglmeier K, Parkhill J, James KD, Thomson NR, Wheeler PR, Honoré N, Garnier T, Churcher C, Harris D, Mungall K, Basham D, Brown D, Chillingworth T, Connor R, Davies R, Devlin K, Duthoy S, Feltwell T, Gentles S, Hamlin N, Holroyd S, Hornsby T, Jagels K, Lacroix C, McLean A, Moule S, Murphy L, Oliver K, Osborne J, Quail MA, Rajandream M-A, Rutherford KM, Rutter S, Seeger K, Simon S, Simmonds M, Skelton J, Squares R, Squares S, Stevens K, Taylor K, Whitehead S, Woodward JR, Barrell BG. Massive gene decay in the leprosy bacillus ***Nature*** 2001; 409:1007-1011.
3. Cole ST, Brosch R, Parkhill J, Garnier T, Churcher C, Harris D, Gordon SV, Eiglmeier K, Gas S, Barry CE, Tekaia F, Badcock K, Basham D, Brown D, Chillingworth T, Connor R, Davies R, Devlin K, Feltwell T, Gentles S, Hamlin N, Holroyd S, Hornsby T, Jagels K, Krogh A, McLean A, Moule S, Murphy L, Oliver K, Osborne J, Quail MA, Rajandream M-A, Rogers J, Rutter S, Seeger K, Skelton J, Squares R, Squares S, Sulston JE, Taylor K, Whitehead S, BG Barrell. Deciphering the biology of *Mycobacterium tuberculosis* from the complete genome sequence ***Nature*** 1998; 393:537-544.
4. Zhang Y, Heym B, Allen B, Young D, Cole, S. The catalase-peroxidase gene and isoniazid resistance of *Mycobacterium tuberculosis* ***Nature*** 1992; 358:591-593.

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CONDORELLI, Daniele Filippo

NEUROSCIENCE

AFFILIATION
University of Catania, Department of Chemical Sciences, Section of Biochemistry – **Catania, Italy**

RESEARCH INTERESTS
Neurotransmitter and neurotrophin receptors in glial cells; structure and expression of the glial fibrillary acidic gene; molecular biology of neuronal connexins; molecular characterization of hematological and solid tumors.

MOST IMPORTANT DISCOVERIES
Cell-specific and developmental pattern of methylation of the upstream regulatory region of the glial fibrillary acidic gene. Identification and analysis of distribution of connexin36.

MOST IMPORTANT PUBLICATIONS
1. Condorelli DF, Nicoletti VG, Barresi V, Caruso A, Conticello S, de Vellis J, Giuffrida Stella AM. Tissue specific DNA Methylation Patterns of the Rat Glial Fibrillary Acidic Protein Gene. ***Journal of Neuroscience Research*** 1994; 39:694-707
2. Condorelli DF, Parenti R, Spinella F, Trovato Salinaro A, Belluardo N, Cardile V and Cicirata F. Cloning of a new gap junction gene (Cx36) highly expressed in mammalian brain neurons. ***European Journal of Neuroscience*** 1998; 10:1202-1208.
3. Belluardo N, Trovato-Salinaro A, Mudò G, Hurd YL, Condorelli DF. Structure, chromosomal localization, and brain expression of human Cx36 gene. ***Journal of Neuroscience Research*** 1999; 57:740-752.
4. Belluardo N, Mudò G, Trovato-Salinaro A, Le Gurun S, Charollais A, Serre-Beinier V, Amato G, Haefliger J-A, Meda P, Condorelli DF. Expression of Connexin36 in the Adult and Developing Rat Brain. ***Brain Research*** 2000, 865; 121–138.

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CORNEL, Martina C

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
VU University Medical Center, Amsterdam, The Netherlands; Center for Medical Systems Biology, Leiden, The Netherlands; Center for Society and Genomics, Nijmegen, The Netherlands; Public and Professional Policy Committee, European Society of Human Genetics – **Amsterdam, The Netherlands**

RESEARCH INTERESTS
Policy development, community genetics, public health genomics, genetic screening criteria, neonatal screening, preconception care, folic acid, preconception screening for cystic fibrosis and hemoglobinopathy, genetic education, rare diseases, epidemiology, impact of prenatal screening for Down syndrome.

MOST IMPORTANT DISCOVERIES
After scientific evidence showed that periconceptional intake of folic acid reduces the risk of spina bifida by 70%, Martina Cornel has contributed to implement this to practice. Nowadays, approximately 50% of women in the Netherlands use folic acid tablets in the periconceptional period.

PRIZES
2010: *„Putting plans to practice"* prize of Center for Society and Genomics, Nijmegen, The Netherlands

MOST IMPORTANT PUBLICATIONS
1. Van El CG, Cornel MC on behalf of the ESHG Public and Professional Policy Committee. Genetic testing and common disorders in a public health framework. Recommendations of the European Society of Human Genetics. ***Eur J Hum Genet*** 2011; 19:377-81.
2. Patch C, Sequeiros J, Cornel MC. Genetic horoscopes: is it all in the genes? Points for regulatory control of direct-to-consumer genetic testing. ***Eur J Hum Genet.*** 2009; 17:857-9.
3. Cornel MC, De Smit DJ, De Jong-van den Berg LTW. Folic acid – the scientific debate as a base for public health policy. ***Reproductive Toxicology*** 2005; 20:411-415.
4. Cornel MC, Erickson JD. Comparison of national policies on periconceptional use of folic acid to prevent spina bifida and anencephaly (SBA). ***Teratol*** 1997; 55:134-7.

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CROW, Timothy John

NEUROSCIENCE

AFFILIATION
University of Oxford, University Department of Psychiatry, Warneford Hospital – **Oxford, UK**

RESEARCH INTERESTS
Function of mono-amine containing neurones. Etiology of psychosis. Speciation of modern Homo sapiens.

MOST IMPORTANT DISCOVERIES
Rewarding effects of activation of ascending DA and locus coeruleus NA systems. Cholinergic link in short-to long-term memory. Locus coeruleus involved in learning. Ventricular enlargement in schizophrenia. Linkage of Gerstmann-Straussler syndrome to the prion gene. The first mutation (in the prion gene) to cause a neuropsychiatric disease. DBH loss in Alzheimer dementia. Brain monoamines normal in depression and suicide. Refutation of the viral theory of psychosis. Sex-dependent asymmetries in hetero-modal association cortex in psychosis. Change in fibre density in corpus callosum in psychosis. Verbal & non-verbal ability varies with laterality. Cerebral dominance is XY linked. Protocadherin11XY is sapiens-specific, subject to accelerated change in the hominin lineage, and related to asymmetry.

PRIZES
1988: AP Noyes Pennsylvania Schizophrenia Conference Medal; 1989: NARSAD Lieber prize; 1991: World Federation of Societies of Biological Psychiatry Research Prize; 1996: Robert Sommer Gold Medal; 2005: Kurt Schneider Prize 2005; 2011: British Association of Psychopharmacology Lifetime Achievement Award

MOST IMPORTANT PUBLICATIONS
1. Crow TJ. Molecular pathology of schizophrenia: more than one disease process? ***British Medical Journal***. 1980; 280:66-8.
2. Crow TJ, Ball J, Bloom SR, Brown R, Bruton CJ, Colter N, et al. Schizophrenia as an anomaly of development of cerebral asymmetry. A postmortem study and a proposal concerning the genetic basis of the disease. ***Archives of General Psychiatry***. 1989; 46:1145-50.
3. Crow TJ. The 'big bang' theory of the origin of psychosis and the faculty of language. ***Schiz Res***. 2008; 102:31-52.
4. Williams NA, Close J, Giouzeli M, Crow TJ. Accelerated evolution of Protocadherin11X/Y: A candidate gene-pair for cerebral asymmetry and language. ***Am J Med Genet (Neuropsychiatric Genet)***. 2006; 141B:623-33.

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CSÖRGŐ-BATA, Zsuzsanna

IMMUNNOLOGY & INFLAMMATION

AFFILIATION

Department of Dermatology and Allergology, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Psoriasis pathomechanism, skin cell biology, drug hypersensitivity.

MOST IMPORTANT DISCOVERIES

In psoriatic lesional tissue hyperproliferation occur in the undifferentiated keratinocyte population that contains keratinocyte stem cells. Lesional T cells in psoriasis regulate keratinocyte proliferation. Oncofoetal fibronectin and α5 integrin maybe crucial in psoriasis development. Melanocytes dedifferentiate in vitro under defined conditions.

PRIZES

Sandoz Pharmaceuticals Research Grant from the Dermatology Foundation, U.S.A.; Reed and Carnrick Research Fellowship Award from the Dermatology Foundation, U.S.A.; Sandoz Pharmaceuticals Career Development Award from the Dermatology Foundation, U.S.A.; Sandoz Pharmaceuticals Research Grant from the Dermatology Foundation, U.S.A.; Békésy György Fellowship, Hungarian Ministry of Education; Széchenyi István Fellowship, Hungarian Ministry of Education.

MOST IMPORTANT PUBLICATIONS

1. Bata-Csörgő Z, Hammerberg C, Voorhees JJ, Cooper KD: Flow cytometric identification of distinct proliferative populations within human epidermis: Keratinocyte hyperproliferation in psoriasis results from increased proliferation in the basal stem cell population. ***J Exp Med***, 1993, 178:1271-81.
2. Bata-Csörgő Z, Hammerberg C, Voorhees JJ, Cooper KD: Kinetics and regulation of human keratinocyte stem cell growth in short term primary ex vivo culture; cooperative growth factors from psoriatic lesional T lymphocytes stimulate proliferation among psoriatic uninvolved but, not normal, stem keratinocytes. ***J Clin Invest***, 1995, 95:317-27.
3. Bata-Csörgő Z, Cooper KD, Ting KM, Voorhees JJ, Hammerberg C: Fibronectin and α5 integrin regulate keratinocyte cell cycling. A mechanism for increased fibronectin potentiation of T cell lymphokine-driven keratinocyte hyperproliferation in psoriasis. ***J Clin Invest*** 1998, 101:1509-18, 1998.
4. Kormos B, Belso N, Bebes A, Szabad G, Bacsa S, Széll M, Kemény L, Bata-Csörgő Z.: In vitro dedifferentiation of melanocytes from adult epidermis. ***PLoS One.*** 2011, 23: e17197.

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DAFFÉ, Mamadou

TUBERCULOSIS EVOLUTION

AFFILIATION

Centre National de la Recherche Scientifique, Institut de Pharmacologie et Biologie Structurale – **Toulouse, France**

RESEARCH INTERESTS

Structure and biogenesis of the mycobacterial cell envelope and search for novel antituberculous drug targets.

MOST IMPORTANT DISCOVERIES

Evidence for the occurrence of a typical Gram-negative outer membrane in the Gram-positive mycobacterial cell envelope by CEMOVIS.

MOST IMPORTANT PUBLICATIONS

1. Tabouret G, Astarie-Dequeker C, Demangel C, Malaga W, Constant P, Ray A, Honoré N, Bello NF, Perez E, Daffé M and Guilhot C. *Mycobacterium leprae* phenolglycolipid-1 expressed by engineered M. bovis BCG modulates early interaction with human phagocytes. ***PLoS Pathogens*** 2010; 6e1001159.
2. Huc E, Meniche X, Benz R, Bayan N, Ghazi A, Tropis M and Daffé M. O-mycoloylated proteins from *Corynebacterium*: an unprecedent post-translational modification in bacteria. ***J Biol Chem*** 2010; 285:21908-21912.
3. Huet G, Constant P, Malaga W, Lanéelle MA, Kremer K, van Soolingen D, Daffé M., Guilhot C. A lipid profile typifies the beijing strains of *Mycobacterium tuberculosis*: Identification of a mutation responsible for a modification of the structures of phthiocerol dimycocerosates and phenolic glycolipids. ***J Biol Chem*** 2009; 284:27101-27113.
4. Zuber B, Chami M, Houssin C, Dubochet J, Griffiths G and Daffé M. Direct Visualization of the Outer Membrane of Native Mycobacteria and Corynebacteria. ***J Bacteriol*** 2008; 190:5672-5680.

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DANIEL, Hannelore

GASTROENTEROLOGY

AFFILIATION
Techniche Universität München, Center Institute of Nutrition and Food Science – **München, Germany**

RESEARCH INTERESTS
Nutrient absorption in epithelia, mechanisms, transporter protein structure and function, role of nutrients/dietary constituents in gene and protein regulation, metabolomics systems biology approaches in nutrition research.

MOST IMPORTANT DISCOVERIES
Identification of a variety of genes encoding nutrient transporters and their cloning, identification of the template for substrate recognition of epithelial peptide and amino acid transporters, drug targeting approaches for increasing oral availability.

PRIZES
Award of the "Herbert Quandt-foundation for the Promotion of Nutritional Science Research
Franz-Vogt-Award" of the Justus-Liebig-University Giessen in the Natural Sciences Section
Award of the "American Association for the Study of Liver Diseases"
"Henneberg-Lehmann-Award" of the Georg-August-University of Goettingen, Germany
"Pro meritis-Award" of the State of Bavaria Ministry of Science and Arts
Konrad Lang Medal of the German Society of Nutritional Medicine

MOST IMPORTANT PUBLICATIONS
1. Spanier B, Rubio-Aliaga I, Hu H, Daniel H. Altered signalling from germline to intestine pushes daf-2;pept-1 Caenorhabditis elegans into extreme longevity. ***Aging Cell.*** 2010; 9:636-46.
2. Weitz D, Harder D, Casagrande F, Fotiadis D, Obrdlik P, Kelety B, Daniel H. Functional and structural characterization of a prokaryotic peptide transporter with features similar to mammalian PEPT1. ***J Biol Chem.*** 2007; 282:2832-9.
3. Boll M, Herget M, Wagener M, Weber WM, Markovich D, Biber J, Clauss W, Murer H, Daniel H. Expression cloning and functional characterization of the kidney cortex high-affinity proton-coupled peptide transporter. ***Proc Natl Acad Sci USA.*** 1996; 93:284-9.
4. Daniel H, Adibi SA. Transport of beta-lactam antibiotics in kidney brush border membrane. Determinants of their affinity for the oligopeptide/H+ symporter. ***J Clin Invest.*** 1993; 92:2215-23.

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DAWSON, Kenneth A

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Centre for BioNano Interaction, University College Dublin School of Chemistry and Chemical Biology – **Dublin, Ireland**

RESEARCH INTERESTS
Quantitative bionanoscience, bionanointeractions, nanomedicine, nanosafety, nanodiagnostics. Fundamentals (theoretical, simulation and experimental principles) of Soft Matter; nanoparticle, colloidal and surface science, particularly in relation to creation of organized structures and dynamically arrested systems. Interface between soft matter / dense colloidal system and biology, and biomaterials, bionanomaterials. Systems science, self-organized criticality, and advanced methods of computation.

MOST IMPORTANT DISCOVERIES
Discoverer of the means by which nanoparticles interact with living organisms (award of Cozzarelli Prize) and evolution of concept, now widely know as 'Protein-biomolecular corona'.

PRIZES
Richardson Prize, Harrison Prize (RSC), IBM (two prizes, for chemistry and for distributed processing), Sloan Fellow (U.S.), Dreyfus Fellow (U.S.), Packard Fellow (International) Canon Professor (Japan); 2008: Cozzarelli Prize National Academy Science United States(U.S.)

MOST IMPORTANT PUBLICATIONS
1. Cedervall T, Lynch I, Lindman S, Berggård T, Thulin E, Nilsson, H, Linse S, Dawson KA. Understanding the nanoparticle protein corona using methods to quantify exchange rates and affinities of proteins for nanoparticles, ***Proc. Natl. Acad. Sci***. USA, 2007; 104:2050-2055
2. Linse S, Cabaleiro-Lago C, Xue W-F, Lynch I, Lindman S, Thulin E, Radford SE, Dawson KA, Nucleation of protein fibrillation by nanoparticles, ***PNAS*** 2007; 104:8691-8696
3. Lundqvist M, Stigler J, Cedervall T, Elia G, Lynch I, and Dawson KA. Nanoparticle Size and Surface Properties determine the Protein Corona with possible implications for Biological Impacts. ***Proc. Natl. Acad. Sci***. USA, 2008; 105:14265-14270
4. Lynch I, Salvati A and Dawson KA. Protein-nanoparticle interactions: What does the cell see? ***Nature Nanotech***. 2009; 4:546-547

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Belfield, Dublin 4, Ireland
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DÉKÁNY, Imre

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

Institute of Medical Chemistry, Faculty of Medicine University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Preparation and characterization of nanoparticles, colloid and surface chemistry, interfacial phenomena, biocolloids, biopolymers, functionalisation of gold and silver nanoparticles for medical applications. Plasmonic materials for medical imaging and theraphy.

PRIZES

2006: Leo Szilárd prize
2008: Albert Szent-Györgyi Prize
2009: Denes Gabor Prize

MOST IMPORTANT PUBLICATIONS

1. Varga J, Janovák L, Varga E, Erős G, Dékány I and Kemény L. Acrylamide, acrilic acid and H-isopropylamide hydrogels as tissue expanders. Skin ***Pharmacology and Physiology*** 2009; 22, 305-312
2. Majzik A, Fülöp L, Csapó E, Sebők D, Martinek T, Bogár F, Penke B and Dékány I. Functionalisation of gold nanoparticles with amino acide, β-amyloid peptides and fragment. ***Colloids and Surfaces B.*** 2010; 81, 235-241
3. Pál E, Hornok V, Sebők D, Majzik A, and I. Dékány: Optical and structural properties of lysosime/gold hybrid bio-nanofilms prepared by layer-by-layer method. ***Colloids and Surfaces B.***, 2010; 79, 276-283
4. Hornok V, Bujdosó T, Toldi J, Nagy K, Demeter I, Fazakas C, Krizbai I, Vécsei L and Dékány I. Preparation and properties of nanoscale containers for biomedical application indrug delivery: preliminary studies with kynurenic acid. ***Journal of Neural Transmission*** (accepted) 2011.

CONTACT ADDRESS

Dóm tér 8, H-6720, Szeged, Hungary
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DINNYÉS, András

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

Szent Istvan University – **Gödöllő, Hungary**, Strategic Invited Professor at Utrecht University – **The Netherlands**
Director of BioTalentum Ltd – **Hungary**

RESEARCH INTERESTS

Prof. Dinnyes has been working on embryology, cloning and stem cell biology since 1985. He has been a Fulbright Scholar in the US and worked at the Univ. of Connecticut where he achieved major results in somatic cell nuclear replacement. With leading a team of 30 researchers his main research activities are focusing on biotechnology, including animal and human stem cell research, transgenic cellular and animal models, iPS cell generation and differentation for biomedical and pharma purposes.

MOST IMPORTANT DISCOVERIES

In 2000 Prof. Dinnyes joined the cloning team in Roslin Institute (the „Dolly team") as team leader, under the guidance of Sir I. Wilmut and had a key role in production of the first gene knock-out lamb, and the first cloned piglet in Europe. After returning to Hungary he established a team which produced the first Hungarian cloned mice and rabbit for biomedical purposes. Currently he is focusing on development of new pluripotent stem cell lines from different species, including mouse, rabbit and human and their differenciation towards cardiac, neural and other cell types, including 3D neural structures. His team produced the first human iPS cell line in Hungary and now he is working on generation of disease specific cell lines form patients.

PRIZES

2008: FC Donders Chaired Professor, Utrecht Univ.
2003: Wellcome Trust Senior International Fellow
2002: NATO Senior Researcher Fellowship, UK
1995: OECD Fellowship, Cornell University, USA
1991: Fulbright Fellowship, USA
1989: "Pro Scientia" Gold Medal of the Hungarian Academy of Sciences

MOST IMPORTANT PUBLICATIONS

1. Kobolak J, Bodo S, Rungsiwiwut R, Meng Q, M. Adorjan M, Virutamasen P, Techakumpu M, Dinnyes A. Generation of Mouse Embryonic Stem Cell Lines from Zona-Free Nuclear Transfer Embryos. ***Cellular Reprogramming***. 2010; 12:105-113
2. Wilmut I, Beaujean N, De Sousa PA, Dinnyes A, King TJ, Paterson LA, Wells DN, Young LE. Somatic cell nuclear transfer. ***Nature*** 2002; 419:583-587.
3. Xue F, Tian XC, Du F, Kubota C, Taneja M, Dinnyes A, Dai Y, Levine H, Pereira LV, Yang X. Aberrant patterns of X chromosome inactivation in bovine clones. ***Nature Genetics*** 2002; 31:216-220.
4. Denning C, Burl S, Ainslie A, Bracken J, Dinnyes A, Fletcher J, King T, Ritchie M, Ritchie WR, Rollo M, De Sousa P, Travers A, Wilmut I, Clark AJ. Deletion of the α(1,3)galactosyl transferase (*GGTA1*) gene and the prion protein (*PrP*) gene in sheep. ***Nature Biotechnology*** 2001; 19:559-562.

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DOBOZY, Attila

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Department of Dermatology and Allergology, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Dermatology, immunology, allergology, clinical pharmacology and dermatophisiology.

MOST IMPORTANT DISCOVERIES
He and his colleagues were the first to describe the the active contibution of keratinocytes to the innate immune function of the skin. They identified and characterized several microbial pattern recognition receptors of keratinocytes and provided data on the mechanism of microbe elimination.

PRIZES
1987: Kaposi Commemorative Medal • 1999: Order of Merit of the Hungarian Republic – Commander's Cross • 2000: Gold Medal of the Hungarian Blood Service • 2002: Lajos Markusovszky Commemorative Medal • 2003: László Batthyány-Strattmann Award • 2006: Kuno Klebelsberg Award • 2006: Award of the Association of Hungarian Medical Societies • 2007: Széchenyi-Award • 2007: Pro Urbe Szeged Award • 2009: Szőkefalvi-Nagy Award of Szeged Foundation

MOST IMPORTANT PUBLICATIONS
1. Sonkoly E, Bata-Csorgo Z, Pivarcsi A, Polyanka H, Kenderessy-Szabo A, Molnar G, Szentpali K, Bari L, Megyeri K, Mandi Y, Dobozy A, Kemeny L, Szell M. Identification and characterization of a novel, psoriasis susceptibility-related noncoding RNA gene. ***PRINS. J. Biol. Chem*** 2005; 280:24159-24167.
2. Pivarcsi A, Bodai L, Réthi B, Kenderessy-Szabó A, Koreck A, Széll M, Beer Z, Bata-Csörgő Z, Magócsi M, Rajnavölgyi É, Dobozy A, Kemény L. Expression and function of Toll-like receptors 2 and 4 in human keratinocytes. ***Int. Immunol*** 2003; 15:721-730.
3. Szolnoky Gy, Bata-Csörgő Z, Kenderessy-Szabó A, Kiss M, Pivarcsi A, Novák Z, Newman Nagy K, Michel G, Ruzicka T, Maródi L, Dobozy A, Kemény L. A mannose-binding receptor is expressed on human keratinocytes and mediates killing of Candida albicans. ***J. Invest. Dermatol*** 2001; 117:205-213.
4. Kemény, L., Gyulai, R., Kiss, M., Dobozy, A. Kaposi's sarcoma associated herpesvirus/human herpesvirus-8: A new virus in human pathology. ***J. Am. Acad. Dermatol*** 1997; 37:107-113.

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DOCKRAY, Graham

GASTROENTEROLOGY

AFFILIATION
Department of Cell and Molecular Physiology, Institute of Translational Medicine, University of Liverpool – **Liverpool, UK**

RESEARCH INTERESTS
Endocrine control mechanisms with reference to nutrient sensing and signalling in the gastrointestinal tract; gut-brain signalling and regulation of appetite.

MOST IMPORTANT DISCOVERIES
Identification of the intestinal hormone cholecystokinin (CCK) as a putative CNS neurotransmitter, isolation of the major CNS form, and its characterization as CCK8s. Discovery of what are now called RFamide peptides in the vertebrate CNS, followed by the first isolation and chemical characterization of a vertebrate member of this large and important family. Characterisation of mammalian members of the bombesin family as putative neurotransmitters. Elucidation of the pathways of gastrin biosynthesis and direct demonstration of the relationships between different forms of the hormone. Identification of vagal afferent neurons as a primary target for gastrointestinal hormones in signalling to the CNS and roles in control of food intake, autonomic outflow and determination of neurochemical phenotype.

PRIZES
G.L. Brown, G.W.Harris, Annual Review, Prize Lectures of the Physiological Society • Sir Arthur Hurst Prize Lecture of the British Society of Gastroenterology • Oliver-Sharpey Lecture of the Royal College of Physicians • Morton I Grossman Distinguished Lecturer, UCLA. Member Academia Europaea, FRCP (Hon), FRS, FMedSci.

MOST IMPORTANT PUBLICATIONS
1. Dockray GJ. Immunochemical evidence of cholecystokinin-like peptides in brain. ***Nature*** 1976; 264:568-570
2. Dockray GJ, Vaillant C, Williams RG. New vertebrate brain-gut peptide related to a molluscan neuropeptide and an opioid peptide. ***Nature*** 1982; 293:656-657.
3. Varro A, Voronina S, Dockray GJ. Pathways of processing of the gastrin precursor in rat antral mucosa. ***J Clin Invest*** 1995; 95:1642-1649.
4. Burdyga G, Lal S, Varro A, Dimaline R, Thompson DG, Dockray GJ. Expression of cannabinoid CB1 receptors by vagal afferent neurons is inhibited by cholecystokinin. ***J Neurosci***, 2004; 24:2708-2715

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DOHERTY, Peter Charles

NOBEL LAUREATE

AFFILIATION

The University of Melbourne, Department of Microbiology and Immunology – **Melbourne, Australia**
Department of Immunology, St. Jude Children's Research Hospital – **Memphis, Tennessee**

RESEARCH INTERESTS

Cell-mediated immunity. T cell recognition and repertoire. Immunological tolerance. Viral immunology. Immunopathology. Immune memory.

MOST IMPORTANT DISCOVERIES

The 1996 Nobel prize citation for Peter Doherty and Rolf Zinkernagel reads: "for their discoveries concerning the specificity of the cell mediated immune defence". What they discovered is that 'killer' T lymphocytes recognize 'altered self', with 'self' being the class I major histocompatibility complex (MHC), or 'strong transplantation' molecules. This provided a raison d'etre for MHC polymorphism and the transplant system, and illuminated the nature of immune surveillance, T cell recognition and autoimmunity. Doherty was later involved in the discovery that influenza virus-specific 'killer' T cells are much less strain-specific than antibodies, and went on to do substantial experiments clarifying the nature of T cell effector function and memory.

PRIZES

1996: Nobel Prize for Physiology or Medicine
1995: Albert Lasker Award for Basic Medical Research Award • 1986: Gairdner International Award, Canada • 1983: Paul Ehrlich Prize, Germany • Fellow or Foreign Associate of the Australian, UK, US and Russian Aacdemies of Science, and of the US Institute of Medicine and the French Academy of Medicine

MOST IMPORTANT PUBLICATIONS

1. Zinkernagel RM, Doherty PC. Immunological surveillance against altered self components by sensitized T lymphocytes in lymphocytic choriomeningitis. ***Nature (Lond)*** 1974; 251:547-548
2. Hou S, Hyland L, Ryan KW, Portner A, Doherty PC. Virus-specific $CD8^+$ T-cell memory determined by clonal burst size. ***Nature*** 1994; 369:652-654
3. Stevenson PG, Belz GT, Castrucci MR, Altman JD, Doherty PC. A γ-herpesvirus sneaks through a $CD8^+$ T cell response primed to a lytic phase epitope. ***Proc Natl Acad Sci USA*** 1999; 96:9281-9286
4. Doherty PC. Challenged by complexity: my twentieth century in immunology. ***Annu Rev Immunol*** 2007; 25:1-19

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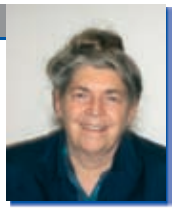
DONOGHUE, Helen D

TUBERCULOSIS EVOLUTION



AFFILIATION

Research Department of Infection and Centre for the History of Medicine University College London – **London, UK**

RESEARCH INTERESTS

I have a long-standing interest in mycobacteria, especially *Mycobacterium tuberculosis* (MTB) and *Mycobacterium leprae*, but also the environmental species. For 20 years I have carried out research on the palaeomicrobiology of human infectious diseases, especially tuberculosis and leprosy. This has been based on the direct detection of ancient pathogen DNA in archaeological skeletal and mummified human remains. I also study the detection and characterisation of human pathogens by direct molecular techniques.

MOST IMPORTANT DISCOVERIES

All ancient DNA (aDNA) work is collaborative. In 1994 we were the first to demonstrate aDNA from a case of leprosy. In 1998 we and David Minnikin's group published the first paper where bacterial cell wall biomarkers confirmed aDNA data. We detected the oldest case of TB in a Pleistocene bison in a multi-centre study in 2001. Molecular typing of MTB in Hungarian mummified bodies from Vác confirmed that principal genetic groups 2 and 3 existed in the 18th century. This population also showed that many TB cases existed without obvious pathology. Co-infection of ancient leprosy cases with TB was reported in 2005. The oldest cases of TB shown to be due to a human lineage of *M. tuberculosis* were demonstrated in a Pre-Pottery Neolithic village from 9000 years BP. Molecular analysis of MTB and *M. leprae* has enabled strains and lineages to be identified which has informed our understanding of the evolution of these pathogens and their phylogeography.

MOST IMPORTANT PUBLICATIONS

1. Donoghue HD, Spigelman M, Zias J, Gernaey-Child AM, Minnikin DE. *Mycobacterium tuberculosis* complex DNA in calcified pleura from remains 1400 years old. ***Lett Appl Microbiol*** 1998; 27:265-9.
2. Fletcher HA, Donoghue HD, Holton J, Pap I, Spigelman M. Widespread occurrence of *Mycobacterium tuberculosis* DNA from 18th-19th century Hungarians. ***Am J Phys Anthropol*** 2003; 120:144-52.
3. Donoghue HD, Marcsik A, Matheson C, Vernon K, Nuorala E, Molto, JE, Greenblatt CL, Spigelman M. Co-infection of *Mycobacterium tuberculosis* and *Mycobacterium leprae* in human archaeological samples: a possible explanation for the historical decline of leprosy. ***Roy Soc Proc Biol Sci*** 2005; 272:389-94.
4. Hershkovitz I, Donoghue HD, Minnikin DE, Besra GS, Lee OY-C, Gernaey AM, Galili E, Eshed V, Greenblatt CL, Lemma E, Kahila Bar-Gal G, Spigelman M. Detection and molecular characterization of 9000-year-old *Mycobacterium tuberculosis* from a Neolithic settlement in the Eastern Mediterranean. ***PLoS ONE*** 2008; 3:e3426

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DONOWITZ, Mark

GASTROENTEROLOGY

AFFILIATION

Johns Hopkins University School of Medicine – **Baltimore, USA**

RESEARCH INTERESTS

Regulation of intestinal Na absorption under physiologic conditions and how abnormal regulation contributes to the pathophysiology of diarrheal diseases. Identification, structure/functions studies and identification of regulatory mechanism of the epithelial isoforms of the mammalian Na/H exchanger gene family.

MOST IMPORTANT DISCOVERIES

Demonstration that the mammalian Na/H exhanger gene family existed, molecular identification of the epithelial members of this gene family. Identification that NHE3 was the isoform which accounted for the majority of intestinal Na absorption, demonstration that regulation was carried out by the C-terminal domain of NHE3 by mechanisms that involved changes in trafficking via mechanisms altering the Vmax of the protein, that regulation occurred via signaling complexes that form on the C-terminus at areas of attachment of the of NHE3 to the cytoskeleton, and demonstration that in addition to regulation by trafficking, regulation involves dyamic changes in association of NHE3 with the microvillar cytoskeleton.

PRIZES

Distinguished Achiement Award, American Physiological Society (GI Section); Career Achievement Award, American Physiological Society (GI Section);

MOST IMPORTANT PUBLICATIONS

1. Tse CM, Brant SR, Walker S, Pouyssegur J, Donowitz M. Cloning and sequencing a rabbit cDNA encoding an intestinal and kidney-specific Na^+/H^+ exchanger isoform (NHE-3). ***J. Biol. Chem***. 1992; 267:9340-9346

2. Yun CHC, Oh S, Zizak M, Steplock D, Tsao S, Tse CM, Weinman EJ, Donowitz M. Cyclic AMP mediated inhibition of the epithelial brush border Na^+/H^+ exchanger, NHE3, requires an associated regulatory protein. ***Proc. Natl. Acad. Sci.*** USA 1997; 94:3010-3015

3. Mahon MJ, Donowitz M, Segre GV. Na^+/H^+ exchanger regulatory factor 2 directs parathyroid hormone 1 receptor signaling. ***Nature*** 2002; 417:458-461

4. Zhu X, Cha B, Zachos NC, Sarker R, Chakraborty M, Chen TE, Kovbasnjuk O, Donowitz, M. Elevated calcium acutely regulates dynamic interactions of NHERF2 and NHE3 proteins in opossum kidney (OK) cell microvilli. ***J Biol Chem.*** 2011; 286:34486-34496

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DOWNES, Stephen

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

Center for Molecular Bioscience, University of Ulster – **Ulster, Northern Ireland**

RESEARCH INTERESTS

DNA damage responses, especially cell cycle checkpoints, excision repair and postreplication repair. Role of decatenating DNA topoisomerase II in mammalian cell cycle control. Gene/nutrient interactions, especially folate-dependent events. Single-cell assays for aspects of DNA metabolism. Archaeological population genetics.

MOST IMPORTANT DISCOVERIES

The role of DNA topoisomerase II in mammalian chromosome condensation and chromatid separation. The existence and characterisation of the human G2 decatenation checkpoint, and the defects in this checkpoint in some oncogenically transformed cells. Suppression of re-replication of G2 nuclei by an intact cell membrane, and overriding of this suppression by protein kinase inhibitors. Topoisomerase-independent excision repair in human cells.
Folate-dependent methylation of TP53 gene in colonic mucosa. Enhancement of Comet assay to measure DNA domain-specific repair, replicative integrity, DNA methylation and mismatch repair on a single-cell basis. Genetic distinction between Hungarian population at the time of the Magyar invasion, and modern Hungarian population.

PRIZES

2005: OBE, services to biomedical science

MOST IMPORTANT PUBLICATIONS

1. Downes CS, Mullinger AM, Johnson RT. Inhibitors of DNA topoisomerase II prevent chromatid disjunction in mammalian cells, but do not prevent exit from mitosis ***Proc Natl Acad Sci USA*** 1991; 88:8895-9.

2. Leno GH, Downes CS, Laskey RA. The nuclear membrane prevents replication of human G2 nuclei but not G1 nuclei in a Xenopus extract ***Cell*** 1992; 69:151-8

3. Downes CS, Clarke DJ, Giménez-Abián JF, Mullinger AM, Creighton AM, Johnson RT. A topoisomerase II-dependent G2 cycle checkpoint in mammalian cells ***Nature*** 1994; 372:467-70

4. Deming PB, Cistulli CA, Zhao H, Graves PR, Piwnica-Worms H, Paules RS, Downes CS, Kaufmann WK. The human decatenation checkpoint. ***Proc Natl Acad Sci USA*** 2001; 98:12044-9.

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DUTOUR, Olivier

TUBERCULOSIS EVOLUTION

AFFILIATION

ECOLE PRATIQUE DES HAUTES ETUDES – **Bordeaux, France**; University of Toronto – **Canada**

RESEARCH INTERESTS

Main research interest in biological anthropology lying in skeletal and dental biology, bioarchaeology, forensic anthropology, origin of modern humans, paleopathology and paleoepidemiology, focusing on human specific infectious diseases (such as plague, tuberculosis, leprosy, treponematosis, typhus.). Interest in reconstructing the life conditions of past human populations by using a multidisciplinary approach that incorporates the study of morphology, histology, medical imaging, biochemistry, molecular biology, archaeology and history.

MOST IMPORTANT DISCOVERIES

Introduction of enthesopathies in the field of paleopathology, as indicators of human activities in the past. Identification of the probable presence of pre-Columbian treponemal disease in Europe. Description of the oldest skeletal evidence of leprosy in Europe. Pioneering works on molecular identification of ancient plague and typhus pathogens. Knowledge improvement of the past of tuberculosis (historical, radiological, paleoepidemiological, paleomicrobiological aspects).

PRIZES

2011: Chair of Excellence (Région Aquitaine) • 1998: Bartucz Anthropological Award (University of Szeged, Hungary)
1993: Bronze Medal of CNRS (French National Centre for Scientific Research)

MOST IMPORTANT PUBLICATIONS

1. Drancourt M, Aboudharam G, Signoli M, Dutour O, Raoult D. Detection of 400-year-old Yersinia pestis DNA in human dental pulp: an approach to the diagnosis of ancient septicemia. ***Proceedings of National Academy of Sciences – USA***. 1998; 95:12637-12640.
2. Mariotti V, Dutour O, Belcastro MG, Facchini F, Brasili P. Probable early presence of leprosy in Europe in a Celtic skeleton of the 4th-3rd century BC (Casalecchio di Reno, Bologna, Italy). ***International Journal of Osteoarchaeology*** 2005; 15:311-325.
3. Raoult D, Dutour O, Jankauskas R, Houhamdi L, Fournier P-E, Ardagna Y, Drancourt M, Signoli M, La V-D, Macia E, Aboudharam G. Evidence for louse-transmitted diseases in soldiers of Napoleon's Grand Army in Vilnius. ***Journal of Infectious Diseases*** 2006; 193:112-120.
4. Dutour O. Archaeology of Human Pathogens: Palaeopathological Appraisal of Palaeoepidemiology. ***In D. Raoult and M. Drancourt (eds.), Paleomicrobiology: Past Human Infections.*** Springer: Berlin / Heidelberg, 2008; 125-144.

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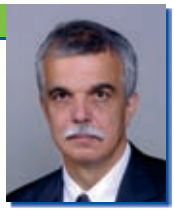
DUX, László

MOLECULAR BIOLOGY & GENETICS



AFFILIATION

University of Szeged, Faculty of Medicine, Department of Biochemistry – **Szeged, Hungary**

RESEARCH INTERESTS

Two and three dimensional crystallization, structural and functional characterization of muscle sarcoplamic reticulum Calcium-ATPase enzyme.The regulation of muscle regeneration and adaptation at the molecular level. The role of membrane components, calcium regulatory systems, cytoskeletal and extracellular matrix in the maintenance of the integrity of skeletal muscle fibers. The standardization and quality control of molecular diagnostic assays, development of reference methods and materials.

MOST IMPORTANT DISCOVERIES

Two and three dimensional crystallization of muscle sarcoplasmic reticulum Calcium ATPase, structural and functional characterization of the crystallized enzyme. Characterization of the regeneration process in normal and dystrophic skeletal muscles.

PRIZES

1977: István Apáthy Award • 1988: Award of the Albert Szent-Györgyi University Medical School for outstanding teaching activities • 1994: Albert Szent-Györgyi Award • 1997: Széchenyi professorship • 1998: Pándy Kálmán award for achievements in Clinical Pathology

MOST IMPORTANT PUBLICATIONS

1. Dux L, Martonosi A. Two-dimensional arrays of proteins in sarcoplasmic reticulum and purified Ca-ATPase vesicles treated with vanadate. ***J Biol Chem*** 1983; 258:2599-2603.
2. Dux L, Taylor K.A, Ting-Beall H.P, Martonosi A. Crystallization of the Ca-ATPase of sarcoplasmic reticulum by calcium and lanthanide ions. ***J Biol Chem*** 1985; 260:11730-11734.
3. Dux L, Cooper BJ, Sewry CA, Dubowitz V. Notechis scutaus venom increases the yield of proliferating muscle cells from biopsies of normal and dystrophic canine muscle, a possible source for myoblast transfer studies. ***Neuromusc Disorders*** 1993; 3: 23-29.
4. Márki-Zay J, Klein Ch.L, Gancberg D, Schimmel HG, Dux L. European external quality control study on the competence of laboratories to recognize rare sequence variants resulting unusual genotyping results. ***Clinical Chemistry*** 2009; 55:739-747.

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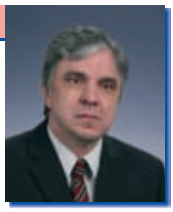
ÉDES, István

CARDIOLOGY



AFFILIATION
Institute of Cardiology, University of Debrecen – **Debrecen, Hungary**

RESEARCH INTERESTS
Studies on the role of protein phosphorylation (phospholamban, phospholemman and troponin-I) in the regulation of myocardial contractility. Preclinical studies with different Ca^{2+} sensitizers and other positive inotropic agents. Myocardial stunning – mechanism of action, pathophysiological consequences.

MOST IMPORTANT DISCOVERIES
The phospholamban mediated effects on sarcoplasmic reticulum (SR) Ca^{2+}-ATPase play a key role in the regulation of myocardial contractility and lusitropy. The phospholamban-mediated functional alterations in the SR Ca^{2+}-ATPase activity explain the activating and relaxing effects of ß-adrenergic agents in cardiac muscle. A new cardiotonic agent, (R)-[[4-(1,4,5,6-tetrahydro-4-methyl-6-oxo - 3 - pyridazinyl) - phenyl] hydrazono]propanedinitrile (Levosimendan), has been developed and screened for its ability to bind to cardiac troponin C. In different heart muscle preparations, low concentrations of Levosimendan increased contractility, but did not affect the speed of relaxation. Levosimendan acts preferably as a Ca^{2+} sensitizer and improves the contractile function.

PRIZES
2000: Gabor Gyorgy Foundation Prize • 2003: Szent-Gyorgyi Albert prize from the Hungarian Ministry of Education • 2001, 2004, 2008: Pro Societate Awards from the Hungarian Society of Cardiology • 2006: Officer's Cross of the Republic of Hungary (Magyar Köztársaság Tiszti Keresztje) • 2007: Sanofi-Aventis Lifeteme Achievement Award • 2008: Istvan Krompecher Award from The University of Debrecen

MOST IMPORTANT PUBLICATIONS
1. Édes I, Kranias EG. Phospholamban and troponin I are substrates fro protein kinase C in vitro but not in intact beating guinea pig hearts. ***Circ. Res***. 1990; 67:394-400.
2. Edes I, Kiss E, Kitada Y, Powers FM, Papp JG, Kranias EG, Solaro RJ. Effects of Levosimendan, a cardiotonic agent targeted to Troponin C, on cardiac function and on phosphorylation and Ca^{2+} sensitivity of cardiac myofibrils and sarcoplasmic reticulum in guinea pig heart. ***Circ. Res***. 1995; 77:107-113.
3. Edes I, Gasior Z, Wita K. Effects of nebivolol on left ventricular function in elderly patients with chronic heart failure. ***Eur. J. Heart Fail***. 2005; 7:631– 639.
4. Papp Z, Edes I et al. Levosimendan: Molecular mechanisms and clinical implications Consensus of experts on the mechanisms of action of levosimendan. ***Int J Cardiol.*** 2011. Jul. 23. [Epub ahead of print]

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EDVINSSON, Lars

NEUROSCIENCE

AFFILIATION
Department of Medicine, University Hospital of Lund – **Lund, Sweden**

RESEARCH INTERESTS
It has been shown that CGRP is released during migraine attacks and can trigger migraine in patients, and CGRP receptor antagonists can abort migraine. The CGRP receptor antagonists are currently under development in many major drug companies for anti-migraine purpose. Professor Edvinsson and his research team have contributed impressively to this important discovery from bench (the initial 20 years of research was done by him) to bedside with a new molecular mechanism that works well in migraine patients.

MOST IMPORTANT DISCOVERIES
Early studies showed the presence of CGRP-containing nerve fibers in intracranial vessels and CGRP-containing nerve cell bodies in the trigeminal ganglion. Functional studies demonstrated that CGRP is a potent vasodilator neuropeptide of intracranial blood vessels acting via adenylyl cyclase. The trigeminovascular reflex was shown in 1986. In clinical studies stimulation of the trigeminal ganglion in patients with trigeminal neuralgia showed a robust release of CGRP. In acute attacks of migraine and cluster headache only CGRP was associated with the pain. The importance of CGRP hypothesis was finally verified when specific CGRP-receptor antagonists, olcegepant and telcagepant, showed the same effectiveness in reducing acute migraine pain to that of triptans, but with fewer side-effects, because they did not have vasoconstrictor effects on coronary arteries.

PRIZES
Several Lund University prizes.

MOST IMPORTANT PUBLICATIONS
1. Goadsby PJ, Edvinsson L. The trigeminovascular system and migraine: studies characterizing cerebrovascular and neuropeptide changes seen in humans and cats. ***Ann Neurol*** 1993; 33:48-56.
2. Edvinsson L, Linde M. New drugs in migraine treatment: telcagepant and topiramate. ***Lancet*** 2010; 375:1-11.
3. Eftekhari S, Salvatore CA, Calamari A, Kane S, Tajti J, Edvinsson L. Differential distribution of calcitonin gene-related peptide and its receptor components in the human trigeminal ganglion. ***Neuroscience*** 2010; 169: 683-696.
4. Ho TW, Edvinsson L, Goadsby PJ. CGRP and its receptors provide new insights into migraine pathophysiology. ***Nature Rev Neurol*** 2010; 6: 573-582.

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EISNER, David

CARDIOLOGY

AFFILIATION

The University of Manchester – **Manchester, UK**

RESEARCH INTERESTS

The regulation of intracellular calcium concentration in cardiac muscle. Recent work has focused on the link between abnormalities of calcium signalling and cardiac arrhythmias.

MOST IMPORTANT DISCOVERIES

The steep dependence of cardiac contractility on intracellular sodium and the role of the Na-Ca exchange in this. The calcium content of the sarcoplasmic reticulum (SR) is controlled by Ca release from the SR affecting fluxes of calcium across the surface membrane of the cell. Consequently, modualtors that affect the opening of the SR Ca release channel (Ryanodine Receptor, RyR) have little effect on contractility. Arrhythmogenic Ca release occurs once SR Ca content exceeds a threshold level. Whether or not modifying the properties of the RyR results in arrhythmogenic Ca release depends on the SR Ca content.

PRIZES

Pfizer Prize for Research in Biology • Fellow Academy of Medical Sciences • Founder Fellow International Society for Heart Research • Member Academia Europa • Wellcome Trust Prize Lecture in Physiology • Reimer Lecturer, International Society for Heart Research

MOST IMPORTANT PUBLICATIONS

1. Eisner DA, Lederer WJ & Vaughan Jones RD. The dependence of sodium pumping and tension on intracellular sodium activity in voltage clamped sheep cardiac Purkinje fibres. ***Journal of Physiology*** 1981; 317, 163 187.
2. Vaughan Jones RD, Lederer WJ & Eisner DA. Calcium ions can influence intracellular pH in mammalian cardiac muscle. ***Nature*** 1983; 301, 522 524.
3. Varro A, Negretti N, Hester SB & Eisner DA. An estimate of the calcium content of the sarcoplasmic reticulum in rat ventricular myocytes. ***Eur. J. Physiol.*** 1993; 423, 158-160.
4. Venetucci LA, Trafford AW & Eisner DA. Increasing ryanodine receptor open probability alone does not produce arrhythmogenic calcium waves: threshold sarcoplasmic reticulum calcium content is required. ***Circ Res*** 2007; 100, 105-111.

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3.18 Core Techology Facility 46 Grafton St, Manchester M13 9NT, UK
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ERDEI, Anna

IMMUNNOLOGY & INFLAMMATION

AFFILIATION

Department of Immunology, Eötvös Loránd University – **Budapest, Hungary**

RESEARCH INTERESTS

Our aim is to reveal how innate elements influence and regulate adaptive response under physiologic and pathologic conditions – particularly the role of complement and complement receptors in the function of B and T lymphocytes, macrophages and dendritic cells.

MOST IMPORTANT DISCOVERIES

Proving that complement C3-fragments play important role in B cell activation. Proving that in human B lymphocytes complement receptor type 1 (CR1) acts inhibitorily in contrast to the activatory CR2. Demonstrating that the structurally similar C1q and MBL binds to different cell membrane structures and exerts different functions on macrophages.

MOST IMPORTANT PUBLICATIONS

1. Melchers F, Erdei A, Schulz T, Dierich MP. Growth control of activated, synchronized murine B cells by the C3d fragment of human complement. ***Nature***, 1985; 317:264-7.
2. Kerekes K, Prechl J, Bajtay Z, Józsi M, Erdei A. A further link between innate and adaptive immunity: C3-deposition on antigenpresenting cells enhances the proliferation of antigen-specific T cells. International ***Journal of Immunology***, 1998; 10:1923-30.
3. Józsi M, Prechl J, Bajtay Z, Erdei A. Complement receptor type 1 (CR1, CD35) mediates inhibitory signals in human B lymphocytes. ***Journal of Immunology***, 2002; 168:2782-88.
4. Prechl J, Papp K, Erdei A. Antigen microarrays: descriptive chemistry or functional immunomics? ***Trends Immunol.*** 2010; 4:133-7.

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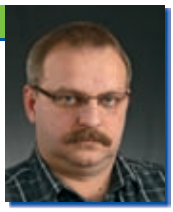
ERDÉLYI, Miklós

MOLECULAR BIOLOGY & GENETICS



AFFILIATION
Institute of Genetics, Biological Research Centre of Hungarian Academy of Sciences – **Szeged, Hungary**

RESEARCH INTERESTS
Two basic cell types exist in higher organisms: the germ cells and the somatic cells. Contrary to the differentiating somatic cells, which form tissues and organs, germ cells remain undifferentiated, stay genetically alive throughout generations allowing maintenance of the species. In most cases, the dichotomy between germ line and soma occurs during early embryonic development. In our laboratory, we use genetic and genomic approaches to identify molecules and understand the mechanisms that underlie germ line determination in Drosophila melanogaster.

MOST IMPORTANT DISCOVERIES
In order to identify genes involved in germ line differentiation we developed and used several genetic mutant isolation screens. During an interaction type of screen we identified Rab11 mutant alleles with germ cell-less phenotypes. We demonstrated that the Rab-mediated vesicle targeting has a role in the proper sub-cellular localization of the well known germ cell factor the oskar RNA. Making use of a hobo transposon mutagenesis system, we have identified poirot a germ cell-less gene and showed its role in translation of the oskar RNA. We developed a novel "gene trap" mutagenesis system by which we isolated germ cell-less alleles of the moesin gene. By these mutants, we showed that oskar protein was anchored to the subcortical actin network in the developing oocyte. We have developed and performed genome-wide RNA interference screen during which we have identified fifty-five novel genes involved in germ cell differentiation.

MOST IMPORTANT PUBLICATIONS
1. Klingler M, Erdelyi M, Szabad J, Nusslein-Volhard C. Function of torso in determining the terminal anlagen on the Drosophila embryo. ***Nature*** 1988; 335:275-277.
2. Erdelyi M, Michon Am, Guichet A, Glotzer Jb, Ephrussi A. Requirement for Drosophila cytoplasmic tropomyosin in oskar mRNA localization. ***Nature*** 1995; 377:524-527.
3. Guichet A, Copeland Jwr, Erdelyi M, Hlousek D, Zavorszky P, Ho J, Brown S, Percival-Smith A, Krause Hm, Ephrussi A. The nuclear receptor homologue Ftz-F1 and the homeodomain protein Ftz are mutually dependent cofactors. ***Nature*** 1997; 385:548-552
4. Jankovics F, Sinka R, Lukacsovich T, Erdelyi M. Moesin crosslinks actin and cell membrane in Drosophila oocytes and is required for oskar anchoring ***Curr Biol*** 2002; 12:2060-2065

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ESCHENHAGEN, Thomas

CARDIOLOGY

AFFILIATION
Institute of Experimental Pharmacology and Toxicology, University Medical Centre Hamburg Eppendorf – **Hamburg, Germany**

RESEARCH INTERESTS
Molecular mechanisms of heart failure with a focus on β-adrenergic signalling. Cardiac tissue engineering for improved preclinical drug testing and disease modeling as well as cardiac repair. In this context, the work with pluripotent stem cells became central to the approach. Pharmacogenetics with a focus on beta-blockers.

MOST IMPORTANT DISCOVERIES
Role of G Proteins in heart failure, upregulation of Gi as a protective compensatory mechanisms. Role of NO and cGMP for β-adrenergic signalling. Role of phosphatase inhibitor-1 and its potential as a therapeutic target. Clinical evaluation of the impact of the hepatic CYP2D6 gene polymorphism for side effects and response rate to metoprolol. Generated the first engineered myocardial tissue in 1994. Proof of principle study showing that implantation of EHT improve heart function after myocardial infarction (2006).

PRIZES
1991: Martini-Award, University of Hamburg • 1992: Rudolf Thauer Award, German Society of Cardiology • 1995: Sandoz Award for Translational Science 1997: Fraenkel Award, German Society of Cardiology • 2011: Member of the National Academy of Science Leopoldina, Ursula Händel Animal Replacement Award (DFG)

MOST IMPORTANT PUBLICATIONS
1. Wittköpper K, Fabritz L, Neef S, Ort KR, Grefe C, Unsöld B, Kirchhof P, Maier LS, Hasenfuss G, Dobrev D, Eschenhagen T*, El-Armouche A*. Constitutively active phosphatase inhibitor-1 improves cardiac contractility in young mice but is deleterious after catecholaminergic stress and with aging. ***J Clin Invest*** 2010; 120:617-26 (split last author).
2. Hansen A, Eder A, Börnstrup M, Flato M, Mewe M, Schaaf S, Aksehirlioglu B, Schwörer A, Uebeler J, Eschenhagen T. Development of a drug screening platform based on engineered heart tissue. ***Circ Res*** 2010; 107:35-44.
3. Zimmermann WH, Melnychenko I, Wasmeier G, Didié M, Naito H, Nixdorff U, Hess A, Budinsky L, Brune K, Michaelis B, Dhein S, Schwoerer A, Ehmke H, Eschenhagen T. Engineered Heart Tissue Grafts Improve Systolic Function and Prevent Deterioration of Diastolic Function in Infarcted Rat Hearts. ***Nat Med*** 2006; 12:452-8.
4. Eschenhagen T, Fink C, Remmers U, Scholz H, Wattchow J, Weil J, Zimmermann WH, Dohmen HH, Schäfer H, Bishopric N, Wakatsuki T, Elson EL Three dimensional reconstitution of embryonic cardiomyocytes in a collagen matrix: a new heart muscle model system. ***FASEB*** J 1997; 11:683-694.

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FALUS, András

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Semmelweis University – **Budapest, Hungary**

RESEARCH INTERESTS
Medical genomics and epigenomics, immungenomics, immuno-informatics (immunomics), oncogenomics, histamine biology and allergy genomics, personalized medicine, systems medicine.

MOST IMPORTANT DISCOVERIES
Generating and testing transgenic histamine-deficient mice, the critical role of histamine in early myeloid ontogenesis has been uncovered. The relevance in appearence and maintenance of histamine in various tumors were proved. In melanoma a characteristic antitumor effect of endogenously produced histamine was found.

PRIZES
2008: Semmelweis Award from the Senate of Semmelweis University
2006: Szechenyi Award from President of Hungarian Republic
2006: Geoffrey B. West Award (European Histamine Research Society
2006: Neumann Award for Bioinformatics
1996: Markusovszky award
1995: Award of Hungarian Academy of Sciences

MOST IMPORTANT PUBLICATIONS
1. Falus A, Merétey K. Histamine: an early messenger in inflammatory and immune reactions ***Immunology Today***, 1992; 13:154-6

2. Szalai C, Bojszkó A, Beko G, Falus A Prevalence of CCR5Δ32 in allergic diseases ***The Lancet***, 2000; 355:66.

3. Yang XD, Ai W, Asfaha S, Bhagat G, Friedman RA, Jin G, Park H, Shykind B, Diacovo TG, Falus A, Wang TC. Histamine deficiency promotes inflammation-associated carcinogenesis through reduced myeloid maturation and accumulation of CD11b(+)Ly6G(+) immature myeloid cells. ***Nature Med.*** 2011; 17:87-95.

4. Molnár V, Ersek B, Wiener Z, Tömböl Z, Szabó PM, Igaz P, Falus A. MicroRNA-132 targets HB-EGF upon IgE-mediated activation in murine and human mast cells. ***Cell Mol Life Sci.*** 2011; Aug 19. [Epub ahead of print]

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FERDINANDY, Péter

CARDIOLOGY

AFFILIATION
Cardiovascular Research Group, Department of Pharmacology and Pharmacotherapy, Semmelweis University – **Budapest**
Department of Biochemistry, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Reduction of ischemia/reperfusion injury by endogenous cardioprotection: preconditioning and postconditioning. Influence of the presence of cardiovascular risk factors, such as hyperlipidemia and diabetes on cardioprotective cellular mechanisms and gene expression profile. Reduction of infarct size, inhibition of the peroxynitrite-matrix metalloproteinase signaling. NO-cGMP-PKG cytoprotective signaling. Extacellular matrix proteoglycans such as biglycan for cytoprotection.

MOST IMPORTANT DISCOVERIES
Cardioprotective cellular mechanisms are inhibited by the presence of hyperlipidemia and other risk factors. Since preclinical development of cardioprotective therapies have been undertaken in animal models, in which ischemia/reperfusion is imposed in the absence of other disease processes, our discovery showed the critical need for preclinical studies that examine cardioprotection in relation to complicating disease states. These are now essential to maximize the likelihood of successfully developing rational approaches to therapeutic protection for the majority of patients with ischemic heart disease. Inhibition of the peroxynitrite-matrix metalloproteinase signaling is protective against acute inflammation-induced heart failure and the development of acute myocardial infarction. Biglycan is an endogenous cytoprotective macromolecule, a potential new therapeutic macromolecule.

PRIZES
1999: Young Investigator Award, International Society for Heart Research, Maastricht

MOST IMPORTANT PUBLICATIONS
1. Csonka C, Szilvássy Z, Fülöp F, Páli T, Blasig IE, Tosaki A, Schulz R, Ferdinandy P. Classic preconditioning decreases the harmful accumulation of nitric oxide during ischemia and reperfusion in rat hearts. ***Circulation*** 1999; 100:2260-6.

2. Ferdinandy P, Daniel H, Ambrus I, Rothery RA, Schulz R. Peroxynitrite is a major contributor to cytokine-induced myocardial contractile failure. ***Circ Res*** 2000; 87:241-7.

3. Ferdinandy P, Schulz R, Baxter GF. Interaction of cardiovascular risk factors with myocardial ischemia/reperfusion injury, preconditioning and postconditioning. ***Pharmacol Rev*** 2007; 59:418-58.

4. Csont T, Görbe A, Bereczki E, Szunyog A, Aypar E, Tóth ME, Varga ZV, Csonka C, Fülöp F, Sántha M, Ferdinandy P. Biglycan protects cardiomyocytes against hypoxia/reoxygenation injury: role of nitric oxide. ***J Mol Cell Cardiol*** 2010; 48:649-52.

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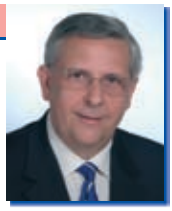
FORSTER, Tamás

CARDIOLOGY



AFFILIATION
2nd Department of Medicine and Cardiology Center, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Cardiomyopathies – clinical course of familial dilated cardiomyopathy, genetic configuration of Hungarian population with different forms of cardiomyopathies, Echocardiography – stress echocardiography in clinical practise, 3D speckle tracking echocardiography.

MOST IMPORTANT DISCOVERIES
Value of Colour Doppler echocardiography in different clinical settings, Applicability of stress echocardiography in ischaemic heart disease, Effects of different type of sports on cardiovascular system, Clinical course of familial dilated cardiomyopathies, Value of coronary flow velocity reserve in different clinical settings, 3D speckle tracking investigations.

MOST IMPORTANT PUBLICATIONS
1. Poldermans D, Fioretti PM, Forster T, Thomson IR, Boersma E, El-Said EM, du Bois NAJJ, Roelandt JRTC, van Urk H. Dobutamine stress echocardiography for assessment of perioperative cardiac risk in patients undergoing major vascular surgery. ***Circulation***, 1993; 87:1506-1512.
2. Forster T, McNeill AJ, Salustri A, El-Said ME, Roelandt JRTC, Fioretti PM, with the technical assistance of Postma-Tjoa J, Bakker W, Reijs AME and Vletter W.B. Simultaneous dobutamine stress echocardiography and 99m-Technetium-Methoxy-Isobuthyl-Isonitryle single photon emission computed tomography in patients with suspected coronary artery disease. ***J. Am. Coll. Cardiol.***, 1993; 21:1591-1596.
3. Nemes A, Csanády M, Forster T. Coronary flow velocity reserve and aortic distensibility in patients with different kinds of multivessel coronary artery disease with versus without diabetes mellitus. ***Diabetes Res Clin Pract.*** 2009; 83:e81-2.
4. Csajbók É, Kalapos A, Gavallér H, Wittmann T, Csanády M, Forster T, Nemes A. Prognostic significance of aortic stiffness index in acromegaly-Results from a 4-year follow-up. ***Int J of Cardiol.*** 2011; 147:457-459.

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FREUND, Tamás F

NEUROSCIENCE

AFFILIATION
Institute of Experimental Medicine, Hungarian Academy of Sciences – **Budapest, Hungary**

RESEARCH INTERESTS
Tamás Freund's main scientific interest is the synaptic and molecular organization, functional architecture and physiology of neuronal circuits in the cerebral cortex and related structures, the network basis of behaviour-dependent population discharge patterns in the hippocampus, the changes in neuronal connectivity/chemical architecture underlying addiction or epileptic and ischemic brain damage, the mechanisms of endocannabinoid signaling and its relationship with anxiety.

MOST IMPORTANT DISCOVERIES
His conceptually novel research uncovered: 1) new molecular pathways in the communication of nerve cells, 2) the identity and principles of connectivity of neurons that build up cortical circuitry, and 3) the generation of network activity patterns that underlie various stages of information processing and storage in the brain. He made significant discoveries regarding the structure and function of cortical microcircuits, with particular attention to their GABAergic inhibitory components, subcortical control, and relationship to cortical oscillations that underlie different stages of memory formation. His group discovered the operational principles of endocannabinoid signaling, and its involvement in the pathogenesis of brain disorders, such as epilepsy and anxiety.

PRIZES
1991: Demuth Award (Switzerland) • 1998: Cortical Discoverer Award and Cajal Medal (U.S.A.) • 1998: Kemali Award • 2000: Bolyai Prize • 2003: Honoris Causa Pro Sciencia Gold Medal • 2005: Széchenyi Prize • 2007: the Semmelweis Award • 2009: Pro Doctorandis Award • 2011: Brain Prize (Denmark).

MOST IMPORTANT PUBLICATIONS
1. Varga V, Losonczy A, Zemelman BV, Borhegyi Z, Nyiri G, Domonkos A, Hangya B, Holderith N, Magee JC, Freund TF. Fast synaptic subcortical control of hippocampal circuits. ***Science*** 2009; 326:449-53
2. Freund TF, Buzsáki G. Interneurons of the hippocampus. ***Hippocampus*** 1996; 6:347-470.
3. Gulyás AI, Miles R, Sík A, Tóth K, Tamamaki N, Freund TF. Hippocampal pyramidal cells excite inhibitory neurons through a single release site. ***Nature*** 1993; 366:683-7.
4. Freund TF, Antal M. GABA-containing neurons in the septum control inhibitory interneurons in the hippocampus. ***Nature*** 1988; 336:170-3.

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FUXREITER, Mónika

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

Department of Biochemistry and Molecular Biology, University of Debrecen, – **Debrecen, Hungary**
Laboratory of Molecular Biology, MRC – **Cambridge, UK**

RESEARCH INTERESTS

Development of new, stochastic formalism for protein structure-function relationships. Understanding recognition and regulatory mechanisms of intrinsically disordered proteins and how they evolve. Studying the role of protein dynamics in development of new protein functions. Studying the molecular principles of transcriptional regulatory pathways. Exploring the fuzziness concept in biology.

MOST IMPORTANT DISCOVERIES

Development of the concept of fuzziness in biology: polymorphism or structural disorder can exist in protein complexes and be functionally required. evelopment of the dynamic DNA readout model: specific DNA recognition is modulated by distant regions, which may not even fold upon binding. Description of those regulatory mechanisms, which are intertwinned with fuzziness. Demonstration how intrinsic disorder and fuzziness operates within the transcription machinery.

PRIZES

L'Oreal Unesco Women in Science Award, Bolyai plaquet, New England Biolabs Award, Pro Scientia Gold Laureate

MOST IMPORTANT PUBLICATIONS

1. Fuxreiter M, Simon I, Bondos S. Fuzziness in protein-DNA recognition: beyond what can be seen. ***Trends in Biochem Sci*** 2011; 36: 415-423.
2. Fuxreiter M, Tompa P, Simon I, Uversky VN, Hansen JC, Asturias F. Malleable machines take shape in eukaryotic transcription regulation. ***Nat Chem Biol*** 2008; 4: 728-737
3. Tompa P, Fuxreiter M. Fuzzy complexes: polymorphism and structural disorder in protein–protein interactions. ***Trends in Biochem. Sci*** 2008; 33:2-8.

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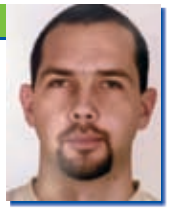
GÁSPÁR, Imre

MOLECULAR BIOLOGY & GENETICS



AFFILIATION

European Molecular Biology Laboratory – **Heidelberg, Germany**

RESEARCH INTERESTS

My main interest of research is to decipher the precise molecular mechanisms that operate the microtubule (MT) mediated transport machinery. These mechanisms include 1) the making the tracks, ie. how the properties of the tubulin monomers influence the transport along MTs; 2) the function and the regulation of the mechanoenzymes carrying various sorts of cargo, eg. vesicles and RNP particles; 3) and the high level organization of the tracks into networks that allow the delivery of the different cargo to their destination. These studies are done in the developing *Drosophila* oocyte and embryo to gain insight on how these„core fast" molecular events of transport can contribute to the „slow" developmental processes and to understand the different mechanisms of adaptation that can tune these processes to match the ever changing needs of an animal living under continously varying environmental conditions.

MOST IMPORTANT DISCOVERIES

The maternal α-tubulin in necessary to adapt the mitotic machinery of early *Drosophila* embryos to the greatly increased rate of divisions. It provides the speed of MT assembly that is necessary for proper and fast centrosomal separation during the prebalstoderm interphases.
Confocal reflection microscopy is a versatile, non-damaging tool to image certain boundaries within living cells, including yolk granules and lipid droplets, cargoes of the MT transport apparatus.
Glutamine^{415} (Glu^{426} in maternal α-tubulin), present in the 12th α-helix of α-tubulin is necessary to stabilize the MT-mechanoenzyme interaction, thus it enhances the processivity – ie. the ability to take consequtive steps – of the molecular motors.
The strutural integrity of spliced *oskar* localization element (SOLE) is critical to maintain proper motility of *oskar* RNPs within the developing *Drosophila* oocyte and thus to maintain a continous posteriorward translocation of the mass of *oskar* mRNA the rate of which exceeds the rate of growth of the stage 9 oocyte.

MOST IMPORTANT PUBLICATIONS

1. Venkei Z, Gáspár I, Tóth G, Szabad J. alpha4-Tubulin is involved in rapid formation of long microtubules to push apart the daughter centrosomes during early Drosophila embryogenesis. ***J Cell Sci*** 2006; 119:3238-48.
2. Gaspar I, Szabad J. Glu415 in the alpha-tubulins plays a key role in stabilizing the microtubule-ADP-kinesin complexes. ***J Cell Sci*** 2009; 122:2857-65.
3. Marchand V, Gaspar I, Ephrussi A. An Intracellular Transmission Control Protocol: assembly and transport of ribonucleoprotein complexes. ***Curr Opin Cell Biol*** 2012 [Epub ahead of print]
4. Ghosh S, Marchand V, Gaspar I, Ephrussi A. Control of RNP motility and localization by a splicing-dependent structure in oskar mRNA ***Nat Struct Mol Biol*** 2012, accepted for publication

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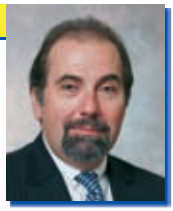
GEIBEL, John

GASTROENTEROLOGY



AFFILIATION
Deptartment of Surgery and Cellular and Molecular Physiology, Yale University – **New Haven, USA**

RESEARCH INTERESTS
Gastrointestinal ion transport, control of acid secretion, prevention and suppression of secretory diarrhea. Characterization of novel transport proteins and receptors in the gastrointestinal tract.

MOST IMPORTANT DISCOVERIES
Demonstrated that the Gastric Gland lumen is impermeant to acid and bicarbonate. Identification of fluid absorption and secretion in the colonic crypt. Demonstration that the Calcium Sensing Receptor can modulate fluid and electrolyte transport in the ileum and colon. Identification of a role for CFTR in acid secertion. Demonstration that activation of the Calcium Sensing Receptor in the parietal cell leads to sustained acid secretion in the abscense of secretagogues. Identified that Zinc salts can inhibit the secretion of gastric acid.

PRIZES
2007-2010: America's Top Physicians (Surgery and Gastroenterology)
2009: Borrelli Conference Awardee (Naples Italy)

MOST IMPORTANT PUBLICATIONS
1. Boron WF, Waisbren SJ, Modlin IM and Geibel JP. Unique permeability barrier of the apical surface of parietal and chief cells in isolated perfused gastric glands. ***J.Exp.Biol.*** 1994; 196:347-360.
2. Schneider S, Egan M, Jena B, Guggino WB, Oberleithner H, Geibel J. Continuous Extracellular ATP Measurement On Living Cells Using Atomic Force Microscopy. ***PNAS*** 1999; 96:12180-12185
3. Geibel JP, Rajendran VM, and H. J. Binder. Na(+)-dependent fluid absorption in intact perfused rat colonic crypts. ***Gastroenterology*** 2001; 120:144-150.
4. Geibel J, Sritharan K, Geibel R, Geibel P, Persing JS, Seeger A, Roepke TK, Deichstetter M, Prinz C, Cheng SX, Martin D and Hebert SC. Calcium-sensing receptor abrogates secretagogue- induced increases in intestinal net fluid secretion by enhancing cyclic nucleotide destruction. ***Proc Natl Acad Sci USA*** 2006; 103:9390-9397.

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e-mail: john.geibel@yale.edu – Tel.: 00 1 203 737 4152, Fax: 00 1 203 737 1464

GICQUEL, Brigitte

TUBERCULOSIS EVOLUTION

AFFILIATION
Institut Pasteur – **Paris, France**

RESEARCH INTERESTS
Study of the infection by *Mycobacterium tuberculosis* at a molecular and cellular level. Identification of mycobacterial and human factors playing a role in the development of the tuberculosis disease. Study of the evolution of *M. tuberculosis* clinical isolates and their adaptation to different human populations and antibiotic treatments. Construction of laboratories networks for implementing new diagnostic, drug susceptibility testing and epidemiology tools with the aim to provide the patients more rapidly with an appropriate treatment.

MOST IMPORTANT DISCOVERIES
Construction of the first nucleic acid based tests for tuberculosis diagnostic. Discovery of mobile elements in mycobacteria that transpose efficiency. Construction of *M. tuberculosis* mutant libraries and discovery of virulence factors. Discovery of horizontal transfer in *M. tuberculosis* complex. Discovery of polymorphisms in 3R genes and their utilization for phylogeny for *M. tuberculosis* complex. Discovery by the team of DC-SIGN as the major receptor on dendritic cells and alveolar macrophages for *M. tubeculosis* complex strains.

PRIZES
Alexandre Joannides Award by the French Academy of Science • Ecology and Development Award by the Royal Academy of Medicine of Saragoza • Canetti Award by Institut Pasteur

MOST IMPORTANT PUBLICATIONS
1. Martin C, Timm J, Rauzier J, Gomez-Lus R, Davies J, Gicquel B. Transposition of an antibiotic resistance element in mycobacteria. ***Nature***. 1990; 345:739-43.
2. Pelicic V, Jackson M, Reyrat JM, Jacobs WR Jr, Gicquel B, Guilhot C. Efficient allelic exchange and transposon mutagenesis in *Mycobacterium tuberculosis*. ***Proc Natl Acad Sci USA***. 1997; 94:10955-60.
3. Berthet FX, Lagranderie M, Gounon P, Laurent-Winter C, Ensergueix D, Chavarot P, Thouron F, Maranghi E, Pelicic V, Portnoï D, Marchal G, Gicquel B. Attenuation of virulence by disruption of the *Mycobacterium tuberculosis* erp gene. ***Science***. 1998; 282:759-62.
4. Tanne A, Ma B, Boudou F, Tailleux L, Botella H, Badell E, Levillain F, Taylor ME, Drickamer K, Nigou J, Dobos KM, Puzo G, Vestweber D, Wild MK, Marcinko M, Sobieszczuk P, Stewart L, Lebus D, Gicquel B, Neyrolles O. A murine DC-SIGN homologue contributes to early host defense against *Mycobacterium tuberculosis*. ***J Exp Med***. 2009; 206:2205-20.

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GRAY, Michael A

GASTROENTEROLOGY

AFFILIATION

Institute for Cell & Molecular Biosciences, Newcastle University – **Newcastle, UK**

RESEARCH INTERESTS

Cellular mechanisms that orchestrate epithelial bicarbonate, fluid and mucus secretion in differentiated adult epithelial tissues and how epithelial dysfunction impacts on the pathogenesis of chronic diseases such as cystic fibrosis and asthma. Current projects are concerned with regulation of CFTR by the luminal microenvironment, role of CFTR and SLC26A transporters in co-ordinating epithelial bicarbonate and mucus secretion and the novel role of environmental CO2 in cell signalling in renal and airway epithelial cells.

MOST IMPORTANT DISCOVERIES

Identified the Cl^- channel CFTR in epithelial cells and elucidated its key role in pancreatic HCO_3^- secretion. Dysfunctional CFTR causes cystic fibrosis (CF) and secretory diarrhoea. Identified a novel regulation of CFTR by luminal anions. This pathway represents a novel negative feedback system coordinated by external Cl- levels. Characterised Ca^{2+} -activated Cl^- channels (CaCCs) in pancreatic and nasal epithelial cells and demonstrated that CaCCs are important regulators of fluid transport in mouse airway epithelial cells. CaCCs are a major target for alternative channel therapy in CF. Demonstrated that bile acids stimulate pancreatic HCO_3^- secretion via a novel mechanism involving apical maxi-K^+ channels. Demonstated that the Cl^-/HCO_3^- exchanger, pendrin, and not CFTR is the apical exit pathway for HCO_3^- is airway cells. First demontration that an anion exchanger regulates the anion composition of airway surface fluid.

PRIZES

2011: Honorary member of the Hungarian Gastroenterological Society with the Geza Hetenyi Memorial Medallion

MOST IMPORTANT PUBLICATIONS

1. Gray MA, Harris A, Coleman L, Greenwell JR, Argent BE. Two types of chloride channel on duct cells cultured from human fetal pancreas. ***Am J Physiol*** 1989; 257:C240-C251.
2. O'Reilly CM, Winpenny JP, Argent BE, Gray MA. Cystic fibrosis transmembrane conductance regulator currents in guinea pig pancreatic duct cells: Inhibition by bicarbonate ions. ***Gastroenterology*** 2000; 118:1187-1196.
3. Wright AM, Gong X, Verdon B, Linsdell P, Mehta A, Riordan JR, Argent BE, Gray MA. Novel Regulation of CFTR channel gating by external chloride. ***J Biol Chem*** 2004; 279:41658-41663.
4. Venglovecz V, Hegyi P, Rakonczay Z Jr, Tiszlavicz L, Nardi A, Grunnet M, Gray MA. Pathophysiological relevance of apical large conductance Ca^{2+} activated potassium channels in pancreatic duct epithelial cells. ***Gut*** 2011; 60:361-369.

CONTACT ADDRESS

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HANSSON, Gunnar

GASTROENTEROLOGY

AFFILIATION

Department of Medical Biochemistry, University of Gothenburg – **Gothenburg, Sweden**

RESEARCH INTERESTS

Mucin and mucus in the gastrointestinal tract in relation colitis and cystic fibrosis. Mucin structure, fomation and function. Mucin O-glycosylation and methods for their characterization.

MOST IMPORTANT DISCOVERIES

Discovered that the large intestine has two mucus layers, where the inner is impermeable to bacteria. Loss of this inner mucus layer or treatments that make this permeable to bacteria triggers inflammation. This has changed our view of how we can have trillions of bacteria in our intestine without an overt immune reaction. Discovered that mucin forms net-like polymers and how their intracellular packing is critical for a proper mucus layer. That mucins can self-cleave and by this cross-link mucus. That transmembrane mucins form enterocyte glycocalyx and that these are shuttling between cell surface and intracellular vesicles. That colon mucin O-glycans are uniform among humans and that the localization of glycosyltransferases along the secretory pathway depends on its pH gradient.

PRIZES

Awarded a number of large grants. Recently two of about 5 million USD each.

MOST IMPORTANT PUBLICATIONS

1. Johansson MEV, Phillipson M, Petersson J, Holm L, Velcich A. and Hansson GC. The inner of the two Muc2 mucin dependent mucus layers in colon is devoid of bacteria. ***Proc. Natl. Acad. Sci USA***, 2008; 105, 150564-15069.
2. Lidell M, Moncada D, Chadee K and Hansson, GC. Entamoeba histolytica cysteine proteases cleave the MUC2 mucin in its C-terminal part and dissolves the protective colonic mucus gel. ***Proc Natl Acad Sci USA***, 2006; 103:9298-9303.
3. Pelaseyed T and Hansson GC. CFTR anion channel modulates expression of human transmembrane mucin MUC3 via the PDZ protein GOPC. ***J. Cell Sci.*** 2011; 124:3074-3083
4. Lidell M, Johansson MEV and Hansson GC. An autocatalytic cleavage in the Human MUC2 Mucin C-terminus occurs at the low pH of the late secretory pathway. ***J. Biol. Chem.*** 2003; 278:13944-13951.

CONTACT ADDRESS

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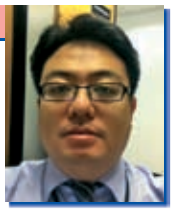
HAUSENLOY, Derek J

CARDIOLOGY



AFFILIATION
The Hatter Cardiovascular Institute, University College London – **London, UK**

RESEARCH INTERESTS
Basic and clinical research in myocardial protection (protecting the heart against the detrimental effects of ischaemia and reperfusion). Mitochondria as targets for cardioprotection. Ischemic preconditioning, postconditioning and remote ischaemic conditioning. Small animal and cardiac MRI in acute myocardial infarction.

MOST IMPORTANT DISCOVERIES
The mitochondrial permeability transition pore as a target for cardioprotection and an end-effector of ischemic preconditioning. The Reperfusion Injury Salvage Kinase pathway as a common target for cardioprotection. Remote ischemoc preconditioning as a cardioprotective strategy in cardiac bypass surgery. Mitochondrial dynamics as a novel tareget for cardioprotection.

PRIZES
2004: Finalist in Bing Young Investigator Award, ISHR World Congress, Brisbane
2006: Finalist in Young Investigator Award, MRS Clinician Scientist meeting, London
2006: Winner of ISHR-Servier Research Fellowship (20,000 Euros)
2006: Winner of Young Investigator Award, British Cardiac Society, Glasgow
2006: Finalist in Young Investigator Award, ISHR European Section meeting, Manchester
2006: Winner of the Novartis Bursary to attend Novartis Mitochondrial Symposium

MOST IMPORTANT PUBLICATIONS
1. Hausenloy DJ, Mwamure P, Venugopal V, Harris J, Barnard M, Grundy E, Ashley E, Kolvekar S, Hayward M, Keogh B, MacAllister R, Yellon DM. The effect of remote ischemic preconditioning during coronary artery bypass graft surgery: a randomised controlled trial. ***Lancet*** 2007; 370:575-9.
2. Yellon DM, Hausenloy DJ. Myocardial Reperfusion Injury. ***New England Journal of Medicine*** 2007; 357:1121-35.
3. Ong SB, Arjun S, Lim SY, Yellon DM, Davidson SM, Hausenloy DJ. Inhibiting mitochondrial fission protects the heart against ischemia reperfusion injury. ***Circulation*** 2010; 121:2012-22.
4. Hausenloy DJ, Yellon DM. The therapeutic potential of ischemic conditioning: an update. ***Nature Reviews Cardiology***. 2011 Jun 21. doi: 10.1038/nrcardio.2011.85.

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e-mail: d.hausenloy@ucl.ac.uk – Tel.: 00 44 0 203 447 9894 or 9888, Fax: 00 44 0 203 447 9505

HEGYI, Péter

GASTROENTEROLOGY

AFFILIATION
First Department of Medicine, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Our main research interests are (i) to understand the role of pancreatic ducts and bicarbonate secretion in the pathogenesis of acute and chronic pancreatitis, (ii) to understand the development of ductal damage in response to pancreatitis-inducing factors (iii) to find new therapeutic targets which may restore ductal function during pancreatitis (iv) to investigate the physiological and pathophysiological roles of epithelial ion transporters in the gastrointestinal tract and (v) to study the role epithelial-stromal interaction in the initiation and progression of gastrointestinal tumors.

MOST IMPORTANT DISCOVERIES
Our workgroup showed that pancreatic ductal epithelial cells are intimately involved in the pathogenesis of acute pancreatitis: (i) one of the physiological roles of pancreatic bicarbonate secretion by pancreatic ductal epithelial cells is to curtail trypsinogen autoactivation within the pancreatic ductal system, (ii) bile acids, well-known initiators of acute pancreatitis, impair pancreatic ductal function, (iii) mitochondrial injury and ATP depletion are the key aspects of ductal damage, (iv) trypsin strongly inhibits luminal anion exchangers and CFTR CI- channels and reduces ductal bicarbonate secretion, (v) in all forms of acute and chronic inflammatory pancreatic diseases, the membrane expression of PAR-2 is markedly decreased suggesting the continuous presence of activated proteases in the pancreatic ductal system.

PRIZES
2011: Outstanding project student supervisor prize at the University of Szeged
2005, 2008: Bolyai Prize of the Hungarian Academy of Sciences
2005: Erwin Kuntz Prize of the Hungarian Gastroenterological Society
1996: Imre Magyar Prize of the Hungarian Gastroenterological Society

MOST IMPORTANT PUBLICATIONS
1. Pallagi P, Venglovecz V, Rakonczay Z, Borka K, Korompay A, Ózsvári B, Judák L, Sahin-Tóth M, Geisz A, Schnúr A, Maléth J, Takács T, Gray MA, Argent BE, Mayerle J, Lerch MM, Wittmann T and Hegyi P. Trypsin reduces pancreatic ductal bicarbonate secretion by inhibiting CFTR Cl^- channels and luminal anion exchangers. ***Gastroenterology*** 2011; 141: 2228-2239.
2. Maleth J, Venglovecz V, Rázga Z, Tiszlavicz L, Rakonczay Z, Hegyi P. The non-conjugated chenodeoxycholate induces severe mitochondrial damage and inhibits bicarbonate transport in pancreatic duct cells ***Gut*** 2011; 60:136-8.
3. Hegyi P, Pandol S, Venglovecz V, Rakonczay Z. The acinar-ductal tango in the pathogenesis of acute pancreatitis. ***Gut*** 2011; 60:544-52.
4. Venglovecz V, Rakonczay Z, Ozsvari B, Takacs T, Lonovics J, Varro A, Gray MA, Argent BE, Hegyi P. Effects of bile acids on pancreatic ductal bicarbonate secretion in guinea pig. ***Gut*** 2008; 57:1102-1112.

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Koranyi fasor 8-10, Szeged, H-6720, Hungary
e-mail: hegyi.peter@med.u-szeged.hu – Tel.: 00 36 62 545 200, Fax: 00 36 62 545 200

HERSHKOVITZ, Israel

TUBERCULOSIS EVOLUTION

AFFILIATION

Department of Anatomy and Anthropology, Sackler Faculty of Medicine, Tel Aviv University – **Tel Aviv, Israel**

RESEARCH INTERESTS

Biohistory: The social and biological impact the transition from foraging and hunting to farming had on human populations. Human evolution: Searching for the origin of anatomically modern humans. Paleopathology: Establishing valid methods for identifying diseases in ancient bones, Health in historical populations. Evolutionary medicine: Introducing the time dimension into modern medicine, spinal diseases and the evolution of erect posture and bipedal locomotion.

MOST IMPORTANT DISCOVERIES

Oldest complete skeleton from Upper Paleolithic, Israel. Deciphering the technique of skull plastering in the Neolithic. Origin of yaws. Recognition of leukemia in skeletal remains. Recognition of sickle cell anemia in skeletal remains of children. Clues to recognition of fungal diseases in ancient bones. The structure of the diploic veins. Pathophysiology of hyperostosis frontalis interna. Neoplastic conditions in dinosaurs. Clues for identifying intrathoracic disease in skeletal populations. Pathophysiology of skull osteomas. Sacroiliac joint bridging as an age and sex marker. Homo floresiensis: a new species or a molecular defect in the growth hormone receptor? Detection and Molecular Characterization of 9000-year-old *Mycobacterium tuberculosis*. Pathophysiology of Schmorl's nodes. The role of ligamentum flavum in spinal stenosis. Infectious diseases at the origin of agriculture in the Levant. Middle pleistocene dental remains from Qesem Cave (Israel). The role of the epiphyseal ring in human adaptation to bipedality.

MOST IMPORTANT PUBLICATIONS

1. Hershkovitz I, Smith P, Sarig R, Quam R, Rodríguez L, García R, Arsuaga JL, Barkai R, Gopher A. Middle Pleistocene dental remains from Qesem Cave (Israel). ***Am J Phys Anthropol.*** 2011; 144:575-592.

2. Hershkovitz I, Donoghue HD, Minnikin DE, Besra GS, Lee O, Gernaey AM, Galili E, Eshed V, Greenblatt CL, Lemma E, Kahila Bar-Gal G, Spigelman M. Detection and Molecular Characterization of 9000-year-old *Mycobacterium tuberculosis* from a Neolithic settlement in the Eastern Mediterranean. ***PLoS ONE*** 2008; 3:e3426.

3. Hershkovitz I, Greenwald C, Rothschild BM, Latimer B, Dutour O, Jellema LM, Wish-Baratz S, Leonetti G. Hyperostosis Frontalis Interna: Anthropological and anatomical perspective. ***Am. J. Phys. Anthropol.*** 1999; 109:303-325.

4. Hershkovitz MS. Speirs, D. Frayer, S. Wish-Baratz, Nadel D, Arensburg B. Ohalo H 2- A 19 ,000 year old skeleton from a water logged site at the Sea of Galilee,Israel. ***Am. J. Phys. Anthropol.*** 1995; 96:215-234.

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HEUSCH, Gerd

CARDIOLOGY

AFFILIATION

Institut für Pathophysiologie, Universitätsklinikum Essen – **Essen, Germany**

RESEARCH INTERESTS

Coronary blood flow, coronary microembolization, hibernating myocardium, postconditioning, preconditioning, reperfusion, stunning.

MOST IMPORTANT DISCOVERIES

Alpha-adrenergic coronary vasoconstriction in myocardial ischemia; recruitment of coronary reserve at the expense of metabolic recovery in hibernating myocardium; obligatory role of connexin 43 in cardioprotection.

PRIZES

1987: Heisenberg award, German Research Foundation
1998: Fritz Acker award, German Cardiac Society
2002: Basic Science Lecture and Silver Medal, European Society of Cardiology
2003: Keith Reimer award, International Society for Heart Research
2004: Paul Morawitz award, German Cardiac Society
2010: Hans-Peter Krayenbühl award, International Academy of Cardiology
2011: Golden needle, German Cardiac Society

MOST IMPORTANT PUBLICATIONS

1. Heusch G, Deussen A. The effects of cardiac sympathetic nerve stimulation on the perfusion of steno¬tic coronary arteries in the dog. ***Circ Res*** 1983; 53: 8 15.

2. Heusch G, Rose J, Skyschally A, Post H, Schulz R. Calcium responsive¬ness in regional myocardial short-term hibernation and stunning in the in situ porcine heart - inotropic responses to postextrasystolic potentiation and in-tracoronary calcium. ***Circulation*** 1996; 93:1556-1566.

3. Heinzel FR, Luo Y, Li X, Boengler K, Buechert A, García-Dorado D, Di Lisa F, Schulz R, Heusch G. Impairment of diazoxide-induced formation of reactive oxygen species and loss of cardioprotection in connexin 43-deficient mice. ***Circ Res*** 2005; 97:583-586.

4. Kleinbongard P, Böse D, Baars T, Möhlenkamp S, Konorza T, Schöner S, Elter-Schulz M, Eggebrecht H, Degen H, Haude M, Levkau B, Schulz R, Erbel R, Heusch G. Vasoconstrictor potential of coronary aspirate from patients undergoing stenting of saphenous vein aortocoronary bypass grafts and its pharmacological attenuation. ***Circ Res*** 2011; 108:344-352.

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HOMEY, Bernhard

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Department of Dermatology of the Heinrich-Heine-University – **Düsseldorf, Germany**

RESEARCH INTERESTS
Elucidation of the role of chemokines and their receptors in the pathogenesis of chronic inflammatory and autoimmune skin diseases. Elucidation of the role of chemokines in the metastatic process of malignant tumors.

MOST IMPORTANT DISCOVERIES
Discovery and characterization of novel chemokines and their receptores.

PRIZES
2000: Paul-Martini-Award • 2002: Research Award of the German-Hungarian Society for Dermatology
2002: European Society for Dermatological Research (ESDR, Galderm-Poster-Award) • 2002: Reinhard- und Emmy-Heynen-Award
2002: Günther-von-Wille-Award • 2003: Bench-to-Bedside Meeting (Poster Award)
2003: Oskar-Gans-Award • 2003: Fujusawa-Atopic-Dermatitis-Award
2004: First International Conference on Cutaneous Lupus Erythematosus: 1st Prize Poster Award
2005: Atopic-Dermatitis-Award, Proderma Foundation

MOST IMPORTANT PUBLICATIONS
1. Twarock S, Freudenberger T, Poscher E, Dai G., Jannasch K, Dullin C, Alves F, Prenzel K, Knoefel WT, Stoecklein NH, Savani RC, Homey B, Fischer JW. Inhibition of oesophageal squamous cell carcinoma progression by in vivo targeeting of hyaluronan synthesis. ***Mol Cancer.*** 2011; 10:30

2. Klör HU, Weizel A, Augustin M, Diepgen TL, Elsner P, Homey B, Kapp A, Ruzicka T, Luger T. The impact of oral vitamin A derivatives on lipid metabolism – What recommendations can be derived for dealing with this issue in the daily dermatological practice? ***J Dtsch Dermatol Ges.*** 2011; 9:600-6

3. Gerber PA, Kukova G, Buhren BA, Homey B. Density of Demodex folliculorum in patients receiving epidermal growth factor inhibitors. ***Dermatology***. 2011; 222:144-7.

4. Gerber PA, Buhren BA, Homey B. More on aprepitant for erlotinib-induced pruritus. ***N Engl J Med.*** 2011; 364; 486-7

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HUBER, Robert

NOBEL LAUREATE

AFFILIATION
Max-Planck-Institut für Biochemie – **Martinsried, Germany**

RESEARCH INTERESTS – MOST IMPORTANT DISCOVERIES
Structure and function of biological macromolecules, in particular those of large complex aggregates.
Systems studied:
• proteases and their natural and synthetic inhibitors; • metalloenzymes (iron, nickel, molybdenum, copper); • proteins of the immune system (antibodies and antibody receptors); • protein hormones and their receptors; protein kinases; • proteins of amino acid biosynthesis (PLP containing enzymes); • proteins of cofactor and vitamin biosynthesis; proteins of energy and electron transport.
Methods development:
• Patterson methods in crystallography; • methods of structure determination of proteins and protein ligand complexes by NMR; • synthesis and use of electron rich metal clusters; • crystal annealing and improvement, methods and instruments; • analysis and evaluation of targets for research and application in pharmacology and crop science.

PRIZES
2011: National Medal of the Order 'Manuel Amador Guerrero' of the Republic of Panama
2009: Honorary Director of the Nobel Life Science Research Center, Foshan, China
2005: Honorary Professor, Shanghai Jiao Tong University, China
2004: Premio Città di Firenze sulle Scienze Molecolari, Florenz
2002: Honorary Professor, Ocean University, Qingdao
2000: Dr. h.c. Universitat Autònoma de Barcelona
1997: Max Tishler Prize, Harvard University, USA
1988: Nobel Prize in Chemistry

MOST IMPORTANT PUBLICATIONS
1. Brandstetter H, Kim JS, Groll M, Göttig P, Huber R. Structural basis for the processive protein degradation by tricorn protease. ***Biol Chem.*** 2002; 383:1157-65

2. Lee JH, Maskos K, Huber R. Structural and functional studies of the yeast class II Hda1 histone deacetylase complex. ***J Mol Biol.*** 2009; 391:744-57

3. Groll M, Brandstetter H, Bartunik H, Bourenkow G, Huber R. Investigations on the maturation and regulation of archaebacterial proteasomes. ***J Mol Biol.*** 2003; 327:75-83

4.Groll M, Huber R. Purification, crystallization, and X-ray analysis of the yeast 20S proteasome. ***Methods Enzymol.*** 2005; 398:329-36.

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HUNT, Tim

NOBEL LAUREATE

AFFILIATION
Cancer Research UK, Clare Hall Laboratories – **South Mimms, UK**

RESEARCH INTERESTS
Control of the cell cycle.

MOST IMPORTANT DISCOVERIES
The discovery of the disappearance of cyclins.

PRIZES
2001: Nobel Prize in Physiology or Medicine

MOST IMPORTANT PUBLICATIONS
1. Mochida S, Maslen SL, Skehel M and Hunt T. The kinase Greatwall phosphorylates an inhibitor of protein phosphatase 2A that is essential for mitosis. ***Science***, 2010; 330:1670-1673.
2. Poon RY, Yamashita K, Adamczewski JP, Hunt T & Shuttleworth J. The cdc2-related protein p40MO15 is the catalytic subunit of a protein kinase that can activate p33cdk2 and p34cdc2. ***EMBO J*** 1993; 12, 3123-3132.
3. Evans T, Rosenthal ET, Youngbloom J, Distel D and Hunt T. Cyclin: a protein specified by maternal mRNA in sea urchin eggs that is destroyed at each cleavage division. ***Cell*** 1983; 33, 389-396.
4. Farrell PJ, Balkow K, Hunt T, Jackson RJ and Trachsel H. Phosphorylation of initiation factor eIF-2 and the control of reticulocyte protein synthesis. ***Cell*** 1977; 11, 187-200.

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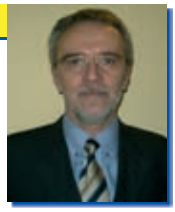
e-mail: tim.hunt@cancer.org.uk – Tel.: 00 44 7595037171

IZBÉKI, Ferenc

GASTROENTEROLOGY



AFFILIATION
1st Department of Medicine, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Gastroenterology- functional gastrointestinal disorders; gastrointestinal motility in health and diseases; enteric nervous system; neurodegenerative processes in the enteric nervous system; effect of ageing on the enteric nervous system.

MOST IMPORTANT DISCOVERIES
The anti-ageing hormone Klotho, is expressed in the mouse stomach, and loss of Klotho results in a dramatic depletion gastrointestinal pacemaker cells, the interstitial cells of Cajal, which leads to gastric motor dysfunctions including abnormal electrical pacing. We provided the first evidence of gut dysmotility and underlying cellulopathies in the klotho model of ageing.

MOST IMPORTANT PUBLICATIONS
1. Asuzu DT, Hayashi Y, Izbeki F, Popko LN, Young DL, Bardsley MR, Lorincz A, Kuro-o M, Linden DR, Farrugia G, Ordog T. Generalized neuromuscular hypoplasia, reduced smooth muscle myosin and altered gut motility in the klotho model of premature aging. ***Neurogastroenterol Motil***. 2011; 23:309-23.
2. Izbéki F, Asuzu DT, Lorincz A, Bardsley MR, Popko LN, Choi KM, Young DL, Hayashi Y, Linden DR, Kuro-o M, Farrugia G, Ordog T. Loss of Kitlow progenitors, reduced stem cell factor and high oxidative stress underlie gastric dysfunction in progeric mice. ***J Physiol***. 2010; 588:3101-17.
3. Izbéki F, Wittmann T, Csáti S, Lonovics J. The mechanisms of the inhibitory effect of ethanol on gastric emptying involve type A CCK receptors. ***Regul Pept***. 2004; 117:101-105.
4. Izbéki F, Wittmann T, Jancsó G, Csáti S, Lonovics J. Inhibition of gastric emptying and small intestinal transit by ethanol is mediated by capsaicin-sensitive afferent nerves. ***Naunyn-Schmiedebergs Arch Pharmacol*** 2002; 365:17-21.

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JAKAB, Zsuzsanna

TUBERCULOSIS EVOLUTION

AFFILIATION
World Health Organization, Regional Office for Europe – **Copenhagen, Denmark**

RESEARCH INTERESTS
Public health, epidemiology, disease prevention, social welfare.

MOST IMPORTANT DISCOVERIES
From 2010, as the WHO Regional Director for Europe initiated the new European Public Health Policy: Health2020 'Better Health for Europe', the strengthening of Public Health in Europe, the European Action Plan on NCDs and Alcohol, commissioned the first Social Determinants of Health in Europe Study as well as the Study on Governance for Health in the 21st Century, and launched the first MDR/XDR Action Plan to tackle the TB epidemic in Eastern Europe, as well as the Antimicrobial Resistance Strategy.

Between 2005 and 2010 as the founding Director of the European Union Agency (The European Centre for Disease Prevention and Control: ECDC) in Stockholm Sweden, built ECDC into an internationally respected centre of excellence in the fight against infectious diseases. During this period along with managing the H1N1 Pandemic, the ECDC started the first ever European AMR Day and a strong and comprehensive set of programs to monitor and control the most important Infectious Diseases in the EU.

As Secretary of State in the Hungarian Ministry of Health and Social Affairs from 2002 to 2005, oversaw the work of the Ministry of Welfare in all areas and alter on Hungary's preparation and integration from health perspective into the EU including supervision of the national public health program to improve the health status of the population in order to reduce the health gap.

In 1990's following the collapse of the Berlin Wall and the Soviet Union, oversaw the EUROHEALTH programme for development in Central and Eastern Europe as well as the Newly Independent States: to draw up collaborative agreements with 25 countries and monitor, evaluate their implementation in the priority areas such as: prevention and control of communicable and non-communicable diseases, mother and child health, lifestyles, environment and health, health service development.

MOST IMPORTANT PUBLICATIONS
1. Jakab Z. Tackling tuberculosis: progress made and challenges remaining for the European Union. ***Euro Surveill*** 2008; 13:1.

2. Jakab, Z. Tuberculosis in the European Union: ongoing commitment needed to control the disease. ***Euro Surveill*** 2009; 14:1-2.

3. Jakab Z, Marmot M. Social determinants of health in Europe. ***Lancet*** 2012; 379:103-104.

4. Jakab Z, Galea G. Enduring principles in a fast-changing world. ***Health Promot Int*** 2011; 2:161-162.

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JANCSÓ, Gábor

NEUROSCIENCE

AFFILIATION
Department of Physiology, Faculty of Medicine, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Neurobiology of pain. Morphology, anatomical organization, neurochemistry and function of nociceptive primary sensory neurons. Neuroplastic changes associated with peripheral nerve lesions. Nociceptive and antinociceptive effects of capsaicin-type compounds. Physiological functions and regulation of TRP ion channels.

MOST IMPORTANT DISCOVERIES
Discovery of the selective neurotoxic/neurodegenerative actions of capsaicin on primary sensory neurons which transmit pain. First demonstration of the targeted analgesic and anti-inflammatory effects of capsaicin. Direct morphological demonstration of the distribution of nociceptive/chemosensitive spinal and cranial primary afferents in the central nervous system. Identification of glucosylceramide synthase as a possible novel pharmacological target for pain modulation.

PRIZES
István Apáthy Prize • Jubilee Prize of the Hungarian Physiological Society • Miklós Jancsó Award • Ambrus Ábrahám Award • Kunó Klebelsberg Award.

MOST IMPORTANT PUBLICATIONS
1. Jancsó G, Király E, Jancsó-Gábor A. Pharmacologically induced selective degeneration of chemosensitive primary sensory neurones. ***Nature*** 1977; 270:741-3.

2. Jancsó G, Király E, Jancsó-Gábor A. Direct evidence for an axonal site of action of capsaicin. ***Naunyn Schmiedebergs Arch Pharmacol*** 1980; 313:91-4.

3. Jancsó G, Király E. Distribution of chemosensitive primary sensory afferents in the central nervous system of the rat. ***J Comp Neurol*** 1980, 190:781-92.

4. Sántha P, Oszlács O, Dux M, Dobos I, Jancsó G. Inhibition of glucosylceramide synthase reversibly decreases the capsaicin-induced activation and TRPV1 expression of cultured dorsal root ganglion neurons. ***Pain*** 2010, 150:103-12.

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JANKA, Zoltán

NEUROSCIENCE

AFFILIATION

Department of Psychiatry, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Biological psychiatry, biomarkers in psychiatric disorders, cell and tissue cultures, ultrastructural morphometry, synapse morphology and functioning, lithium transport of brain and other and in mood disorders, psychometry of music experience, epidemiological, clinical and biological aspects of dementia, cognitive functions in schizophrenia, molecular genetics of psychiatric disorders, pharmacogenetics, neuroimaging in schizophrenia, dementia and depression, creativity and psychopathology.

MOST IMPORTANT DISCOVERIES

Discovery of a lithium–sodium countertransport in the neural membrane. Evidence for lithium entry into neuron via the sodium channel in primary culture. Demonstration of interglial gap junctions in dissociated culture. Morphometric data for vesicle membrane incorporation into the presynaptic membrane. Measurement by SPECT of binding of bupropion to the dopamine transporter in depression. Contribution of BDNF gene polymorphism in schizophrenia. Influence of dopamine D3 receptor gene polymorphism on therapeutic response and cognition in schizophrenia. Category learning as a form of implicit memory can be spared in Alzheimer's disease (AD). Enhanced oxidative impairment revealed by comet technique of lymphocyte DNA in AD. Paraoxonase-2 gene variation and its interaction with apo-E in AD.

PRIZES

1989, 2003: Excellent Teacher
Best Lecturer, Student Prize, Hungarian: 1998, 2000, 2001, yearly 2005-2007, 2009, 2010; English: 1996–1998, 2009
1986, 1989: Nyírő Scientific Award
2000: Hollós Scientific Prize
2007: Honorary Citizenship of Jászberény
2009: Batthyány-Strattmann Award

MOST IMPORTANT PUBLICATIONS

1. Janka Z, Jones DG. Quantitative ultrastructural approaches to the analysis of synapses in culture. In: ***Current Topics in Research on Synapses***, 1984; 2:1-58, Alan R. Liss, New York
2. Janka Z, Juhász A, Rimanóczy Á, Boda K, Márki-Zay J, Kálmán J. Codon 311 (Cys→Ser) polymorphism of paraoxonase-2 gene is associated with apolipoprotein E4 allele in both Alzheimer's and vascular dementias. ***Mol Psychiat*** 2002; 7:110-112
3. Szekeres G, Juhász A, Rimanóczy Á, Kéri S, Janka Z. The C270T polymorphism of the brain-derived neurotrophic factor gene is associated with schizophrenia. ***Schizophr Res*** 2003; 65:15-18
4. Fehér Á, Juhász A, Rimanóczy Á, Kálmán J, Janka Z. Association study of interferon-γ, cytosolic phospholipase A2, and cyclooxygenase-2 gene polymorphisms in Alzheimer's disease. ***Am J Geriatr Psychiat*** 2010; 18:983-987

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JONES, Peter A

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

USC Norris Comprehensive Cancer Center – **Los Angeles, USA**

RESEARCH INTERESTS

DNA Methylation, epigenetics, cancer.

MOST IMPORTANT DISCOVERIES

Studies on the molecular biology cancer and of basic mechanisms of DNA methylation and its role in cancer and differentiation. The Jones laboratory discovered the effects of 5-azacytidine on DNA methylation and linked this process to the activation of silenced genes.

PRIZES

Outstanding Investigator Grant from the National Cancer Institute. Shared the Kirk A. Landon Award for Basic Cancer Research from the AACR in 2009. Shared the American Cancer Society's Medal of Honor for Basic Research in 2011.

MOST IMPORTANT PUBLICATIONS

1. Constantinides PG, Jones PA and Gevers W. Functional striated muscle cells from non-myoblast precursors following 5-azacytidine treatment. ***Nature***, 1977; 267:364-366
2. Jones PA and Taylor SM. Cellular differentiation, cytidine analogs and DNA methylation. ***Cell***, 1980; 20:85-93
3. Jones PA, Wolkowicz MJ, Rideout III WM, Gonzales FA, Marziasz CM, Coetzee GA, and Tapscott SJ. De novo methylation of the MyoD1 CpG island during the establishment of immortal cell lines. ***Proc. Natl. Acad. Sci.*** USA, 1990; 87:6117-6121
4. Taberlay PC, Kelly TK, Liu CC, You JS, de Carvalho DD, Miranda TB, Zhou XJ, Liang G, and Jones PA. Polycomb repressed genes have permissive enhancers that initiate reprogramming. ***Cell***, [Epub, ahead of print]

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KALLIONIEMI, Olli

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Institute for Molecular Medicine Finland (FIMM), University of Helsinki – **Helsinki, Finnland**

RESEARCH INTERESTS
Genomics, bioinformatics and systems biology research of drug resistance. Biology of progression prostate cancer and leukemia. Personalised medicine in molecular oncology.

MOST IMPORTANT DISCOVERIES
Co-inventor of omparative genomic hybridization (CGH) and gene-specific FISH assays (e.g. FDA approved HER-2 diagnostics), co-inventor of tissue microarrays, cell-based RNAi microarrays.

PRIZES
1998: Anders Jahre Young Scientist Award, Oslo, Norway • 1999: NIH Director's lecture
2004: Marie Curie Centre of Excellence Award, European Commission (2004-2008) • 2006: Centre of Excellence award, Academy of Finland (2006-2011)
2006: Harold G. Pritzker Memorial Lecture (Mount Sinai, University of Toronto) • 2006: EMBO member (European Molecular Biology Organisation)
2007: CGH nominated as one of the top 100 breakthroughs of the past 100 years at AACR • 2008: AACR Team Science Award for the development of CGH
2009: Abbot-IFCC award for Molecular Diagnostics

MOST IMPORTANT PUBLICATIONS
1. Kallioniemi A, Kallioniemi O-P, Sudar D, Rutovitz D, Gray JW, Waldman FM, Pinkel D. Comparative genomic hybridization for molecular cytogenetic analysis of solid tumors. ***Science*** 1992; 258:818-821
2. Kononen J, Bubendorf L, Kallioniemi A, Barlund M, Schraml P, Leighton S, Torhorst J, Mihatsch MJ, Sauter G, Kallioniemi O-P. Tissue microarrays for high-throughput molecular profiling of tumor specimens. ***Nature Medicine*** 1998; 4:844-847
3. Edgren H, Murumagi A, Kangaspeska S, Nicorici D, Hongisto V, Kleivi K, Rye IH, Nyberg S, Wolf M, Borresen-Dale AL, Kallioniemi O. Identification of fusion genes in breast cancer by paired-end RNA-sequencing. ***Genome Biol*** 2011; 19;12:R6.
4. Hanash SM, Baik CS, Kallioniemi O. Emerging molecular biomarkers-blood-based strategies to detect and monitor cancer. ***Nat Rev Clin Oncol*** 2011; 8:142-50.

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KATONA, Róbert

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Institute of Genetics, Biological Research Centre, Hungarian Academy of Sciences – **Szeged, Hungary**

RESEARCH INTERESTS
Mammalian artificial chromosomes (MACs) are safe, stable genetic vectors, which do not integrate into the host cell's genom and have an unlimited transgene carrying capacity. The combination of MACs with stem cell-based technologies offers a quite novel strategy in gene and stem-cell-based therapeutic applications. Presently, this approach is being applied to several type of devastating disease models, including cancer. The MAC technology is excellent to produce induced pluripotent stem cells in a safe way and MACs could be used to establish various cell types for cell therapy.

MOST IMPORTANT DISCOVERIES
Mouse euchromatin specific "genome-painting" with a LINE probe:A rapid method for identification and mapping of human chromosomes in mouse-human microcell hybrids by two-color FISH. Transgenic mice, carrying an expressed anti-HIV ribozyme in their genome, show no sign of phenotypic alterations. Two isoforms of the human Cyclin C gene are expressed differentially suggesting that they may have distinct functions. Cyclin C knock-out mice have a serious defect in placentation, heart development and embryonic cell proliferation and die around the 9th day of their embryonic development. A combined artificial chromosome-stem cell therapy method in a model experiment aimed at the treatment of Krabbe's disease in the Twitcher mouse. Treated mice live up to five times longer.

MOST IMPORTANT PUBLICATIONS
1. Katona RL, Sinko I, Hollo G, Szucs KS, Praznovszky T, Kereso J, Csonka E, Fodor K, Cserpan I, Szakal B, Blazso P, Udvardy A, Hadlaczky G A combined artificial chromosome-stem cell therapy method in a model experiment aimed at the treatment of Krabbe's disease in the Twitcher mouse. ***CELLULAR AND MOLECULAR LIFE SCIENCES*** 2008; 65: 3830-3838
2. Keller-Pinter A, Bottka S, Timar J, Kulka J, Katona R, Dux L, Deak F, Szilak L Syndecan-4 promotes cytokinesis in a phosphorylation-dependent manner. ***CELLULAR AND MOLECULAR LIFE SCIENCES*** 2010; 67:1881-1894
3. Katona RL Dendrimer Mediated Transfer of Engineered Chromosomes. Mammalian Chromosome Engineering: Methods and Protocols. TOTOWA, USA: HUMANA PRESS INC., ***Methods in Molecular Biology*** 2011; 738:151-160
4. Katona RL, Vanderbyl SL, Perez CF Mammalian Artificial Chromosomes and Clinical Applications for Genetic Modification of Stem Cells: An Overview. Mammalian Chromosome Engineering: Methods and Protocols. TOTOWA, USA: HUMANA PRESS INC., ***Methods in Molecular Biology*** 2011; 738:199-216

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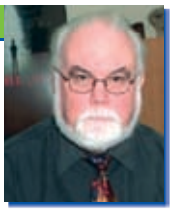
KAUFMAN, Thomas C

MOLECULAR BIOLOGY & GENETICS



AFFILIATION

Department of Biology, Indiana University – **Bloomington, USA**

RESEARCH INTERESTS

Drosophila genetics, cytogenetics, development, cell biology and genomics. The dissemination of genetic and genomic information databases and the development of community query tools for access to those data at FlyBase (http://flybase.org/).

MOST IMPORTANT DISCOVERIES

One Gene:One Band – One of the earliest attempts at defining the genomic organization of the Drosophila genome. Discovery and characterization of the Antennapedia complex genes, identifiying the component transcription units, and defining their functions. Demonstration of the roles of Hox genes in development of other arthropods, providing the basis for understanding their role in the development and evolution of body plans. Discovery of the Homeobox.

PRIZES

1998: The Edwin Grant Conklin Medal, Society for Developmental Biology • 1999: Fellow, American Academy of Arts and Sciences • 2002: Singer Medal, Midwest Development Biology Society • 2005: GSA Beadle Medal for contributions to genetics research. • 2007: Docteur Honoris Causa de l'Université Paul Sabatier, Toulouse • 2008: Fellow of the American Association for the Advancement of Science • 2008: Member, National Academy of Sciences, U.S.

MOST IMPORTANT PUBLICATIONS

1. Hoskins RA, Landolin JM, Brown JB, Sandler JE, Takahashi H, Lassmann T, Yu C, Booth BW, Zhang D, Wan KH, Yang L, Boley N, Andrews J, Kaufman TC, Graveley BR, Bickel PJ, Carninci P, Carlson JW and Celniker SE. Genome-Wide Analysis of Promoter Architecture in the *Drosophila melanogaster* Embryo. ***Genome Research*** 2011; 21:182-192.

2. Cherbas L, Willingham A, Zhang D, Yang L, Zou Y, Eads BD, Carlson JW, Landolin JM, Kapranov P, Dumais J, Samsonova A, Choi JH, Roberts J, Davis CA, Tang H, van Baren MJ, Ghosh S, Dobin A, Bell K, Lin W, Langton L, Duff MO, Tenney AE, Zaleski C, Brent MR, Hoskins RA, Kaufman TC, Andrews J, Graveley BR, Perrimon N, Celniker SE, Gingeras TR, Cherbas P. The Transcriptional Diversity of 25 *Drosophila* Cell Lines. ***Genome Research*** 2011; 21:301-314.

3. Graveley BR, Yang L, Landolin J, Sturgill D, van Baren MJ, Carlson JW, Duff M, Davis CA, Brooks AN, Wan KH, Sandler JE, Choi J, Eads B, Miller D, Roberts J, Tang H, Xiao S, Zhang D, Zou Y, Dobin A, Lin W, Bell K, Langton L, Zhang Y, Malone J, Li R, Clough E, Artieri C, Mattiuzzo N, Jiang L, Dudoit S, Cherbas L, Hoskins RA, Brenner SE, Kaufman T, Andrews J, Gingeras TR, Oliver B, Brent M, Cherbas P, and Celniker SE. Diversity and Dynamics of the *Drosophila melanogaster* Transcriptome. ***Nature*** 2011; 471: 473-479.

4. The modENCODE Consortium. Identification of functional elements and regulatory circuits in Drosophila by large-scale data integration. ***Science*** 2010; 330:1787-1797.

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KEELY, Stephen J

GASTROENTEROLOGY

AFFILIATION

Department of Molecular Medicine, RCSI Education and Research Centre, Royal College of Surgeons in Ireland – **Dublin, Ireland**

RESEARCH INTERESTS

Although many pathological conditions are associated with dysregulated intestinal epithelial transport, there is currently a lack of safe and specific therapies. We have discovered that bile acids, classically known for their digestive functions, can exert antisecretory and anti-inflammatory actions on intestinal epithelial cells. Our ongoing work focusses on investigating cellular and molecular mechanisms involved, with the ultimate goal of identifying new strategies for treatment of intestinal disorders associated with dysregulated epithelial transport function.

MOST IMPORTANT DISCOVERIES

The discovery of G protein coupled receptor/growth factor receptor crosstalk in regulation of intestinal epithelial secretory function. The discovery of antisecretory actions of bile acids on intestinal cells. The discovery of HIF-hydroxylases as regulators of Na^+/K^+ ATPase activity in epithelial cells.

PRIZES

1999: CCFA Young Investigator of the Year • 2005: APS GI and Liver Section, New Investigator Award • 2008: Alberta Heritage Foundation Visiting Lecturer • 2010: RCSI IDEAs 1st Prize

MOST IMPORTANT PUBLICATIONS

1. Keely SJ, Uribe JM, Barrett KE. Carbachol stimulates transactivation of epidermal growth factor receptor and MAP kinase in T_{84} cells: implications for carbachol-stimulated chloride secretion. ***J Biol Chem*** 1998; 273:27111-27117.

2. Keating N, Scharl MM, Marsh C, Ferguson G, Hofmann AF, and Keely SJ. Physiological concentrations of bile acids downregulate agonist induced secretion in colonic epithelial cells. ***J Cell Mol Med*** 2009; 13:2293-2303.

3. O'Mahony F, Toumi F, Mroz MM, Ferguson G, and Keely SJ. Epidermal growth factor chronically promotes intestinal epithelial secretory capacity through upregulation of $Na^+/K^+/2Cl^-$ cotransporter expression. ***Am J Physiol*** 2008; 294:C1362-70.

4.Ward JB, Lawlor K, Amu S, Taylor CT, Fallon P, and Keely SJ. Hydroxylase Inhibition Attenuates Colonic Epithelial Secretory Function and Ameliorates Experimental Diarrhea. ***FASEB J*** 2011; 25:535-43.

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KEMÉNY, Lajos

IMMUNNOLOGY & INFLAMMATION

AFFILIATION

Department of Dermatology and Allergology, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

The role of skin immune system in skin physiology and pathophysiology. Microbial symbiosis with the innate immune defense system of the skin. The role of keratinocytes in protection against infections and in inflammatory skin diseases. Molecular mechanisms of ultraviolet (UV) light induced signaling in keratinocytes. The mechanism of the therapeutical effect of UV light in the treatment of skin diseases. Development of new phototherapeutical methods and devices for the treatment of inflammatory and hyperproliferative diseases.

MOST IMPORTANT DISCOVERIES

Basic research. First described the role of Toll-like receptors in the recognition of pathogens by keratinocytes. Characterized the interaction of *P.acnes* and keratinocytes, and confirmed that that *P. acnes* plays an important role in the follicular hyperkeratosis in acne. First described, that human constitutive photomorphogenic protein-1 (huCOP1), an E3 ligase, contributes to the orchestration of UVB response of keratinocytes, and gene-specific silencing of huCOP1 induces the accumulation of the tumor suppressor p53 protein in keratinocytes. *Applied research.* Introduced the excimer laser technology into dermatology, that served as a starting point for the development of fiberoptic technology into the phototherapy of skin diseases. Invented the rhinophototherapy for the treatment of allergic rhinitis and for treating nasal polyps. The inventions in different areas in dermatology are covered by 16 patents.

PRIZES

1985: Scientific Award of Fekete Zoltán Foundation • 1992: István Cserháti Medal and Award • 1998: Paul-Martini Award • 2008: XVI. Innovation Grand Prize • 2004: Novicardin Award • 2010: Award of the Hungarian Academy of Sciences • 2010: Batthyány-Strattmann Award • 2010: Otto Braun-Falco Medal

MOST IMPORTANT PUBLICATIONS

1. Pivarcsi A, Bodai L, Réthi B, Kenderessy-Szabó A, Koreck A, Széll, Beer Z, Bata-Csörgő Z, Magócsi M, Rajnavölgyi E, Dobozy A, Kemény L. Expression and function of Toll-like receptors 2 and 4 in human keratinocytes. ***Int Immunol*** 2003; 15:721-30.
2. Széll M, Bata-Csögő Z, Kemény L. The enigmatic world of mRNA-like ncRNAs: their role in human evolution and in human diseases. ***Semin Cancer Biol*** 2008; 18:141-8.
3. Koreck A, Csoma Z, Bodai L, Ignácz F, Kenderessy Szabó A, Kadocsa E, Szabó G, Bor Z, Erdei A, Szőny B, Homey B, Dobozy A, Kemény L. Rhinophototherapy: a new therapeutic tool for the management of allergic rhinitis. ***J Allergy Clin Immunol*** 205; 115:541-47.
4. Kinyó A, Kiss-László Z, Hambalkó S, Bebes A, Kiss M, Széll M, Bata-Csörgő Z, Nagy F, Kemény L. COP1 contributes to UVB-induced signaling in human keratinocytes. ***J Invest Dermatol*** 2010; 130:541-5.

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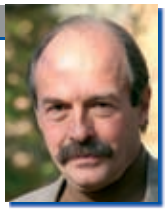
KÉRI, György

TUBERCULOSIS EVOLUTION



AFFILIATION

Semmelweis University CEO/CSO of Vichem Chemie Research Ltd. – **Budapest, Hungary**

RESEARCH INTERESTS

His research area is signal transduction therapy especially in the area of kinase inhibition. He has been working on signal inhibiting antitumor peptides studying their antitumor and antiinflammatory mechanism of action. His major research interest is developing small molecular kinase inhibitors, allosteric inhibitors and protein-protein interaction inhibitory drug candidates. His research interest covers also the personalized therapy concept of signal transduction therapy and the host cell signaling inhibition in infectious diseases.

MOST IMPORTANT DISCOVERIES

He developed a novel signal inhibiting somatostatin analog, TT-232, which is in Phase II clinical trials. He has closely collaborated with Prof Axel Ullrich at MPI, on developing novel kinase inhibitory drugs and contributed significantly to SU101 which has reached Phase III. clinical trials and participated in the early phase development of the recently launched antitumor drug: Sunitinib. He has developed some important patented technologies like the Nested Chemical Library™ of kinase inhibitors, which is a very successful hit/lead finding technology and had a major contribution in developing the target fishing or KinaTor™ technology. He has developed some important kinase inhibitory drug candidates for infectious diseases based on their new concept of host cell signal inhibition and works closely together with the Pasteur Institute in Paris and EPFL in Lausanne on the drug-developmental program of their patented ant-TB compounds.

MOST IMPORTANT PUBLICATIONS

1. Magnet S, Hartkoorn RC, Szekely R, Pato J, Triccas JA, Schneider P, Szantai-Kis C, Orfi L, Chambon M, Banfi D, Bueno M, Turcatti G, Keri G, Cole ST Leads for antitubercular compounds from kinase inhibitor library screens. ***Tuberculosis*** 2010; 90:354-360.
2. Petak I, Schwab R, Orfi L, Kopper L, Keri G. Integrating molecular diagnostics into anticancer drug discovery ***Nature Reviews Drug Discovery*** 2010; 9:523-535
3. Sharma K, Weber C, Bairlein M, Greff Z, Kéri Gy, Cox J, Olsen JV, Daub H. Proteomics strategy for quantitative protein interaction profiling in cell extracts. ***Nature Methods*** 2009; 6:741-744.
4. Hegymegi-Barakonyi B, Szekely R, Varga Z, Kiss R, Borbely G, Nemeth G, Banhegyi P, Pato J, Greff Z, Horvath Z, Meszaros G, Marosfalvi J, Eros D, Szantai-Kis C, Breza N, Perozzi S, Rizzi M, Hafenbradl D, Ko M, Av-Gay Y, Klebl BM, Orfi L, Keri G. Signalling Inhibitors Against *Mycobacterium tuberculosis* – Early Days of a New Therapeutic Concept in Tuberculosis. ***Current Medicinal Chemistry*** 2008; 15:2760-2770.

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KLEIN, Georg

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
MTC, Karolinska Institutet – **Stockholm, Sweden**

RESEARCH INTERESTS
Tumor biology.

MOST IMPORTANT DISCOVERIES
B-cell specific translocators, Epstein Barr virus and neoplasia, suppression of tumorigenesis by cell hybridization, antigenicity of experimental tumors.

PRIZES
1973: Harvey Lecturer
1974: Prix Griffuel
1975: Harvey Prize
1976: Gardner Award
1977: Behring Prize
1979: Sloan Prize from the General Motors Cancer Research Foundation
1989: The Letterstedt Prize of the Royal Swedish Academy of Sciences
1998: Robert Koch gold medal
2010: Royal Award of The Swedish Academy
2010: Distinguished Professor Award Karolinska Institute

MOST IMPORTANT PUBLICATIONS
1. Klein G. The role of gene dosage and genetic transpositions in carcinogenesis. ***Nature*** 1981; 294;313-318

2. Klein, G. Foulds´Dangerous Idea Revisited: The Multistep Development of Tumors 40 Years Later. ***Advances in Cancer Research*** 1997; 72;2- 23

3. Klein, E., Kis, L.L., Klein G. Epstein-Barr virus infection in humans: from harmless to life endangering virus-lymphocyte interactions. ***Oncogene*** 2007; 6;1297-1305

4. Klein G. Towards a genetics of cancer resistance. ***PNAS*** 2009; 106;859-863

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Box 280, Nobelsväg 16, SE-17177 Stockholm, Sweden
e-mail: georg.klein@ki.se – Tel.: 00 46 8 52486730, Fax: 00 46 8 33 04 98

KOSZTOLÁNYI, György

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Department of Medical Genetics, University of Pécs – **Pécs, Hungary**

RESEARCH INTERESTS
Clinical genetics, in particular the phenotypic consequences of the various genetics abnormalitites, genotype-phenotyípe correlation, clinical utilisation of the genetic tests.

MOST IMPORTANT DISCOVERIES
Based on widespread clinical and cytogenetic analyses of his own patients, as well as a review of the literature, he described the characteristics of human constitutional ring chromosomes (1). His theory on specific ring behaviour and the consequence of in vivo ring instability in the phenotype (so called "ring syndrome") is frequently cited even today, a quarter of century after the description. The theory was widened by observations on the inheritance of ring chromosomes, an extremely rare situation (2,3). Recently he published a theory of how genetics should be considered in the postgenomic era (4). The concept of transgenerational and developmental aspects of human genetics may offer proper answer to "missing heritability", a frequently mentioned term written in the reviews at the 10-year-anniversary of the completion of the human genome sequence.

PRIZES
1998: Award of the Hungarian Academy of Sciences
2005: Albert Szentgyörgyi Award
2010: Order of Merit of the Hungarian Republic, Officer's Cross
2011: Markusovszky Award

MOST IMPORTANT PUBLICATIONS
1. Kosztolányi Gy: Does "ring syndrome" exist? An analysis of 207 case reports on patients with a ring autosome. ***Hum Genet*** 1987; 75:174-179.

2. Kosztolányi Gy, Méhes K, Hook EB (1991): Inherited ring chromosomes. An analysis of published cases. ***Hum Genet*** 1991; 87:320-324.

3. Kosztolányi Gy, Cassiman J-J: The medical geneticist as expert in the transgenerational and developmental aspects of diseases. ***Eur J Hum Genet*** 2010; 18:1075-76.

4. Kosztolányi G, Brecevic L, Bajnòczky K, Schinzel A, Riegel M: Mosaic supernumerary ring chromosome 1 in a three-generational family: 10-year follow-up report. ***Eur J Med Genet*** 2011; 54:152-156.

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LAMPRECHT, Georg

GASTROENTEROLOGY

AFFILIATION
Division of Gastroenterology, Department of Interal Medicine, University of Tübingen – **Tübingen, Germany**

RESEARCH INTERESTS
Our group works on the transport mechanisms and their regulation, that underlay intestinal salt and water absorption, especially the anion exchanger *down regulated in adenoma* (DRA, SLC26A3) and its interaction with PDZ adapter proteins. Our clinical research is focused on intestinal failure secondary to short bowel syndrome, in which insufficient salt and water absorption is a key problem.

MOST IMPORTANT DISCOVERIES
Under physiologic conditions DRA transports Cl in exchange for HCO_3^-. DRA has a C-terminal PDZ interaction motif, which allows interaction with all four members of the NHERF family of PDZ adapter proteins. The interaction with PDZK1 is needed for Ca-induced inhibition of DRA. DRA is present in lipid rafts. The insertion of DRA into the plasma membrane requires the integrity of lipid rafts, the activity of PI3 kinase and an intact PDZ interaction.

MOST IMPORTANT PUBLICATIONS
1. Lamprecht G, Heil A, Baisch S, Lin-Wu E, Yun CC, Kalbacher H, Gregor M and Seidler U. The down regulated in adenoma (dra) gene product binds to the second PDZ domain of the NHE3 kinase A regulatory protein (E3KARP), potentially linking intestinal Cl^-/HCO_3^- exchange to Na^+/H^+ exchange. ***Biochemistry*** 2002; 41: 12336-12342.
2. Lamprecht G, Hsieh CJ, Lissner S, Nold L, Heil A, Gaco V, Schafer J, Turner JR and Gregor M. The intestinal anion exchanger down regulated in adenoma (DRA) is inhibited by intracellular calcium. ***J Biol Chem*** 2009; 284:19744-19753.
3. Lissner S, Nold L, Hsieh CJ, Turner JR, Gregor M, Graeve L and Lamprecht G. Activity and PI3-kinase dependent trafficking of the intestinal anion exchanger downregulated in adenoma depend on its PDZ interaction and on lipid rafts. ***Am J Physiol*** 2010; 299:G907-G920.
4. Rossmann H, Jacob P, Baisch S, Hassoun R, Meier J, Natour D, Yahya K, Yun C, Biber J, Lackner KJ, Fiehn W, Gregor M, Seidler U and Lamprecht G. The CFTR associated protein CAP70 interacts with the apical Cl/HCO3 exchanger DRA in rabbit small intestinal mucosa. ***Biochemistry*** 2005; 44:4477-4487.

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LATHROP, David A

CARDIOLOGY

AFFILIATION
Heart Failure & Arrhythmia Branch; Division of Cardiovascular Sciences;
National Heart, Lung, and Blood Institute – **Bethesda, USA**

RESEARCH INTERESTS – MOST IMPORTANT DISCOVERIES
Basic, translational, and clinical research for the study of normal cardiac function and pathogenesis to improve diagnosis, treatment, and prevention of heart failure and arrhythmias. Specific areas of interest include:
- Heart failure: devices and medical and cell-based therapies targeting heart failure, myocardial protection, and pathogenesis and treatment of heart failure and cardiomyopathies.
- Arrhythmias: arrhythmogenesis, genetic and environmental bases of normal cardiac electrical activity and arrhythmias, etiology of rare and common arrhythmias, and sudden cardiac death.
- Myocardial Protection: myocardial preconditioning, amelioration and prevention of myocardial stunning and hibernation, and protection from ischemic/reperfusion injury. Resuscitation Science: mechanisms and management of clinical and experimental pathophysiologic states of whole body oxygen deprivation; systemic hypovolemia and resulting multi-organ failure; organ preservation; and cell, tissue, and organ protection during cardiac arrest and traumatic shock.

MOST IMPORTANT PUBLICATIONS
1. Lehnart SE, Ackerman MJ, Benson W, Grant AO, Groft SC, January CT, Lathrop DA, Lederer WJ, Makielski JC, Mohler PJ, Moss A, Nerbonne JM, Olson TM, Przywara DA, Towbin JA, Wang LH, Marks AR. Inherited Arrhythmias - A national heart, lung, and blood institute and office of rare diseases workshop consensus report about the diagnosis, phenotyping, molecular mechanisms, and therapeutic approaches for primary cardiomyopathies of gene mutations affecting ion channel function. ***Circulation*** 2007; 116:2325-45.
2. Bolli R, Becker L, Gross G, Mentzer R, Balshaw D, Lathrop, DA. Myocardial protection at a crossroads - The need for translation into clinical therapy. ***CIRC RES*** 2004; 95:125-34.
3. Millard RW, Lathrop DA, Grupp G, Ashraf M, Grupp IL, Schwartz A. Differential cardiovascular effects of calcium-channel blocking-agents - potential mechanisms. ***Am J Cardiol*** 1982; 49:499-506.
4. Gonzalez-Serratos H, Valle-Aguilera R, Lathrop DA, Garcia, MD. Slow inward calcium currents have no obvious role in muscle excitation contraction coupling ***Nature*** 1982; 298:292-4.

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LÁZÁR, György

GASTROENTEROLOGY

AFFILIATION

Department of Surgery, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Role of macrophages and glucocorticoid hormones in shock states. Investigation of microcirculation in different diseases of the gastrointestinal tract. Investigation of the hepatic microcirculation in endotoxin shock and in obstructive jaundice. Surgery of the gastroesophageal reflux disease. Clinical and experimental study of the Barrett's esophagus. New surgical methods int he minimally invasive and oncological surgery.

MOST IMPORTANT DISCOVERIES

We revealed that the organ-impairing (liver, lung) and lethal effects of bacterial endotoxin are enhanced in obstructive jaundice. These effects can be reduced by the inhibition of Kupffer cells (KCs) function. Our further results suggest that KCs of the liver have a significant role in identifying xeno-antigens and in the rejection of the xenograft. In these trials, we succeeded in prohibiting the rejection of human foetal pancreas islet cells and insulinoma cells with the inhibition of KCs-function. In our study, we provided new data regarding that thoracic epidural anaesthesia enhances microcirculation of the proximal third of the vascularly damaged gastric tube. It also improves oxygenisation of the tissues and motality of the small intestine. Antireflux surgery after unsuccessful medical treatment can ensure a symptom-free state in a majority of the patients and may result in the regression of Barrett's esophagus.

PRIZES

1985: Hungarian Physiologycal Society • 1990: Hungarian Surgical Society • 1992: Petri Gábor Medical Science Award • 2001: Széchenyi István Award • 2002: Kulka Frigyes Award • 2003: Földes Ferenc Award

MOST IMPORTANT PUBLICATIONS

1. Lazar G jr, Farkas G, Csanadi J, Lazar G. Gadolinium chloride-induced macrophage blockade prevents rejection of human insulinoma cell xenograft in rats. ***Transplantation*** 1997; 63:729-32.
2. Lazar G jr, Kaszaki J, Abraham S, Horvath G, Wolfard A, Szentpali K, Paszt A, Balogh A, Boros M. Thoracic epidural anesthesia improves the gastric micro circulation during experimental gastric tube formation. ***Surgery*** 2003; 134:799-805.
3. Abraham S, Szabo A, Kaszaki J, Varga R, Eder K, Duda E, Lazar G, Tiszlavicz L, Boros M, Lazar G jr. Kupffer cell blockade improves the endotoxin-induced microcirculatory inflammatory response in obstructive jaundice. ***Shock*** 2008; 30:69-74.
4. Lázár Gy, Paszt A, Simonka Z, Bársony A, Ábrahám S, Horváth G. A successful strategy for the surgical treatment of Boerhaave's syndrome. ***Surgical Endoscopy*** 2011; 25:3613-19.

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LEFER, David J

CARDIOLOGY

AFFILIATION

Emory University School of Medicine, Department of Surgery Division of Cardiothoracic Surgery – **Atlanta, USA**

RESEARCH INTERESTS

Pathophysiology of acute myocardial infarction and heart failure. Studies in my laboratory are focused on the investigation of the cardioprotective actions of nitric oxide metabolites and hydrogen sulfide. Studies are performed in both small and large animal models and in animals with cardiovascular risk factors including dyslipidemia, aging, and diabetes mellitus.

MOST IMPORTANT DISCOVERIES

Major discoveries in my laboratory include the initial observations that nitric oxide protects in the setting of myocardial ischemia-reperfusion injury. My laboratory was among the very first to report on the cardioprotective actions of HMG-CoA reductase inhibitors in the seting of acute myocardial infarction. Finally, my lab was also the first to demonstrate the cytoprotective actions of hydrogen sulfide releasing agents in ischemia-reperfusion injury.

PRIZES

1994: ASPET Young Investigators Award in Cardiovascular Pharmacology • 1999: Merck Young Investigators Atherosclerosis Award
2011: ASPET Benedict R. Lucchesi Award 2011

MOST IMPORTANT PUBLICATIONS

1. Lefer DJ, Nakanishi K, Johnston WE, and Vinten-Johansen J. Anti-neutrophil and myocardial protecting actions of a novel nitric oxide donor following acute myocardial ischemia and reperfusion in dogs. ***Circulation*** 88:2337-2350, 1993.
2. Scalia R, Gooszen ME, Jones SP, Hoffmeyer M, Rimmer DM, Trocha SD, Huang PL, Smith MB, Lefer AM, and Lefer DJ. Simvastatin exerts cardioprotective effects in Apo e deficient mice: A novel action of statins independent of cholesterol lowering effects. ***Circulation*** 103:2598-2603, 2001.
3. Duranski MR, Greer JJM, Dejam A, Sathya J, Hogg N, Langston W, Kevil CG, Patel RP, Gladwin MT, and Lefer DJ. Cytoprotective effects of nitrite during ischemia-reperfusion of the heart and liver. ***J. Clin. Invest.*** 115:1232-1240, 2005.
4. Elrod JW, Calvert JW, Morrison J, Doeller JE, Kraus DW, Tao L, Scalia R, Kiss L, Szabo C, Kimura H, Malester B, Coetzee WA, Chow C, and Lefer DJ. Hydrogen sulfide attenuates myocardial ischemia-reperfusion injury via preservation of mitochondrial function. ***Proc. Natl. Acad. Sci.***, U.S.A., 104:15560-15565, 2007.

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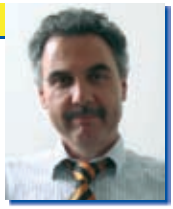
LERCH, Markus M

GASTROENTEROLOGY



AFFILIATION
Department of Medicine A, University Medicine, Greiswald University – **Greiswald, Germany**

RESEARCH INTERESTS
The pathophysiology, cell biology and genetics of pancreatic disorders. Developing novel treatment strategies for pancreatic diseases.

MOST IMPORTANT DISCOVERIES
My research is translational and focused on transferring experimental results into clinical trials. My group has contributed to the question why gallstones cause pancreatitis on their passage through the biliary tract (because they temporarily occlude the pancreatic duct, rather than allowing bile or duodenal content to enter the pancreas). We developed a technique with which the premature and intracellular activation of digestive proteases can be localized to subcellular compartments of acinar cells, found that trypsin processing is highly dependent of the activity of different lysosomal hydrolases as well as the early presence of inflammatory cells, detected which type of calcium signals trigger premature protease activation and discovered that magnesium represents the most physiological calcium antagonist in the pancreas with great clinical potential for the prevention of pancreatitis. The latter is currently being tested in two clinical trials (e.g. EUROPAC2 trial, NCT00142233).

PRIZES
1993: Adolf-Kussmaul Prize in Gastroenterology • 2001: Elected Honorary Fellow of the Royal College of Physicians and Surgeons (FRCP), Glasgow • 2005: Frank-Brooks-Memorial Lecture, American Pancreatic Association • 2007: Teacher of the year, Greifswald University Medical School • 2010: Comfort Named Professor, Mayo Clinic Rochester • 2011: President, German Gastroenterological Society

MOST IMPORTANT PUBLICATIONS
1. Krüger B, Albrecht E, Lerch. MM. The role of intracellular calcium signaling in premature protease activation and the onset of pancreatitis. ***Am. J. Pathol.*** 2000; 157:43-50
2. Mooren F, Turi S, Günzel D, Schlue WR, Domschke W, Singh J, Lerch MM. Calcium-magnesium interactions in pancreatic acinar cells. ***FASEB Journal*** 2001; 15:660-672J.
3. Mayerle J, Schnekenburger J, Krüger B, Nalli A, Kellermann J, Weiss FU, Domschke W, Lerch MM. Extracellular shedding of E-cadherin by leukocyte elastase during experimental pancreatitis. ***Gastroenterology*** 2005; 129:1251-67.
4. Wartmann T, Mayerle J, Kähne T, Sahin-Tóth M, Ruthenbürger M, Matthias R, Kruse A, Reinheckel T, Peters C, Weiss FU, Sendler M, Lippert H, Schulz HU, Aghdassi A, Dummer A, Teller S, Halangk W, Lerch MM. Cathepsin L inactivates human trypsinogen, whereas Cathepsin L-deletion reduces the severity of pancreatitis in mice. ***Gastroenterology***. 2010; 138:726-37.

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MACEK, Milan Jr.

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Charles University Prague – 2. School of Medicine and Faculty Hospital Motol – **Prague, Czech Republic**

RESEARCH INTERESTS
Medical molecular genetics, rare diseases, cystic fibrosis, DNA diagnostics.

MOST IMPORTANT DISCOVERIES
Characterisation of the distribution of mutations in Czech, African – American patients with cystic fibrosis. Charakterisation of the worldwide distribution of cystic fibrosis mutations. Population genetics of European populations. Studies of molecular mechanisms in cystic fibrosis, including gene modifiers. Studies of the molecular pathogenesis of chronic pancreatitis. DNA diagnostics, validations of methods. Reproductive genetics and prenatal diagnosis (overall H.index 23).

PRIZES
1992: Annual award of the Czech Medical Genetics Society • 1995: Award of the Czech Ministry of Health for molecular genetic research in cystic fibrosis 2010: Award European rare diseases conference on substantiation of treatment disparities in cystic fibrosis in Europe

MOST IMPORTANT PUBLICATIONS
1. Groman JD, Hefferon TW, Casals T et al. Variation in a repeat sequence determines whether a common variant of the cystic fibrosis transmembrane conductance regulator gene is pathogenic or benign ***Am J Hum Genetics*** 2004; 74:176-179
2. Lao O, Lu TT, Nothnagel M et al. Correlation between genetic and geographic structure in Europe ***Current Biology*** 2008; 18:1241-1248
3. Witt H, Sahin-Toth M, Landt O et al. A degradation-sensitive anionic trypsinogen (PRSS2) variant protects against chronic pancreatitis. ***Nat Genetics*** 2006; 38:668-673
4. Dequeker E, Stuhrmann M, Morris MA et al. Best practice guidelines for molecular genetic diagnosis of cystic fibrosis and CFTR-related disorders - updated European recommendations. ***Eur J Hum Genetics*** 2009; 17:51-65

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MAGYAR, Kálmán

NEUROSCIENCE

AFFILIATION

Semmelweis University, Faculty of Pharmacy, Department of Pharmacodynamics – **Budapest, Hungary**

RESEARCH INTERESTS

Structure activity relationship studies of potential drugs, mainly monoamine oxidase and semicarbazide-sensitive aminoxidases inhibitors. Studying the fate of drugs (ADME) in the body. Pre-clinical-pharmacological analysis of compounds supposed to be developed as a new drug possessing mainly neuroprotective activities.

MOST IMPORTANT DISCOVERIES

Selegiline is a selective MAO-B inhibitor, which plays essential role in neuroprotection. During the past three decades it was the almost exclusively used MAO-B inhibitor to treat Parkinson's disease. Beside the inhibition of MAO-B, selegiline in lower concentrations, than needed to inhibit the enzyme, it possesses different spectrum of pharmacological activities. Intensive cytoprotective effects are induced, which extend to neuroectodermal and non-neuroectodermal cells, demonstrated in tissue cultures. Selegiline has an intensive 'first pass' metabolism and the metabolites are playing essential role in the complex pharmacological activity of the inhibitor. Those metabolites possessing propargyl moiety are supposed to possess neuroprotective properties.

PRIZES

1996: Issekutz Price • 2002: MOTESZ Price • 2003: Szent-Györgyi Albert Price • 2003: Romhányi Price • 2003: Miskolczy Dezső Price • 2003: Semmelweis Price • 2004: Széchenyi Price • 2005: Outstanding Teacher of Ph.D. Student Price

MOST IMPORTANT PUBLICATIONS

1. Knoll J, Magyar K. Some puzzling pharmacological effects of monoamine oxidase inhibitors. ***Adv Biochem Psychopharmacol*** 1972 5:393-408 („Science citation classic")
2. Magyar K. Pharmacology of monoamine oxidase type-B inhibitors. Inhibitors of Monoamine Oxidase B, Pharmacology and clinical use in neurodegenerative disorders, (ed. Szelényi,I., Birkhauser) Verlag, Basel, Switzerland, 1993 125-143
3. Magyar K, Szende B, Jenei V, Tábi T, Pálfi M, Szökő É. R-Deprenyl. Pharmacological spectrum of its activity. ***Neurochem Res*** 2010 35(12):1922-1932
4. Magyar K. The pharmacology of selegiline. ***Int Rev Neurobiology*** 2011 100:65-84

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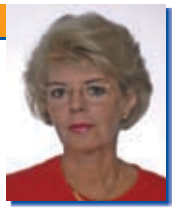
MÁNDI, Yvette

IMMUNNOLOGY & INFLAMMATION



AFFILIATION

Department of Medical Microbiology and Immunobiology, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Cytokines, role of genetic polymorphisms of innate immunity in infections and multifactorial diseases.

MOST IMPORTANT DISCOVERIES

Effects of pentoxiphylline on cytokine production, diagnostic value of procalcitonin in acute pancreatitis, role of cytokine and defensin polymorphisms in gastrointestinal diseases and in stroke.

MOST IMPORTANT PUBLICATIONS

1. Tiszlavicz Z, Németh B, Fülöp F, Vécsei L, Tápai K, Ocsovszky I, Mándi Y. Different inhibitory effects of kynurenic acid and a novel kynurenic acid analogue on tumour necrosis factor-α (TNF-α) production by mononuclear cells, HMGB1 production by monocytes and HNP1-3 secretion by neutrophils. ***Naunyn Schmiedebergs Arch Pharmacol*** 2011; 383:447-55
2. Tiszlavicz Z, Szabolcs A, Takács T, Farkas G, Kovács-Nagy R, Szántai E, Sasvári-Székely M, Mándi Y. Polymorphisms of beta defensins are associated with the risk of severe acute pancreatitis. ***Pancreatology*** 2010; 10:483-490
3. Hofner P, Gyulai Z, Kiss F Z, Tiszai A, Tiszlavicz L, Tóth G, Szőke D, Molnár B, Lonovics J, Tulassay Z, Mándi Y. Genetic polymorhisms of NOD1 and IL-8, but not polymorphisms of TLR4 genes are associated with helicobacter pylori-induced duodenal ulcer and gastritis. ***Helicobacter*** 2007; 12:124-131
4. Mandi Y, Farkas G, Takacs T, Boda K, Lonovics J. Diagnostic relevance of procalcitonin, IL-6, and sICAM-1 in the prediction of infected necrosis in acute pancreatitis. International ***Journal of Pancreatology*** 2000; 28:41-49

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MEDINA, Juan F

GASTROENTEROLOGY

AFFILIATION

School of Medicine and Center for Applied Medical Research (CIMA) – University of Navarra and CIBERehd – **Pamplona, Spain**

RESEARCH INTERESTS

After receiving his doctorate in Medicine & Surgery at the University of Navarra, 1984) he spent six years of postdoctoral research on leukotrienes at the Karolinska Institute (Stockholm, Sweden) where he received a second doctorate (Medical Sciences, 1992). Then he established his research group back in Spain to work in the field of cholestasis, primary biliary cirrhosis (PBC) and abnormalities in the biliary secretion of bicarbonate, with particular emphasis in the molecular genetics of the chloride/bicarbonate exchange.

MOST IMPORTANT DISCOVERIES

Dr. Medina's group described that patients with PBC have diminished expression of the anion exchanger 2 (AE2) both in the liver and in blood mononuclear cells. They found that in the bile duct cells (cholangiocytes) this protein is responsible for the secretion of bicarbonate in response to secretin. Interestingly, non-treated PBC patients show diminished secretin-stimulated biliary bicarbonate secretion and this alteration is restored upon treatment with ursodeoxycholic acid (UDCA). Also, they reported that combination of UDCA with dexamethasone upregulates the expression of the AE2 gene. Previously, they had cloned both the human and mouse *AE2/Ae2* genes. Then they generated a knockout mouse model which reproduces most characteristic features of PBC, including the development of autoantimitochondrial antibodies (AMA) which recognize the PBC-specific epitope in the PDC-E2 subunit.

PRIZES

1984: Doctorate Extraordinary Prize awarded by the University of Navarra
Grants awarded by: 1985-1986: Margit y Folke Pehrzon Foundantion • 1986-1987: Axel Wenner-Gren Foundation • 1988-1989 & 1989-1991: Karolinska Institut • 1989: Commission of the European Communities • 2007: Steering Committee of the CIBERehd Consortium (Leader of Programme) • 2010: Executive Editor of the J Physiol Biochem

MOST IMPORTANT PUBLICATIONS

1. Medina JF, Martínez-Ansó E, Vázquez J, Prieto J. Decreased anion exchanger 2 immunoreactivity in the liver of patients with primary biliary cirrhosis. ***Hepatology*** 1997; 25:12-7.
2. Prieto J, García N, Martí-Climent JM, Peñuelas I, Richter JA, Medina JF. In vivo assessment of biliary bicarbonate secretion in humans by positron emission tomography. ***Gastroenterology*** 1999; 117:167-72.
3. Medina JF, Recalde S, Prieto J, Lecanda J, Sáez E, Funk CD, Vecino P, van Roon MA, Ottenhoff R, Bosma PJ, Bakker CT, Oude Elferink RPJ. Anion exchanger 2 is essential for spermiogenesis in mice. ***Proc. Natl. Acad. Sci.*** USA 2003; 100:15847-52.
4. Salas JT, Banales JM, Sarvide S, Recalde S, Ferrer A, Uriarte I, Oude Elferink RPJ, Prieto J, Medina JF. Ae2a,b-deficient mice develop antimitochondrial antibodies and other features resembling primary biliary cirrhosis. ***Gastroenterology*** 2008;134:1482-93.

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MELEGH, Béla

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

Department of Medical Genetics, University of Pécs – **Pécs, Hungary**

RESEARCH INTERESTS

The major interest fields of Dr. Melegh are related with his 20 years bedside practice in pediatrics, and leter his 10 years practice in medical genetics and molecular genetic diagnostics. The research interest earlier included the investigation of the role of carnitine, mitochondrial-mitochodrial DNA related diagnostics and research, later this was extenden to other neuromuscular disorders, and to the Rare diseases task is general. He is a leader of the Hungarian Biobank Network; having valuable rare disease, specific common-disease, and population based collections.

MOST IMPORTANT DISCOVERIES

He was involved in the discovery of a specific xenobitic role of carnitine in humans, discovered the pivaloycarnitine loss induced carnitine insufficiency, association of it with metabolic conseqeunces. Made contribution to the current knowledge about the non-beta-oxidation related fuctions of carnitine in humans. His group described phenotypic variants of some mitochondrial DNA mutation associated diseases. Participated in the description of the natural history of the major spinocerebellar ataxias. His group observed major genetic differences in selected drug metabolizing systems in Romany people. He made original observations in genetic susceptibility variants and haplotypes for common diseases, like rheumatoid arthritis, stroke, metabolic syndrome, diabetes, psoriasis, and coronary heart disease.

PRIZES

2009: Award of the Hungarain Academy of Sciences • 1996: Petenyi award • 2004: Szentagothai award • 2010: Markusovszky publication award

MOST IMPORTANT PUBLICATIONS

1. Melegh B, Kerner J, Bieber L.L. Pivampicillin promoted excretion of pivaloylcarnitine in humans. ***Biochem Pharmacol*** 1987; 36:3405-09.
2. Komlosi K, Havasi V, Bene J, Sule N, Pajor L, Nicolai R, Benatti P, Calvani M, Melegh B. Histopathologic abnormalities of the lymphoreticular tissues in organic cation transporter 2 deficiency: Evidence for impaired B cell maturation. ***J Pediatr.*** 2007; 150:109-111.
3. Farago B, Magyari L, Safrany E, Csongei V, Jaromi L, Horvatovich K, Sipeky C, Maasz A, Radics J, Gyetvai A, Szekanecz Z, Czirjak L, Melegh B. Functional variants of interleukin-23 receptor gene confer risk for rheumatoid arthritis but not for systemic sclerosis. ***Ann Rheum Dis.*** 2008; 67:248-50.
4. Sipeky C, Lakner L, Szabo M, Takacs I, Tamasi V, Polgar N, Falus A, Melegh B.Interethnic differences of CYP2C9 alleles in healthy Hungarian and Roma population samples: Relationship to worldwide allelic frequencies. ***Blood Cells Mol Dis.*** 2009; 43:239-42.

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MENGER, Michael D

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Institute for Clinical & Experimental Surgery, University of Saarland – **Homburg-Saar, Germany**

RESEARCH INTERESTS
Microcirculation, angiogenesis, inflammation, adhesion molecule function, tissue engineering, tissue regeneration, surgical pathophysiology, shock sepsis, ischemia/reperfusion.

MOST IMPORTANT DISCOVERIES
Mechanisms and structure of pancreatic islet revascularization after transplantation. Microvascular injury after ischemia-reperfusion, Lumboscopic spine fusion techniques. Inosculation of prevascularized tissues in tissue engineering.

PRIZES
1993: Bernhard-von-Langenbeck Award (German Society of Surgery)
2005: Erich-Lexer-Award (German Society of Surgery)
2005: Ferdinand-Sauerbruch Award (Berlin Surgical Society)
2006: Hans-Joachim-Bretschneider Award (German Society of Surgery)

MOST IMPORTANT PUBLICATIONS
1. Menger MD, Vajkoczy P, Beger C, Messmer K. Orientation of microvascular blood flow in pancreatic islet isografts. ***J Clin Invest*** 1994; 93:2280-5.
2. Vollmar B, Siegmund S, Menger MD. An intravital fluorescence microscopic study of hepatic microvascular and cellular derangements in developing cirrhosis in rats. ***Hepatology*** 1998; 27:1544-53.
3. Laschke MW, Rücker M, Jensen G, Carvalho C, Mülhaupt R, Gellrich NC, Menger MD. Improvement of vascularization of PLGA scaffolds by inosculation of in situ-preformed functional blood vessels with the host microvasculature. ***Ann Surg*** 2008; 248:939-48
4. Vollmar B, Menger MD. The hepatic microcirculation: mechanistic contributions and therapeutic targets in liver injury and repair. ***Physiol Rev*** 2009; 89:1269-339.

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MERKELY, Béla

CARDIOLOGY

AFFILIATION
Semmelweis University, Heart Center – **Budapest, Hungary**

RESEARCH INTERESTS
Arrhythmogenic substrate of life threatening ventricular tachyarrhythmias. Endogenous arrhythmogenic factors. Nonpharmacological treatment of heart failure, cardiac resynchronization therapy, implantable cardioverter defibrillator, stem cells. Interventional cardiology, drug eluting stents, treatment of ST-elevation myocardial infarction. Invasive and noninvasive imaging in heart failure, arrhythmias and acute coronary syndromes. Sport cardiology, cardiac remodelling of elite athletes.

MOST IMPORTANT DISCOVERIES
Endothelin-1 has direct in vivo arrhythmogenic effects based on the prolongation of monophasic action potential and development of afterdepolarization via myocardial ET_A receptors. Development of a new shock electrode with an effective pulse morphology for endocardial defibrillation and a discrimination algorithm for ventricular fibrillation. The use of drug eluting stents in acute myocardial infarction (STEMI) reduces the need for target-vessel revascularization at one and four years. In STEMI patients, pre-treatment with a doubled dose of clopidogrel primary PCI was associated with a reduction of the infarct size, improvement of angiographic results, residual cardiac function and 30-day major adverse cardiovascular events. Stent implantation to stabilize coronary sinus lead position is an effective and safe method for the prevention and treatment of lead dislocation in patients who underwent cardiac resynchronization therapy.

PRIZES
1997: International Virchow Award 1. prize • 2004: Bolyai- Plaquette of the Hungarian Academy of Sciences • 2006: Pro Civitate Sana Award • 2007: Master Tutor Gold Medal • 2008: Ernő Jendrassik Award • 2009: Nivou Prize of the Hungarian Academy of Sciences • 2011: Officer's Cross, Order of Merit of the Hungarian Republic • 2011: Certificate of Honour of People's Friendship University of Russia

MOST IMPORTANT PUBLICATIONS
1. Gellér L, Szilágyi S, Zima E, Molnár L, Széplaki G, Végh EM, Osztheimer I, Merkely B: Long term experience with coronary sinus side branch stenting to stabilize left ventricular electrode position. ***Heart Rhythm*** 2011; 8:845-850.
2. Vago H, Toth A, Apor A, Maurovich-Horvat P,Toth M, Merkely B: Images in cardiovascular medicine. Cardiac contusion in a professional soccer player: visualization of acute and late pathological changes in the myocardium with magnetic resonance imaging. ***Circulation*** 2010; 121:2456-2461.
3. Spaulding C, Henry P, Teiger M, Beatt K, Bramucci E, Carrié D, Slama M, Merkely B, Erglis A, Margheri M, Varenne O, Cebrian A, Stoll HP, Snead DB, Bode C for the Typhoon Investigator: Sirolimus-eluting versus uncoated stents in acute myocardial infarction. ***N Engl J Med*** 2006; 355:1093-1104.
4. Merkely B, Lubiński A, Kiss O, Horkay F, Lewicka-Nowak E, Kempa M, Szabolcs Z, Nyikos Gy, Zima E, Świątecka G, Gellér L: Shortening the second phase duration of biphasic shocks: effects of class III antiarrhythmic drugs on defibrillation efficacy in humans. ***J Cardiovasc Electrophysiol*** 2001; 12:824-827

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Városmajor str. 68, H-1122, Budapest, Hungary – **e-mail: merkely.bela@kardio.sote.hu – Tel.: 00 36 1 458 6844, Fax: 00 36 1 458 6842**

MINNIKIN, David E

TUBERCULOSIS EVOLUTION

AFFILIATION

University of Birmingham, School of Biosciences – **Birmingham, UK**

RESEARCH INTERESTS

All aspects of the chemistry, biochemistry and role of mycobacterial lipids. Current activity is focussed on the use of mycobacterial lipids as biomarkers for ancient tuberculosis and leprosy. Lipid biomarkers are also being developed for rapid diagnosis of modern human and bovine tuberculosis.

MOST IMPORTANT DISCOVERIES

In early studies, the structures of essential cell envelope lipids of *Mycobacterium tuberculosis* and *Mycobacterium leprae*, such as mycolic acids, phthiocerol dimycocerosate waxes and acylated trehalose glycolipids, were defined for the first time. In the pre-molecular biology era, "chemotaxonomy" was systematically developed to immediately simplify bacterial classification and identification. Considerations of lipid structures lead to the early (1982) proposal of a mycobacterial cell envelope outer membrane, based on covalently "bound" mycolic acids intercalating with "free" complex lipids. Such an arrangement is being consolidated by physical analysis of mycolic acid folding and studies by other workers. Sensitive analytical methods have been developed to detect mycobacterial lipid biomarkers in archaeological samples at least 9,000 years old; related protocols diagnose modern human and bovine tuberculosis.

MOST IMPORTANT PUBLICATIONS

1. Minnikin DE. Lipids: Complex lipids, their chemistry, biosynthesis and role. In: ***The Biology of Mycobacteria***. Ratledge C, Stanford J. (eds), 1982 pp. 95-184, Academic Press, London, UK.
2. Villeneuve M, Kawai M, Kanashima H, Watanabe M, Minnikin, DE, Nakahara H. Temperature dependence of the Langmuir monolayer packing of mycolic acids from *Mycobacterium tuberculosis*. ***Biochim Biophys Acta*** 2005; 1715:71-80.
3. Hershkovitz I, Donoghue HD, Minnikin DE, Besra GS, Lee OY-C, Gernaey AM, Galili E, Eshed V, Greenblatt CL, Lemma E, Bar-Gal GK, Spigelman M. Detection and molecular characterization of 9000-year-old *Mycobacterium tuberculosis* from a Neolithic settlement in the Eastern Mediterranean. ***PLoS ONE*** 2008; 3:e3426.
4. Redman JE, Shaw MJ, Mallet AI, Santos AL, Roberts CA, Gernaey AM, Minnikin DE. Mycocerosic acid biomarkers for the diagnosis of tuberculosis in the Coimbra Skeletal Collection. ***Tuberculosis*** 2009; 89:267–277.

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MIRNICS, Károly

NEUROSCIENCE

AFFILIATION

Department of Psychiatry, Vanderbilt University – **Nashville, USA**

RESEARCH INTERESTS

Gene expression in schizophrenia, autism and Alzheimer's Disease, transgenic animal models of human brain diseases, neuroimmune processes in psychiatric disoders, effect of exercise on brain.

MOST IMPORTANT DISCOVERIES

Establishment of systemic synaptic transcriptome changes in schizophrenia, neuroroimmune gene expression changes in autism, major depression and schizophrenia, development of BAC-driven miRNA-silenced transgenic animals,description of exercise-induced neuroprotective transcriptome in Alzheimer's disease models, establishment of RGS4 as a schizophrenia susceptibility gene.

PRIZES

2003: Hungarian Academy of Sciences Foreign Scientist Council
2005: Elected to American College of Neuropsychopharmacology
2005: Elected to European College of Neuropsychopharmacology
2006: NARSAD Daniel X. Freedman Prize runner-up
2010: Honorary Member of Hungarian Association of Neuropsychopharmacologists

MOST IMPORTANT PUBLICATIONS

1. Shelton RC, Claiborne J, Sidoryk-Wegrzynowicz M, Reddy R, Aschner M, Lewis DA and Mirnics K. Altered expression of genes involved in inflammation and apoptosis in frontal cortex in major depression. ***Mol Psychiatry*** 2010; 16: 751-62.
2. Garbett KA, Horvath S, Ebert PJ, Schmidt MJ, Lwin K, Mitchell A, Levitt P and Mirnics K. Novel animal models for studying complex brain disorders: BAC-driven miRNA-mediated in vivo silencing of gene expression. ***Mol Psychiatry*** 2010; 15, 987-95.
3. Lazarov O, Robinson J, Tang YP, Hairston IS, Korade-Mirnics Z, Lee VM, Hersh LB, Sapolsky RM, Mirnics K and Sisodia SS. Environmental enrichment reduces Abeta levels and amyloid deposition in transgenic mice. ***Cell***, 2005; 120, 701-713. (corresponding author).
4. Mirnics K, Middleton FA, Marquez A, Lewis DA and Levitt P. Molecular characterization of schizophrenia viewed by microarray analysis of gene expression in prefrontal cortex. ***Neuron***, 2000; 28, 53-67.

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MOKROUSOV, Igor

TUBERCULOSIS EVOLUTION

AFFILIATION

Laboratory of Molecular Microbiology, St. Petersburg Pasteur Institute – **St. Petersburg, Russia**

RESEARCH INTERESTS

Molecular phylogenetics, evolution and epidemiology of microorganisms. *In silico* and experimental analysis of bacterial genomes; development of molecular methods for subtyping bacterial species (*Mycobacterium tuberculosis, Corynebacterium diphtheriae*). Molecular basis of drug resistance and development of genotypic tools for its detection (*M. tuberculosis*). Genetic basis of human susceptibility to tuberculosis. Human phylogeography, co-evolution with *M. tuberculosis*.

MOST IMPORTANT DISCOVERIES

Analysis of *Mycobacterium tuberculosis* phylogeography in the light of human migrations. A concept of ancient and modern sublineages within *M. tuberculosis* Beijing genotype. New measure to detect genetic distances between geographic populations of bacterial species. Russian Beijing/W148 sub-variant is a "successful" clone widespread in Russia due to specific pathogenic properties. Databasing of Beijing genotype. Reevaluation of *embB306* mutations as a marker of ethambutol resistance in *M. tuberculosis*. Development of allele-specific PCR assays to detect resistance to main anti-tuberculosis drugs. First study of molecular basis of FQ-resistant *M. tuberculosis* in Russia. Development of CRISPR-based macroarray method for high-resolution subtyping of *Corynebacterium diphtheriae* epidemic clone.

PRIZES

2004: Scientific Prize of the International Union Against Tuberculosis and Lung Diseases;
2005, 2009: Honor Awards of Russian Ministry of Health.

MOST IMPORTANT PUBLICATIONS

1. Mokrousov I, Otten T, Vyshnevskiy B, Narvskaya O. Detection of embB306 mutations in ethambutol-susceptible *Mycobacterium tuberculosis* clinical isolates from northwestern Russia: implications for genotypic resistance testing. ***J Clin Microbiol*** 2002; 40:3810-3.
2. Mokrousov I, Ly HM, Otten T, Lan NN, Vyshnevskyi B, Hoffner S, Narvskaya O. Origin and primary dispersal of the *Mycobacterium tuberculosis* Beijing genotype: clues from human phylogeography. ***Genome Res*** 2005; 15:1357-64.
3. Mokrousov I, Sapozhnikova N, Narvskaya O. *Mycobacterium tuberculosis* co-existence with humans: making an imprint on the macrophage P2X7 receptor gene? J ***Med Microbiol*** 2008; 57:581-4.
4. Mokrousov I. Human migratory history: Through the looking-glass of genetic geography of *Mycobacterium tuberculosis*. In: ***Causes and Consequences of Human Migration*** (Eds. M.H. Crawford and B. Campbell). Cambridge University Press.

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MORRIS, Richard G M

NEUROSCIENCE

AFFILIATION

Edinburgh Neuroscience, Centre for Cognitive and Neural Systems, The University of Edinburgh – **Edinburgh, UK**

RESEARCH INTERESTS

The neurobiology of learning and memory, activity-dependent synaptic plasticity and it's role in information storage, and the application of concepts and techniques from this work to develop new therapeutics for Alzheimer's Disease.

MOST IMPORTANT DISCOVERIES

Key scientific achievements in research include:
The development of the watermaze (now used worldwide); the discovery of the role of the NMDA receptor in learning and memory; the development of the synaptic tagging and capture hypothesis; discoveries about the neurobiology of prior knowledge (schemas); development of a longitudinal model of the cognitive changes occurring during Alzheimer's Disease.

PRIZES

1992: Swammerdam Lecture (Netherlands Royal Acad) • 1999: Zotterman Medal (Swedish Physiological Society) • 1999: Jerzy Konorski Lecture (Polish Neuroscience Society) • 2004: Outstanding Contributions to Neuroscience in the UK (BNA) • 2004: EJN Award for Neuroscience (FENS) • 2006: Feldberg Prize (Germany) • 2007: Santiago Grisolia Award (Spain) • 2009: Presidential Lecture (Society for Neuroscience, USA)

MOST IMPORTANT PUBLICATIONS

1. Morris RGM, Garrud P, Rawlins, JNP and O'Keefe, J. Place navigation impaired in rats with hippocampal lestions. ***Nature***, 1982; 297:681-683.
2. Morris RGM, Anderson E, Baudry M and Lynch GS. Selective impairment of learning and blockade of long-term potentiation in vivo by AP5, an NMDA antagonist. ***Nature***, 1986; 319: 774-776.
3. Frey JU and Morris, RGM. Synaptic tagging: synapse specificity during protein synthesis dependent long-term potentiation. ***Nature***, 1997; 385: 533-536.
4. Tse D, Langston RF, Kakeyama M, Bethus I, Spooner PA, Wood ER, Witter MP and Morris RGM. Schemas and memory consolidation. ***Science***, 2007; 316:76-82.

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1 George Square, Edinburgh EH8 9JZ, UK – **e-mail: r.g.m.morris@ed.ac.uk – Tel.: 00 44 131 650 3520**

MUALLEM, Shmuel

GASTROENTEROLOGY

AFFILIATION

National Institute of Cental and Craniofacial Research, Epithelial Signaling and Transport Section – Molecular Physiology and Therapeutics – Branch, National Institute of Health – **Bethesda, USA**

RESEARCH INTERESTS

Epithelial transport, especially in the area of exocrine physiology and the regulation of enzymes and fluid and electrolyte secretion by epithelial cells. We are studying calcium (Ca^{2+}) ion signaling in pancreatic and salivary gland acinar cells that secrete fluid and digestive enzymes. We focus on the gating mechanism of Ca^{2+} influx channels and their role in inflammatory autoimmune diseases such as acute pancreatitis that can lead to multisystem failure and Sjögren's syndrome, a disorder that affects the exocrine glands that produce saliva and tears. We are also investigating bicarbonate (HCO_3-) transporters in ductal HCO_3- secretion, which is vital for the function and health of all secretory glands. Defective regulation of HCO_3- secretion occurs in many epithelial diseases including Cystic Fibrosis. HCO_3- facilitates solubilization of macromolecules in secreted fluids to prevent clogging of the ducts. We combine electrophysiological and imaging techniques with molecular and biochemical approaches to study the organization of Ca^{2+} signaling complexes in cellular microdomains and the coordination of ductal HCO_3- secretion.

MOST IMPORTANT DISCOVERIES

Firt evidence that the IP_3Rs are channels. Quantal properties of IP_3-mediated Ca^{2+} release. Coupling of IP_3 receptors and TRPC channels by Homer proteins to mediate conformational coupling. Polarized expression of Ca^{2+} signaling proteins in secretory cells. Role of RGS proteins in Ca^{2+} signaling and Ca^{2+} oscillations. Mechanism by which STIM1 gates the Orai and TRPC channels. Role of TRPC channels in pancreatitis. Role of actin in exocytosis. Function and localization of ion transporters in ductal epithelia. Role of CFTR channel and SLC26 transporters in HCO_3- secretion. Mutual regulation of CFTR and the SLC26 transporters in epithelia. The IRBIT/PP1 and WNK/SPAK pathways in epithelial HCO3- secretion.

MOST IMPORTANT PUBLICATIONS

1. Zeng W, Yuan JP, Kim MS, Choi YJ, Huang GN, Worley FP and Muallem S. STIM1 gates TRPC channels but not Orai1 by electrostatic interaction. ***Molecular Cell*** 2008; 32:439-48
2. Yuan JP, Zeng W, Dorwart MR, Choi YJ, Worley PF and Shmuel Muallem. SOAR and the polybasic STIM1 domains gate and regulate the Orai channels. ***Nature Cell Biology***, 2009; 11:337-343
3. Ko SB, Zeng W, Dorwart MR, Luo X, Kim KH, Millen L, Goto H, Naruse S, Soyombo A, Thomas PJ, Muallem S. Gating of CFTR by the STAS domain of SLC26 transporters. ***Nature Cell Biol.*** 2004; 6:343-50
4. Yang D, Li Q, So I, Huang CL, Ando H, Mizutani A, Seki G, Mikoshiba K, Thomas PJ, Muallem S. IRBIT governs epithelial secretion in mice by antagonizing the WNK/SPAK kinase pathway. ***J Clin Invest.*** 2011; 121:956-965

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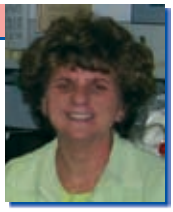
MUNTEAN, Mirela Danina

CARDIOLOGY



AFFILIATION

Department of Pathophysiology, „Victor Babe" University of Medicine and Pharmacy – **Timisoara, Romania**

RESEARCH INTERESTS

1. Cardioprotection against experimental ischaemia/reperfusion (I/R) injury: the role of ischaemic/pharmacological/anaesthetic pre-and postconditioning; mitochondria as effector and target of protection in post-ischemic cell injury: ageing-related effects on mitochondria function and cardioprotection. 2. The effects of natural phytochemicals and nutraceuticals/functional foods on mitochondria function in carcinogenesis and obesity/metabolic syndrome. 3. Smoking induced endothelial dysfunction and mechanisms of early pulmonary hypertension in COPD.

MOST IMPORTANT DISCOVERIES

1. Cardioprotection induced by the anesthetic postconditioning (with isoflurane and sevoflurane) and pharmacological postconditioning with diazoxide are abolished by high-dose ketamine. 2. Magnesium orotate administration at reperfusion elicits cardioprotection against acute experimental I/R injury in isolated and *in situ* hearts. 3. Topical application of a triterpenic compound at the site of a chemically induced skin carcinogenesis changes is associated with beneficial effects on liver mitochondrial respiratory function.

PRIZES

Prizes of PhD students:

Advanced Workshop New Approaches in Cardiovascular Disorders From Genes & Molecules To Clinical Applications, 4-8 May 2011, Antalya, Turkey – ***Best poster presentation prize***

The 9th New Frontiers in Basic Cardiovascular Research Meeting, 14-17 October 2010, Toulouse, France – ***Best poster presentation award***

21st European Student Conference, 13-17 October 2010, Charite University, Berlin, Germany. *European Journal of Medical Research* 2010, 15(suppl 1): I-XXII, pp.28. – ***Second prize in the Cardiology session***

MOST IMPORTANT PUBLICATIONS

1. Mirică SN, Duicu OM, Răducan AM, Sturza A, Ordodi VL, Fira-Mlădinescu O, Muntean DM. Comparable Cardioprotection at Reperfusion by Magnesium Orotate and Cyclosporin A. A Study in Isolated Rat Hearts, ***Bulletin UASVM, Veterinary Medicine***, 2010; 67:125-130.
2. Hentia C, Gheorghiu G, Ordodi V, Mirică N, Răducan A, Duicu O, Papurică M, Bedreag O, Săndesc D, Muntean D. Cardioprotection with volatile anaesthetics in rat hearts in vivo: no additive effect of cyclosporin A administration at reperfusion. Proceedings of the 8th International Congress on Coronary Artery Diseases "New Approaches in Coronary Artery Diseases", ***Ed. Medimond International Proceedings*** 2009, Bologna, Italy, 547-551.
3. Gheorghiu G, Ordodi V, Henția C, David A, Mirică N, Răducan A, Duicu O., Bedreag O, Păunescu V, Săndesc D, Muntean D. Cardioprotection induced by the anesthetic postconditioning is blunted by high-dose ketamine. ***Central European Journal of Occupational and Environmental Medicine*** 2009; 15:267-274.4.
4. Firă-Mladinescu O, Vasile L, Suciu C, Fira-Mlădinescu C, Noveanu L, Răducan A, Săvoiu G, Muntean D, Mihalaş G, Tudorache V. Some aspects of pulmonary vascular remodelling in smokers and patients with mild COPD. ***Pneumologia*** 2008; 57:7-16.

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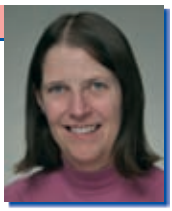
MURPHY, Elisabeth

CARDIOLOGY



AFFILIATION
National Heart, Lung and Blood Institute, National Institutes of Health – **Bethesda, USA**

RESEARCH INTERESTS
Cardioprotection, S-nitrosylation, mitochondria.

MOST IMPORTANT DISCOVERIES
Development of NMR sensitive indicators for measuring ionized calcium and magnesium in beating perfused hearts.
Patent No. 5,516,911 for Fluorescent Intracellular Calcium Indicators, 1996
Demonstrated a role for PI3K and GSK-3 in cardioprotection
Developed and applied novel methods to measure and study protein S-nitrosylation and its role in cardiac signaling.

PRIZES
1983: Richard Bing Young Investigator Award-ISHR
2001: Fellow of American Heart Association
2007: Fellow of the International Society for Heart Research
2009: Keith Reimer Award Lecturer ISHR

MOST IMPORTANT PUBLICATIONS
1. Murphy E, Perlman M, London RE, Steenbergen C. Amiloride delays the ischemia-induced rise in cytosolic free calcium. ***Circ. Res.*** 1991; 68:1250-1258.

2. Steenbergen, C., M.E. Perlman, R.E. London, and E. Murphy: Mechanisms of preconditioning: Ionic alterations. ***Circ. Res.*** 1993; 72:112-125.

3. Tong H, Chen W, Steenbergen C, Murphy E. Ischemic preconditioning activates a PI3-kinase and protein kinase B upstream of protein kinase ***C. Circ. Res.*** 2000; 87:309-315.

4. Sun J, Morgan M, Shen RF, Steenbergen C, Murphy E. Preconditioning results in S-nitrosylation of proteins involved in regulation of mitochondrial energetics and calcium transport. ***Circ. Res.*** 2007; 101:1155-1163.

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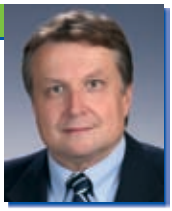
NAGY, László

MOLECULAR BIOLOGY & GENETICS



AFFILIATION
Department of Biochemistry and Molecular Biology – Medical and Health Science Center, University of Debrecen,
Debrecen, Hungary

RESEARCH INTERESTS
Gene expression regulation, cellular differentiation and their relationship to human diseases. The fundamental questions he has been trying to answer in his research are how lipid signaling regulates gene expression and how a changing extra- and intracellular lipid environment impacts the expression of the genome and contributes to changing cellular phenotypes. He uses the paradigm of nuclear hormone receptor activation/ signaling and the contribution of this process to myeloid cell differentiation, function and to diseases, involving these cells, such as atherosclerosis, leukemias and various inflammatory disorders, as his model systems.

MOST IMPORTANT DISCOVERIES
Identification of a co-repressor complex mediating nuclear receptor mediated repression and containing histone deacetylases, its potential oncogenic role in Acute Promyelocytic Leukaemia, identification of the protein motifs and surfaces mediating co-repressor- receptor interactions. Identification and characterization of nuclear hormone receptors, PPARγ in particular, as key regulators of macrophage and dendritic cell lipid metabolism and immune function and as therapeautic targets in atherosclerosis and autoimmune diseases. The mechanisms of PPARγ regulated cholesterol efflux from macrophages, the role of PPARγ in the regulation of lipid antigen presentation and immune function in dendritic cells: the interrelationship between PPARγ, retinoid biosynthesis and RAR signaling in dendritic cells, identification and characterization of the STAT6-PPARγ interaction resposible for cell type specific gene expression in macrophages and dendritic cells.

PRIZES
1998: Cheryl Whitlock/Pathology Prize, Stanford University • 1999: Boehringer Ingelheim Research Award • 2000-2004: EMBO Young Investigator • 2007: EMBO Member • 2008: ESCI Award for Excellence in Biomedical Investigation

MOST IMPORTANT PUBLICATIONS
1. Nagy L, Kao H-Y, Chakravarti D, Lin RJ, Hassig CA, Ayer DE, Schreiber SL and Evans RM. Nuclear receptor repression mediated by a complex containing SMRT, mSin3A and histone deacetylase ***Cell*** 1997; 89:373-380

2. Nagy L, Tontonoz P, Alvarez JGA, Chen H and Evans RM. Oxidized LDL regulates macrophage gene expression through ligand activation of PPARγ ***Cell*** 1998; 93:229 -240

3. Szatmari I, Gogolak P, Im SJ, Dezso B, Rajnavolgyi E and Nagy L. Activation of PPARγ specifies a dendritic cell subtype capable of enhanced induction of iNKT cell expansion ***Immunity*** 2004; 21:95-106

4. Szanto A, Balint L B, Nagy Z, Barta E, Dezso B, Pap A, Szeles L, Poliska S, Oros M, Evans RM, Barak Y, Schwabe J and Nagy L. STAT6 transcription factor is a facilitator of the nuclear receptor PPARγ-regulated gene expression in macrophages and dendritic cells ***Immunity*** 2010; 33:699-712

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NÁNÁSI, Péter

CARDIOLOGY

AFFILIATION
Department of Physiology, University of Debrecen – **Debrecen, Hungary**

RESEARCH INTERESTS
Research interest covers the physiology and pharmacology of cardiac ion channels, including the frequency-dependent interactions, regulation of action potential duration, and cellular mechanisms of antiarrhythmic and proarrhythmic actions.

MOST IMPORTANT DISCOVERIES
Most important scientific achievements were the description of the two stable levels of the resting potential in skeletal muscle fibers (Pflügers Arch. 1989; 414: 157-161), demonstration of reopening of calcium channels during the epicardial action potential (Cardiovasc. Res. 2003; 58: 66-75 and Acta Physiol. 2004; 180: 39-47), characterization of the action potential voltage clamp fingerprints of the major ion currents in canine ventricle (Acta Physiol. 2007; 190: 189-198), and contributing to the elucidation of reverse rate-dependent nature of cardioactive drug actions (Cardiovasc. Res. 2009; 84: 237-244 and Basic Res. Cardiol. 2010; 105: 315-323).

PRIZES
1991: Oláhné Mezei Róza Foundation • 1997: Széchenyi Professor Fellowship • 1998: Teva-Biogal Research Award • 2000: Outstanding Teacher • 2001: Innovative Pharmacologist • 2001: Széchenyi István Fellowship • 2008: Honoris Causa Cardiac Electrophysiologist

MOST IMPORTANT PUBLICATIONS
1. Bányász T, Fülöp L, Magyar J, Szentandrássy N, Varró A, Nánási PP. Endocardial versus epicardial differences in L-type calcium current in canine ventricular myocytes studied by action potential voltage clamp. ***Cardiovasc Res*** 2003; 58:66-75.
2. Bányász T, Magyar J, Szentandrássy N, Horváth B, Birinyi P, Szentmiklósi J, Nánási PP. Action potential clamp fingerprints of K^+ currents in canine cardiomyocytes: their role in ventricular repolarization. ***Acta Physiol*** 2007; 190:189-198.
3. Bányász T, Horváth B, Virág L, Bárándi L, Szentandrássy N, Harmati G, Magyar J, Marangoni S, Zaza A, Varró A, Nánási PP. Reverse rate dependency is an intrinsic property of canine cardiac preparations. ***Cardiovasc Res*** 2009; 84:237-244.
4. Bárándi L, Virág L, Jost N, Horváth Z, Koncz I, Papp R, Harmati G, Horváth B, Szentandrássy N, Bányász T, Magyar J, Zaza A, Varró A, Nánási PP. Reverse rate-dependent changes are determined by baseline action potential duration in mammalian and human ventricular preparations. ***Basic Res Cardiol*** 2010; 105:315-323.

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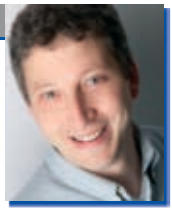
e-mail: nanasi@phys.dote.hu – Tel.: 00 36 52 255 575, Fax: 00 36 52 255 116

NIEMANN, Stefan

TUBERCULOSIS EVOLUTION



AFFILIATION
Molecular Mycobacteriology, Research Center Borstel – **Borstel, Germany**

RESEARCH INTERESTS
Stefan Niemann is a specialist in molecular and pathobiological characterization of clinical *Mycobacterium tuberculosis* complex (MTBC) isolates. His research combines several fields of mycobacteriology ranging from molecular diagnostics, molecular epidemiology, genetics, genome analysis, microarray analysis and complex model systems. Actual research focuses on "rapid diagnostics", "epidemiology of tuberculosis", "determinants of resistance", "microevolution in clinical isolates", "global population structure", and "host pathogen interaction".

MOST IMPORTANT DISCOVERIES
A first set of important discoveries are related to tuberculosis epidemiology esp. transmissibility and spread of MDR strains. In several studies, he could demonstrate that even XDR strains can be transmitted and pose a real threat for local a global tuberculosis (TB) control. Furthermore, he has investigated resistance mechanisms and contributed to the development of line probe assays now used worldwide. A second major field of work is the population structure and phylogeny of the *M. tuberculosis* complex (MTBC) and its link to pathobiological diversity of clinical isolates. In key papers, he could demonstrate that the MTBC is composed of numerous lineages with a phylogeographical population structure. Key experiments in model systems demonstrated the pathobiological significance of this diversity, which could also be linked to scares of the host-pathogen co-evolution in the human genome. Finally, he has co-developed the first web based database for polyphasic analysis of MTBC genotyping patterns and strain classification based on a reference collection.

PRIZES
2011: Eva and Klaus Grohe Prize of the Berlin-Brandenburg Academy of Sciences and Humanities

MOST IMPORTANT PUBLICATIONS
1. Homolka S, Niemann S, Russell DG, Rohde K. Functional genetic diversity among *Mycobacterium tuberculosis* complex clinical isolates: delineation of conserved core and lineage-specific transcriptomes during intracellular survival. ***PLoS Pathog*** 2010; 6:e1000988.
2. Intemann CD, Thye T, Niemann S (equal contribution), Browne EN, Amanua M, Enimil A, Gyapong J, Osei I, Owusu-Dabo E, Helm S, Rüsch-Gerdes S, Horstmann RD, Meyer CG. Autophagy gene variant IRGM -261T contributes to protection from tuberculosis caused by *Mycobacterium tuberculosis* but not by M. africanum strains. ***PLoS Pathog*** 2009; 5:e1000577.
3. Wirth T, Hildebrand F, Allix C, Wölbeling F, Kubica T, Kremer K, van Soolingen D, Rüsch-Gerdes S, Locht C, Meyer A, Supply P, Niemann S. Origin, spread and demography of the *Mycobacterium tuberculosis* complex. ***PLoS Pathog*** 2008; 4:e1000160.
4. Cox H, Sibilia K, Kalon S, Khamraev A, Mills C, Niemann S. Extensively drug resistance amplification and transmission during MDR tuberculosis treatment. ***New Engl J Med*** 2008; 359:2398-400.

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OKADA, Hidechika

IMMUNNOLOGY & INFLAMMATION

AFFILIATION

Research Institute for Protein Science, Co. – Choju Medical Institute, Fukushimura Hospital – **Nagoya City, Japan**

RESEARCH INTERESTS

Regulation of protein function.

MOST IMPORTANT DISCOVERIES

C5 site generation inhibitor (Factor H). Antisense homology boxes in protein molecules.
Species specific membrane inhibitors of complement which discriminate self- and non-self cell membranes such as 20 kDa homologous restriction facotor (HRF20, CD59). Complementary peptides which regulate target molecules such as C5a anaphylatoxin which can be used to rescue septic patients.

MOST IMPORTANT PUBLICATIONS

1. Okada N, Yasuda T and Okada H. Restriction of alternative complement pathway activation by sialosylglycolipids. ***Nature*** (London) 1982; 299: 261-263
2. Okada N, Harada R, Fujita T and Okada H. A novel membrane glycoprotein capable of inhibiting membrane attack by homologous complement. ***Int. Immunol.*** 1989; 1:205-208
3. Baranyi L, Campbell W, Ohshima K, Fujimoto S, Boros M. and Okada H. The antisense homology box: a new motif within proteins that encodes biologically active peptides. ***Nature Med.*** 1995; 1:894-901
4. Okada H, Imai M, Ono F, Okada A, Tada T, Mizue M, Terao K. and Okada N. Novel therapeutic agents designed as a complementary peptide to target molecules ***Anticancer Res.*** 2011; 31:2511-2516

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OLÁH, Edit

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

Department of Molecular Genetics, National Institute of Oncology – **Budapest Hungary**

RESEARCH INTERESTS

Extension of our research on genetic predisposition to breast, ovarian and colorectal cancer, testicular germ cell tumors and rare cancers include:
• search for new cancer susceptibility and risk modifier genes (genetic variants) (the "missing heritage"),
• exploring genetic components of risks for common cancers in Central-Eastern European populations,
• providing novel germline biomarkers for adult cancers, and
• search for novel molecular mechanisms of oncogenesis (molecular interactions of metabolic and cancer pathways).

MOST IMPORTANT DISCOVERIES

Since its foundation in 1986, the Department has conducted studies to unravel the molecular mechanisms of tumorigenesis (in breast, ovarian and colorectal cancer, testicular germ cell and rare hereditary tumors). They were pioneers in *molecular cancer genetics* particularly on hereditary cancers in Hungary and Central-Eastern Europe, over the past 15 years: (1) the first reports from the Central-Eastern European region were given on cancer susceptibility genes predisposing to the tumors listed above; (2) strong founder effects and genotype-phenotype correlations were described for germline BRCA1 & BRCA2 mutations; (3) recently, the group identified a new genetic cause and subgroup of Lynch syndrome, due to terminal deletion of TACSTD1/EPCAM gene, thus contributing to the targeted prevention of cancer. Previously, interactions of metabolic pathways and certain molecular signaling pathways were reported.

PRIZES

Elected Member of European Academy of Cancer Sciences & Hungarian Academy of Sciences • Honorary Fellow of European Association for Cancer Research • Past-President of Hung. Cancer Soc. & EACR • Awards: Krompecher, Szentágothai János, George Weber Foundation, Széchenyi Professor, NIH (USA) Fellow, AACR-President's plaque for international leadership

MOST IMPORTANT PUBLICATIONS

1. Kovács ME, Papp J, Szentirmay Z, Otto S, Oláh E. Deletions removing the last exon of TACSTD1 constitute a distinct class of mutations predisposing to Lynch syndrome. ***Hum Mutat*** 2009; 30:197-203.
2. Csókay B, Udvarhelyi N, Sulyok Z, Besznyák I, Ramus S, Ponder B, Oláh E. High frequency of germline BRCA2 mutations among Hungarian male breast cancer patients without family history. ***Cancer Res*** 1999; 59:995-998.
3. Ramus S, Friedman LS, Gayther SA, Ponder BAJ, Bobrow LG, van der Looij M, Papp J, Oláh E. A breast/ovarian cancer patient with germline mutations in both the BRCA1 and BRCA2. ***Nat Genet*** 1997; 15:14-15.
4. Oláh E, Natsumeda Y, Ikegami T, Köte Z, Horányi M, Szelényi J, Paulik E, Kremmer T, Hollán SR, Sugár J, Weber G. Induction of erythroid differentiation and modulation of gene expression by tiazofurin in K562 leukemia cells. ***Proc Natl Acad Sci USA*** 1988; 85:6533 6537.

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OLESEN, Jes

NEUROSCIENCE

AFFILIATION
Danish Headache Center, University of Copenhagen and Glostrup Hospital – **Glostrup, Denmark**

RESEARCH INTERESTS
All aspects of research into migraine and other headaches: classification, epidemiology, genetics, expermental human and animal models of migraine and neuroimaging in migraine.

MOST IMPORTANT DISCOVERIES
The international headache classification. Cerebral blood flow changes in migraine with aura indication cortical spreading depression as the underlying mechanism. NO as the most important signalling molecule in migraine mechanisms
Importance of histamine, PACAP, CGRP and other signalling molecules.

PRIZES
The great nordic research award of the Lundbeck Foundation, manysmaller prizes.

MOST IMPORTANT PUBLICATIONS
1. Olesen J. Contralateral Focal Increase of Cerebral Blood Flow in Man During Arm Work. ***Brain*** 1971; 94:635-646

2. Olesen J, Iversen HK, Thomsen LL. Nitric-Oxide Supersensitivity - A Possible Molecular Mechanism of Migraine Pain. ***Neuroreport*** 1993; 8:1027-1030

3. Russell MB, Rasmussen BK, Fenger K, Olesen J. Migraine without aura and migraine with aura are distinct clinical entities: A study of four hundred and eighty-four male and female migraineurs from the general population. ***Cephalalgia*** 1996; 4:239-245

4. Birk S, Kruuse C, Petersen KA, Tfelt-Hansen P, Olesen J. The headache-inducing effect of cilostazol in human volunteers. ***Cephalalgia*** 2006; 11:1304-1309

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OPPENHEIM, Joost J

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
National Cancer Institute, NIH – **Bethesda, USA**

RESEARCH INTERESTS
Cytokines, chemokines and alarmins.

MOST IMPORTANT DISCOVERIES
Interleukin 1, interleukin 8 and alarmins.

PRIZES
2004: Honorary Lifetine Award, International Cytokine Society
2006: Mentaphor Scientist Award, Regensburg, Germany
2009: Trisociety Award from ICS, IFN and JLB Society
2010: Harold Stewart Award from the Jackson Foundation of USUHS

MOST IMPORTANT PUBLICATIONS
1. Yang D, Postnikov YV, Yana L, Tewary P, de la Rosa G, Wei G, Klinman D, Furusawa T, Busin M, Oppenheim JJ. High mobility group nucleosome-binding protein 1 (HMGN1) acts as an alarmin and is critical for the induction of immune response. ***J Exp Med*** 2011; [Epub, ahead of print]

2. Tewary P, Yang D, de la Rosa G, Li Y, Krensky K, Clayberger C, Oppenheim JJ. Granulysin induces recruitment and activation of antigen presenting cells and acts as an immune adjuvant and alarmin. ***Blood*** 2010; 116:3465-3467.

3. Rohrl J, Yang D, Oppenheim JJ, Hehlgans T. Human beta-defensin 2 and 3 and their mouse orthologs induce chemotaxis through interaction with CCR2. ***Immunol*** 2010; 184:6688-6694.

4. Yang D, de la Rosa G, Tewary P, Oppenheim JJ. Alarmins link neutrophils and dendritic cells. ***Trends Immunol*** 2009; 30:531-537.

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OROSZ, László

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

Department of Genetics Eötvös Loránd Science University – **Budapest, Hungary**

RESEARCH INTERESTS

Classic and molecular genetics and genomics
- in phage and bacterium models: recombination, mapping, transcription regulation
- in deer: development of antler, osteoporosis, genotiping deer of the Carpathian Basin
- teaching genetics.

MOST IMPORTANT DISCOVERIES

Explainig intracistronic fine mapping by the migration of the Holliday structure. The domain structure of the phage repressor and binding to geometrically different operators. The tRNA gene plays for integration site for temperate prophage. DNA looping. Deer genetics and genomics (gene expressions behind antler development, developing parentage control devices).

PRIZES

Award of the Hungarian Acad. Sci., Széchenyi Professor Award

MOST IMPORTANT PUBLICATIONS

1. Stéger V, Molnár A, Borsy A, Gyurján I, Szabolcsi Z, Dancs G, Molnár J, Papp P, Nagy J, Puskás L, Barta E, Zomborszky Z, Horn P, Podani J, Semsey S, Lakatos P, Orosz L. Antler development and coupled osteoporosis in the skeleton of red deer Cervus elaphus: expression dynamics for regulatory and effector genes. ***Molecular Genetics and Genomics*** 2010; 284:273-287.
2. Papp PP, Nagy T, Ferenczi S, Elo P, Csiszovszki Z, Buzas Z, Patthy A, Orosz L. Binding sites of different geometries for the 16-3 phage repressor. ***Proceedings of the National Academy of Sciences of the United States of America*** 2002; 99:8790-8795.
3. Dallmann G, Papp P, Orosz L. Related repressor specificity of unrelated phaged. ***Nature*** 1987; 330:398-401.
4. Orosz L (ed. textbook, in Hungarian). Klasszikus és Molekuláris Genetika. Budapest: Akadémiai Kiadó, (ISBN:963-05-1911-9)

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e-mail: orosz@abc.hu – Tel.: 00 36 1 3722500/8686, 00 36 28 28 526100

PAGANI, Franco

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

International Centre for Genetic Engineering and Biotechnology – Human Molecular Genetics – **Trieste, Italy**

RESEARCH INTERESTS

Pre-RNA procesing in normal and pathological conditions.

MOST IMPORTANT DISCOVERIES

Our lab focuses on studies of normal and pathological pre-mRNA processing. We identified in genes involved in several disorders, including Friedreich ataxia, Cystic Fibrosis, Long QT syndrome, cancer and coagulation deficiencies some basic mechanisms by which mutations affect pre mRNA processing and provide novel therapeutic correction strategies based on modified U1 snRNAs. In these systems, using biochemical and molecular approaches we study the splicing mechanisms and the regulation mediated by exonic and intronic regulatory elements. The BRCA1 exon 18 and SMN exon 7 are used as a model to clarify aberrant exon skipping and to understand the relationships between the splicing regulatory elements and their function in splicing control. On the other hand, ATM mutants in Ataxia Telangiectasia, GAA repeat expansions in Friedreich ataxia and rybozymes in model minigenes are utilized to understand the processing of large intronic sequences.
In collaboration with genetic screening laboratories, we are systematically evaluating the effect of the exonic substitutions and intronic variants in Coagulation Factors genes in order to improve diagnosis and identify potential targets for therapeutic correction. We identify modified U1 snRNAs for the correction of aberrant splicing in coagulation deficiencies.

MOST IMPORTANT PUBLICATIONS

1. Pagani F and Baralle FE. Genomic variants in exons and introns: identifying the splicing spoilers. ***Nat Rev Genet*** 2004; 5:389-396.
2. Baralle M, Pastor T, Bussani E and Pagani F. Influence of Friedreich ataxia GAA noncoding repeat expansions on pre-mRNA processing. ***Am J Hum Genet*** 2008; 83:77-88.
3. Pinotti M, Rizzotto L, Balestra D, Lewandowska MA, Cavallari N, Marchetti G, Bernardi F and Pagani F. U1-snRNA-mediated rescue of mRNA processing in severe factor VII deficiency. ***Blood*** 2008; 111:2681-2684.
4. Pastor T, Dal Mas A, Talotti G, Bussani E and Pagani F. Intron cleavage affects processing of alternatively spliced transcripts. ***RNA***, 2011; 17:1604-1613.

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PÁLFI, György

TUBERCULOSIS EVOLUTION

AFFILIATION
University of Szeged, Department of Biological Anthropology – **Szeged, Hungary**

RESEARCH INTERESTS
Anthropological and paleopathological investigations of ancient human remains from different time periods and geographical origins. Evolution, paleopathology and paleoepidemiology of mycobacterial and treponemal infections.

MOST IMPORTANT DISCOVERIES
Identification of the first paleopathological evidence of leprosy in Hungary. Description of several osteoarchaeological cases of tuberculosis. Knowledge improvement of the past of tuberculosis (diagnostical and historical aspects). Identification of the probable presence of pre-Columbian syphilis in Europe (France, Hungary).

PRIZES
1989: Pro Scientia Gold Medal
1994: Prize of the Hungarian Academy of Sciences

MOST IMPORTANT PUBLICATIONS
1. Pálfi G, Dutour O, Borréani M, Brun J-P, Bérato J. Pre-Columbian congenital syphilis from the Late Antiquity in France. ***International Journal of Osteoarchaeology*** 1992; 2:245-261.
2. Pálfi G. Maladies dans l'Antiquité et au Moyen-Âge. Paléopathologie comparée des anciens Gallo-Romains et Hongrois. ***Bull. et Mém. de la Soc. d'Anthrop. de Paris*** 1997; 9,1-2:1-206.
3. Pálfi G, Dutour O, Deák J, Hutás I. (Eds.) ***Tuberculosis: Past and Present.*** TB Foundation, Szeged & Golden Book Publisher, Budapest, 1999; 608 p.
4. Haas CJ, Zink A, Molnár E, Szeimes U, Reischl U, Marcsik A, Ardagna Y, Dutour O, Pálfi G, Nerlich AG. Molecular evidence for different stages of tuberculosis in ancient bone samples from Hungary. ***American Journal of Physical Anthropology,*** 2000; 113:293-304.

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PALKÓ, András

TUBERCULOSIS EVOLUTION

AFFILIATION
Department of Radiology, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Oncological imaging, imaging differential diagnostics of focal liver lesions, use of tissue-specific contrast media in magnetic resonance imaging of the liver, emergency radiology, endoluminal MR contrast agents for the evaluation of the GI tract, automatic organ segmentation.

MOST IMPORTANT DISCOVERIES
Use of hepatocyte-specific contrast agents improves detectability of small metastatic liver lesions.
Compounds of natural origin may be applied as endoluminal contrast agents for MR evaluation of the GI tract.
Methylcellulose solution may be useful for the distension of the rectum prior to CT/MR evaluation in cancer patients.

PRIZES
Alexander Béla Award of the Hungarian Society of Radiology • Honorary fellow of the Faculty of Radiology of the Royal College of Surgeons in Ireland Honorary member of the Austrian Society of Radiology • Honorary member of the Polish Society of Radiology • Honorary member of the Romanian Society of Radiology • Honorary member of the Bosnia-Hercegovina Society of Radiology

MOST IMPORTANT PUBLICATIONS
1. Palkó A, Gyulai C, Fedinecz N, Balogh Á, Nagy F Water enema CT examination of rectum cancer by reduced amount of water ***Fortschr Röngenstr*** 2000; 172: 901-904
2. Palkó A. Hepatocytaspecifikus kontrasztanyag a gócos májelváltozások MR-vizsgálatában: első eredmények ***Magyar Radiológia*** 2001; 75: 204-213
3. Palkó A. Hasi MR diagnosztika ***LAM*** 2005; 15:647-653
4. Babos M, Schwarcz A, Randhawa MS, Marton B, Kardos L, Palkó A. In-vitro evaluation of alternative oral contrast agents for MRI of the GI tract ***European Journal of Radiology,*** 2008; 65:133-9.

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PALKOVITS, Miklós

NEUROSCIENCE

AFFILIATION

Semmelweis University – **Budapest, Hungary**

RESEARCH INTERESTS

Neuroanatomy (neuronal pathways - chemical neuroanatomy).
Neuroendocrinology (stress - neuropeptides - neurotransmitters).
Central autonomic regulatory mechanisms: pain, thermoregulation, cardiovascular, food intake.
Managing of the Human Brain Tissue Bank.

MOST IMPORTANT DISCOVERIES

Neuroanatomy: 1) First topographical description of hypothalamic, limbic and autonomic neuronal pathways; 2) first neuroanatomical description of the *blood supply* of individual hypothalamic and limbic brain nuclei. *Neurochemistry*: 1) Biochemical mapping and immunohistochemical localizations of several neurotransmitters, their synthesizing enzymes, receptors, transporters, neuropeptides and neurohormones in the brain. 2) Chemical identification (transmitter characterization) of several neuronal pathways in the brain. *Experimental Neurosurgery*: 1) introducing of the "*micropunch technique*" for the microdissection of individual brain nuclei and establishing of the first Human Brain Tissue Bank, 2) introducing new techniques for selective surgical transections of neuronal pathways in the brain.

PRIZES

1991: Széchenyi Award (the highest scientific award in Hungary)
1993: Rinecker Award and Gold Medal (Germany)
1995: Albert Szent-Györgyi Award
2003: Officier of the Order of the Hungarian Republic
2004: National Institutes of Health Performance Award
2006: Leo Szilárd Award

MOST IMPORTANT PUBLICATIONS

1. Palkovits M. Isolated removal of hypothalamic or other brain nuclei of the rat. ***Brain Res*** 1973; 59:449-50.
2. Palkovits M, Záborszky L. Neuroanatomy of central cardiovascular control. Nucleus tractus solitarii: afferent and efferent neuronal connections in relation to the baroreceptor reflex arc. ***Prog Brain Res*** 1977; 47:9-34.
3. Pacák K, Palkovits M. Stressor specificity of central neuroendocrine responses: Implications for stress-related disorders. ***Endocrine Rev*** 2001; 22:502-48.
4. Kvetnansky R, Sabban EL, Palkovits M. Catecholaminergic systems in stress: structural and molecular genetic approaches. ***Physiol Rev*** 2009; 89:535-606.

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PAP Ildikó

TUBERCULOSIS EVOLUTION

AFFILIATION

Hungarian Natural History Museum, Department of Anthropology – **Budapest, Hungary**

RESEARCH INTERESTS

Biological reconstruction of human past populations of the Carpathian Basin from Neolithic to the Middle Ages. Paleopathology. Stress indicators in the historical populations. Multidisciplinary study of the 18th-19th century mummies, Dominican Church of Vác, Hungary.

PRIZES

2008: "Orvosi Hetilap Markusovszky Lajos-díj" (for the article, published in Orvosi Hetilap: Varjassy Péter, Szikossy Ildikó, Pap Ildikó: Az egyik legkorábban elvégzett császármetszés hazánkban – sectio caesarea Vácott, 1794-ben – One of the earliest post mortem sectio caesaria in Hungary, Vác, 1794")

MOST IMPORTANT PUBLICATIONS

1. Donoghue HD, Pap I, Szikossy I, Spigelman M. Detection and characterization of *Mycobacterium tuberculosis* DNA in 18th Century Hungarians with pulmonary and extra-pulmonary tuberculosis. ***Yearbook of Mummy Studies*** 2011; 1:51-6.
2. Szikossy I, Kustár Á, Guba Z, Kristóf LA, Pap I. Mummies from Hungary. Naturally Mummified Corpses from the Dominican Church in Vác, Hungary. In: Wieczorek A, Rosendhal W (eds) ***Mummies of the World***. American Exhibition, Reiss-Engelhorn-Museum, Mannheim, Prestel, Munich, Berlin, London, New York 2010; 160-71.
3. Spigelman, M., Pap, I. & Donoghue, H.D. A death from Langerhans cell histiocytosis and tuberculosis in 18th Century Hungary – what palaeopathology can tell us today. ***Leukemia Letter to Editor*** 2006; 20:740-2.
4. Fletcher HA, Donoghue HD, Holton J, Pap I, Spigelman M. Widespread occurrence of *Mycobacterioum tuberculosis* DNA 18-19th Century Hungarians. ***Am. J Phys Anthrop*** 2003; 120:144-52.

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PAPP, Gyula

CARDIOLOGY

AFFILIATION

Division of Cardiovascular Pharmacology – Hungarian Academy of Sciences – Department of Pharmacology & Pharmacotherapy – University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Cardiovascular Pharmacology, experimental cardiology, the cellular electropathology of the heart, pro- and antiarrhythmic mechanisms. – Structure-activity relationsips of novel potential drugs and related chemical compounds.

MOST IMPORTANT DISCOVERIES

Alterations of transmembrane potentials of cardiac cells in hypo- and hyperthyroidism. The electropathological changes underlying sudden cardiac death due to severe adrenergic excitation. Contribution to the development of novel type drugs to treat heart failure („calcium-sensitizers" – levosimendan). Characterization of the autonomic regulation and description of responsiveness to endogenous and exogenous substances and various drugs of the ageing and developing human heart.

PRIZES

Hungarian: Albert Szent-Györgyi Prize • Széchenyi Prize • Order of Hungarian Republic: Officer's Cross • Issekutz Prize • Batthyány-Strattmann Prize
Other: White Rose Order (Finland) • Medal of merit (European Society of Cardiology) • Gold Medal (Yugoslav Society of Cardiology) • Medal of merit (Polish Society of Cardiology)
Honorary Memeberships: Czech, Hellenic, Hungarian (Honorary Life-President), Croatian, Italian, Romanian, Slovak and Slovenian Societies of Cardiology; Romanian Academy of Medical Science

MOST IMPORTANT PUBLICATIONS

1. Papp JGy, Szekeres L. Analysis of the mechanism of adrenergic actions on ventricular vulnerability. ***Eur J Pharmacol*** 1968; 3:15-26.

2. Freedberg AS, Papp JG, Vaughan Williams EM. The effect of altered thyroid state on atrial intracellular potentials. ***J Physiol (London)*** 1970; 207:357-369.

3. Varró A, Baláti B, Iost N, Takács J, Virág L, Lathrop D, Lengyel C, Tálosi L, Papp JG. The role of the delayed rectifier component IKs in dog ventricular muscle and Purkinje fibre repolarization. ***J Physiol (London)*** 2000; 523:67-81.

4. Papp JGy, Pollesello P, Varró A, Végh Á. The effect of levosimendan during long-term amiodarone-treatment. ***Basic & Clinical Pharmacol Toxicol*** 2006; 99:27-32.

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PAPP, Zoltán

CARDIOLOGY

AFFILIATION

Division of Clinical Physiology, Institute of Cardiology, University of Debrecen – **Debrecen, Hungary**

RESEARCH INTERESTS

Myocardial contractility, myocardial ischemia/reperfusion injury, chronic heart failure, myofilament proteins, positive inotropic agents.

MOST IMPORTANT DISCOVERIES

Peroxynitrite-evoked protein nitration, μ-calpain mediated protein cleavage, or oxidation of sulfhydryl groups of proteins all have the potential to depress the mechanical performance of the contractile machinery in the postischemic myocardium. Species-dependent characteristics of sarcomeric protein composition are not reflected in the sarcomere length-dependence of Ca^{2+}-sensitivity of force production in the mammalian heart. The increases in Ca^{2+}-sensitivity of force production and/or in cardiomyocyte passive stiffness seen in progressed stages in heart failure are best explained by decreases in contractile protein phosphorylation. The inotropic state of the myocardium can be enhanced by Ca2+-sensitizer agents, nevertheless, the mechanism by which their hemodynamic benefit develops may involve several additional mechanisms.

PRIZES

1989: Weszprémi prize (University of Debrecen)
2009: Pro Cura Ingenii prize (University of Debrecen)
2003, 2010: Best lecturer of the year (University of Debrecen)
2011: Makoto Nagano Award for Achievements in Cardiovascular Education (International Academy of Cardiovascular Sciences)

MOST IMPORTANT PUBLICATIONS

1. Papp Z, van der Velden J, Stienen GJM. Calpain-I induced alterations in the cytoskeletal structure and impaired mechanical properties of single myocytes of rat heart. ***Cardiovasc Res*** 2000; 45:981-93.

2. Borbely A, van der Velden J, Papp Z, Bronzwaer JGF, Edes I, Stienen GJM, Paulus WJ. Cardiomyocyte stiffness in diastolic heart failure. ***Circulation*** 2005; 111:774-81.

3. Borbely A, Toth A, Edes I, Virag L, Papp J G, Varro A, Paulus WJ, van der Velden J, Stienen GJM, Papp Z. Peroxynitrite-induced alpha-actinin nitration and contractile alterations in isolated human myocardial cells. ***Cardiovasc Res*** 2005; 67:225-33.

4. Papp Z, Csapo K, Pollesello P, Haikala H, Edes I. Pharmacological mechanisms contributing to the clinical efficacy of levosimendan. ***Cardiovasc Drug Rev*** 2005; 23:71-98.

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PAULUS, Walter

NEUROSCIENCE

AFFILIATION

Georg August University Göttingen – **Göttingen, Germany**

RESEARCH INTERESTS

Plasticity of the central nervous system in man; transcranial magnetic stimulation; transcranial electric stimulation; functional magnetic resonance; cortical connectivity; dopamine and plasticity, pathophysiology of restless legs syndrome.

MOST IMPORTANT DISCOVERIES

Concept of implementation of centre-surround interaction into color coding in the human retina; Concept of human visual stabilation of posture; Implemenation of transcranial Direct Current, transcranial Random Noise and transcranial Alternating Current Stimulation for the purpose of manipulating neuroplasticity in man. Investigation of the interaction of a multitude of neuropharmacological drugs with these drugs for enabling selective modulation of cortical excitability. Investigating cortical connectivity in man under transcranial stimultion, MRI and EEG based.

PRIZES

Best thesis of the University of Düsseldorf, 1978/79

MOST IMPORTANT PUBLICATIONS

1. Nitsche MA, Paulus W. Excitability changes induced in the human motor cortex by weak transcranial direct current stimulation. ***J Physiol.*** 2000; 527:633-9.

2. Terney D, Chaieb L, Moliadze V, Antal A, Paulus W. Increasing Human Brain Excitability by Transcranial High-Frequency Random Noise Stimulation. ***J Neurosci***. 2008; 28:14147-55.

3. Moliadze V, Antal A, Paulus W. Boosting brain excitability by transcranial high frequency stimulation in the ripple range. ***J Physiol***. 2010; 15;588:4891-904.

4. Nitsche MA, Kuo MF, Grosch J, Bergner C, Monte-Silva K, Paulus W. D1-receptor impact on neuroplasticity in humans. ***J Neurosci***. 2009; 29:2648-53.

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PENKE, Botond

NEUROSCIENCE

AFFILIATION

Department of Medical Chemistry, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Chemistry and biochemistry of amino acids, peptides and proteins. The gastrin-cholecystokinin peptide family. Design and preparation of antigens for antibody production. Neurogenerative diseases: the Alzheimer's and Parkinson's disease. Protein misfolding: α-amyloid and α–synuclein structures, aggregates. Intrinsically disordered proteins. Design and synthesis of neuroprotective drug candidates.

MOST IMPORTANT DISCOVERIES

Discovery and introduction of a new method for tryptophan analysis in peptides and proteins.
Production of a specific antibody against GABA.
Synthesis of cholestokinin -33.
The toxic effect of β-amyloid on endothelial cells.
The interaction of β-amyloid with intraneuronal proteins like GAPDH.

PRIZES

2005: „Szent-Györgyi Albert prize"
2009: Széchenyi prize"

MOST IMPORTANT PUBLICATIONS

1. Penke B, Ferenci R, Kovács K. A new acid hydrolysis method for determinig tryptophan in peptides and proteins. ***Anal. Biochemistry*** 1974; 60:45-50.

2. Penke B, Nyerges L. Solid phase synthesis of porcine cholecystokinin-33 in new resin via Fmoc-strategy. ***Peptide Research***, 1991; 4:289-295.

3. Fülöp L, Penke B and Zarandi M. Synthesis and fluorenscent labeling of beta-amyloid peptides. ***J. Peptide Science*** 2001; 7:397-401.

4. Verdier Y, Földi I, Sergeant N, Fülöp L, Penke Z, Janáky T, Szücs M, Penke B. Characterisation of the interaction between amyloid beta 1-42 and glyceraldehyde phosphodehydrogenase. ***J. Peptide Sci*** 2008; 10:229-248.

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PERNOW, John

CARDIOLOGY

AFFILIATION
Karolinska Institutet, Department of Cardiology – **Stockholm, Sweden**

RESEARCH INTERESTS
Endothelial function in ischemic heart disease and diabetes. Pathophysiology and treatment of myocardial ischemia-reperfusion injury.

MOST IMPORTANT DISCOVERIES
Endothelial dysfunction in atherosclerosis and type 2 diabetes is characterized by reduced nitric oxide and increased endothelin bioavailability. Endothelin receptor blockade improves endothelial function and glucose uptake in patients with type 2 diabetes and coronary artery disease. Endothelin receptor blockade incresaes nitric oxide bioavailability and reduces infarct size in models of myocardial ischemia-reperfusion. The enzyme arginase may reduce nitric oxide availability by comsumption of the substrate arginine. Blockade of arginase activity improves coronary microvascular function in type 2 diabetes and reduces infarct size following iechima reperfusion. These effects of arginase blockade is mediated via nitric oxide production.

PRIZES
1996: Regnells prize Swedish Society of Medicine
2002, 2009: Alvarengas prize Swedish Society of Medicine

MOST IMPORTANT PUBLICATIONS
1. Bohm F, Ahlborg G, Johansson BL, Hansson LO, Pernow J. Combined endothelin receptor blockade evokes enhanced vasodilatation in patients with atherosclerosis. ***Arterioscler Thromb Vasc Biol.*** 2002; 22:674-9
2. Jung C, Gonon AT, Sjöquist PO, Lundberg JO, Pernow J. Arginase inhibition mediates cardioprotection during ischaemia-reperfusion. ***Cardiovasc Res*** 2010; 85:147-54.
3. Shemyakin A, Salehzadeh F, Böhm F, Al-Khalili L, Gonon A, Wagner H, Efendic S, Krook A, Pernow J. Regulation of glucose uptake by endothelin-1 in human skeletal muscle in vivo and in vitro. ***J Clin Endocrinol Metab*** 2010; 95:2359-66.
4. Grönros J, Jung C, Lundberg JON, Östenson C-G, Pernow J. Arginase Inhibition Restores in vivo Coronary Microvascular Function in Type 2 Diabetic Rats. ***Am J Physiol Heart Circ Physiol*** 2011; 300:H1174-81.

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PERRIN, Pascale

TUBERCULOSIS EVOLUTION

AFFILIATION
Université Montpellier – **Montpellier, France**

RESEARCH INTERESTS
Hemoglobinopathies in the Mediterranean basin, molecular biology, paleoanthropology, paleopathology, ancient and modern migrations of human populations. Human-pathogens interactions/human genetic susceptibility factors for infectious diseases/origin and spread of human pathogens.

MOST IMPORTANT DISCOVERIES
The analysis of the SNP haplotype diversity associated with the preponderant beta-thalassemias in Mediterranean populations shows clearly the unicentric origin of this type of mutations. It gives the opportunity to identify the region where it emerged.
We know that hemoglobinopathies and specially thalassemias lead to some characteristic osteological modifications such as porotic hyperostosis, *cribrum orbitale*, « hair-on-end » appearance of the cranial vault. Our aim is to evaluate the rate of such bone lesions in human remains of Neolithic sites in the fertile crescent and in the Anatolian region. It gives some new clues to reinforce our hypothesis concerning the region of probable emergence of one of the most frequent Mediterranean beta-thalassemia. Thalassemias and hemoglobinopathies are excellent models to develop a pluridisciplinary approach because of its impact on bone growth, its suspected selection by *Plasmodium*. It means that in the past, environmental and/or social/cultural changes (settlement, domestication ecological changes) could have play a major part in the parasites evolution and the population of vectors. Then fixation and spread of new mutant alleles could have been favoured in humans.
Considering the fact that pathogen species are not isolated from each other but constitute packets of multi-pathogen species communities in nature, a better understanding of how these challenging habitats might have influenced the origins of specific genotypes in humans is important.

PRIZES
2003 Oct. 15-19: The 1st Ezio Silvestroni Award for the poster entitled: «Fixation and history of the IVS-I-110 beta-thalassemia mutation in the Mediterranean basin » presented at the 9th International Conference on « Thalassemia and the Hemoglobinopathies », Palermo, Sicily.

MOST IMPORTANT PUBLICATIONS
1. Perrin P, Herbreteau V, Hugot JP, Morand S. Biogeography, Humans and their parasites. ***In "The biogeography of host-parasite interactions"*** pp 41-57 Eds. S. Morand & B. Krasnov 2011; Oxford University Press.
2. Haj Khelil A, Morinière M, Laradi S, Khelif A, Perrin P, Ben Chibani J, Baklouti F. Xmn I polymorphism associated with concomitant activation of Gγ and Aγ globin gene transcription on a β^0-thalassemia chromosome. ***Blood Cells Mol Dis*** 2011; 46:133-138.
3. Le Mort F, Chataignier C, Basak AN, Özbal H, Özbek M, Erdal YS, Zahed L, Perrin P, Tadmouri GO. From bone changes to DNA: The hereditary anaemias in ancient populations of the Near East. British Reports of Archaeology 2006, ***Int. Series*** 1528:91-101.
4. Currat M, Trabuchet G, Rees D, Perrin P, Harding R, Clegg J, Langaney A, Excoffier L Molecular analysis of the beta-globin gene cluster in the Niokholo Mandenka population reveals a recent origin of the β^S Senegal mutation. ***Am J Human Genet*** 2002; 70:207-223.

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PETERSEN, Ole H

GASTROENTEROLOGY

AFFILIATION
Cardiff School of Biosciences, Cardiff University – **Cardiff, UK**

RESEARCH INTERESTS
Stimulus-secretion coupling in exocrine cells; intracellular calcium signaling mechanisms; intracellular calcium toxicity; mechanisms underlying acute pancreatitis.

MOST IMPORTANT DISCOVERIES
Acetylcholine evokes Ca^{2+} release from intracellular stores (Nielsen & Petersen *J Physiol* 1972); Intracellular Ca^{2+} injection mimicks effect of extracellular acetylcholine application in pancreatic acinar cells (Iwatsuki & Petersen *Nature* 1977); Ca^{2+}-activated K^+ channels control exocrine fluid secretion (Petersen & Maruyama, *Nature* 1984); Constant IP3 elevation drives Ca^{2+} oscillations (Wakui, Potter & Petersen Nature, 1989; Local and global Ca^{2+} oscillations (Thorn et al *Cell* 1993); Ca^{2+} release from nuclear envelope (Gerasimenko et al *Cell* 1995); Ca^{2+} release from single zymogen granules (Gerasimenko et al *Cell* 1996); Intracellular Ca^{2+} tunnels through the endoplasmic reticulum (Mogami et al *Cell* 1997); Ca^{2+}-dependent vacuole and trypsin activation underlying pancreatitis (Raraty et al *PNAS* 2000); Fatty acid ethyl esters induce intracellular trypsin activation via IP3-receptor mediated intracellular Ca^{2+} release (Gerasimenko et al *PNAS* 2009); Intracellular calmodulin protects against alcohol-induced intracellular trypsin activation (Gerasimenko et al *PNAS* 2011).

PRIZES
2008: Commander of the Order of the British Empire (CBE)
2003: Purkyne Medal from Academy of Sciences Czech Republic
2010: Lifetime Achievement Award European Pancreatic Club
1994: Jacobaeus Prize, Nordic Insulin Foundation
1991: Annual Review Lecture Prize from The Physiological Society (UK)

MOST IMPORTANT PUBLICATIONS
1. Gerasimenko JV, Lur G, Sherwood MW, Ebisui E, Tepikin AV, Mikoshiba K, Gerasimenko OV, Petersen OH. Pancreatic protease activation by alcohol metabolite depends on Ca^{2+} release via acid store IP3 receptors. ***Proc. Natl. Acad. Sci. USA (PNAS)*** 2009; 106:10758-10763.
2. Raraty M, Ward J, Erdemli G, Vaillant C, Neoptolemos,JP, Sutton R, Petersen OH. Calcium-dependent enzyme activation and vacuole formation in the apical granular region of pancreatic acinar cells. ***Proc. Natl. Acad. Sci. USA (PNAS)*** 2000; 97:13126-13131.
3. Mogami,H, Nakano K, Tepikin,AV, Petersen OH. Ca^{2+} flow via tunnels in polarized cells: recharging of apical Ca^{2+} stores by focal Ca^{2+} entry through basal membrane patch. ***Cell*** 1997; 88:49-55.
4. Thorn P, Lawrie AM, Smith PM, Gallacher DV, Petersen OH. Local and global Ca^{2+} oscillations in exocrine cells evoked by agonists and inositol trisphosphate. ***Cell*** 1993; 74:661-668.

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PIESKE, Burkert

CARDIOLOGY

AFFILIATION
Department of Cardiology, Medical University of Graz – **Graz, Austria**

RESEARCH INTERESTS
Molecular mechanism and cellular defect in heart failure and arrhyhtmias; translational research in heart failure including large animal models; epidemiology of and clinical trials in diastolic heart failure.

MOST IMPORTANT DISCOVERIES
Defective intracellular ion regulation underlies contractile dysfunction and propensity for triggered arrhyhtmias in heart failure; defective ion handling also impacts on nuclear gene transcription and remodeling; spironolactone (Alod-DHF trial) and exercise training (EX-DHF trial) may be beneficial in diastolic heart failure.

PRIZES
Scientifc prizes from the International Society of Heart Research; the German Cardiac society; and the european Society of Cardiology

MOST IMPORTANT PUBLICATIONS
1. von Lewinski D, Bruns S, Walther S, Kögler H, Pieske B. Insulin causes $[Ca^{2+}]$i-dependent and $[Ca^{2+}]$i-independent positive inotropic effects in failing human myocardium. ***Circulation*** 2005; 111:2588-2589
2. Sedej S, Heinzel FR, Walther S, Dybkova N, Wakula P, Groborz J, Gronau P, Maier LS, Vos MA, Lai FA, Napolitano C, Priori SG, Kockskämper J, Pieske B. Na^+-dependent SR Ca^{2+} overload induces arrhythmogenic events in mouse cardiomyocytes with a human CPVT mutation. ***Cardiovasc Res***. 2010; 87:50-9.
3. Edelmann F, Gelbrich G, Düngen HD, Fröhling S, Wachter R, Stahrenberg R, Binder L, Töpper A, Lashki DJ, Schwarz S, Herrmann-Lingen C, Löffler M, Hasenfuss G, Halle M, Pieske B. Exercise Training Improves Exercise Capacity and Diastolic Function in Patients With Heart Failure With Preserved Ejection Fraction Results of the Ex-DHF (Exercise training in Diastolic Heart Failure) Pilot Study. ***J Am Coll Cardiol***. 2011; 58:1780-91

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PIVARCSI, Andor

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Molecular Dermatology Research Group, Unit of Dermatology and Venereology
Department of Medicine, Karolinska Institutet –**Stockholm, Sweden**

RESEARCH INTERESTS
The main interest of my work is to better understand the underlying molecular and immunological mechamisms in skin diseases. I am particularly interested in the role of a novel type of genes, microRNAs, in the skin. We study the role of these molecules in healthy skin, psoriasis and non-melanoma skin cancers.

MOST IMPORTANT DISCOVERIES
My studies in the early 2000's identified the expression of functional Toll-like receptors in keratinocytes which contributed to the better understanding of innate immune functions in the skin. In 2004-2006, I investigated the function of chemokines in chronic inflammatory skin diseases and identified CCL18 to be associated with atopic eczema. In parallel, I found CCL27 to be lost in non-melanoma skin cancers suggesting a novel mechanism of tumour immune escape by loss of homeostatic chemokine expression. Since 2006, I have been studying a novel type of non-coding RNA genes, microRNAs, in the skin. Our group identified miR-203 as a microRNA with strikingly skin-specific expression. Our studies revealed that miR-203 is an important regulator of keratinocyte proliferation and differentiation, and it acts as a tumour suppressor in basal cell carcinoma (BCC) of the skin.

PRIZES
2010: Silver Award of the LEO Pharma Research Foundation • 2009: New Investigator Award of the European Skin Research Foundation • 2007: Prize of the German Dermatological Society • 2006: Marie-Curie Intra-European Fellowship • 2005: Young Investigator Prize of the Hungarian Academy of Sciences • 2005: Fujisawa Research Prize "Immunomodulation"

MOST IMPORTANT PUBLICATIONS

1. Sonkoly E, Wei T, Pavez Lorié E, Suzuki H, Kato M, Törmä H, Ståhle M, Pivarcsi A. Protein kinase C-dependent upregulation of miR-203 induces the differentiation of human keratinocytes. ***J Invest Dermatol.*** 2010; 130:124-34.
2. Sonkoly E, T Wei, PC Janson, A Saaf, L Lundeberg, M Tengvall-Linder, G Norstedt, H Alenius, B Homey, A Scheynius, M Stahle, A Pivarcsi: MicroRNAs: novel regulators involved in the pathogenesis of Psoriasis? ***PLoS ONE***, 2007; 2:e610.
3. Pivarcsi A, Müller A, Hippe A, Rieker J, van Lierop A, Steinhoff M, Seeliger S, Kubitza R, Pippirs U, Meller S, Gerber PA, Liersch R, Buenemann E, Sonkoly E, Wiesner U, Hoffmann TK, Schneider L, Piekorz R, Enderlein E, Reifenberger J, Rohr UP, Haas R, Boukamp P, Haase I, Nürnberg B, Ruzicka T, Zlotnik A, Homey B. Tumor immune escape by the loss of homeostatic chemokine expression. ***Proc Natl Acad Sci USA.*** 2007; 104:19055-60.
4. Pivarcsi A, Bodai L, Réthi B, Kenderessy-Szabó A, Koreck A, Széll M, Beer Z, Bata-Csörgoo Z, Magócsi M, Rajnavölgyi E, Dobozy A, Kemény L. Expression and function of Toll-like receptors 2 and 4 in human keratinocytes. ***Int Immunol***. 2003; 15:721-30.

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PRENS, Errol P.

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Department of Dermatology and Department of Immunology, Erasmus MC, University Medical Center Rotterdam
Rotterdam – The Netherlands

RESEARCH INTERESTS
Inflammation, Immune-mediated inflammatory diseases, Psoriasis, Psoriasis Arthritis.

MOST IMPORTANT DISCOVERIES
Autoinflammatory basis of psoriasis, crucial role of innate immunity in the pathogenesis of psoriasis.

PRIZES
Saint Jozef prize

MOST IMPORTANT PUBLICATIONS

1. Van der Zee HH, Laman JD, de Ruiter L, Dik WA, Prens EP. Adalimumab (antitumour necrosis factor-α) treatment of hidradenitis suppurativa ameliorates skin inflammation: an in situ and ex vivo study. ***Br J Dermatol*** 2012; 166:298-305.
2. Van der Zee HH, de Ruiter L, Boer J, van den Broecke DG, den Hollander JC, Laman JD, Prens EP. Alterations in leucocyte subsets and histomorphology in normal-appearing perilesional skin and early and chronic hidradenitis suppurativa lesions. ***Br J Dermatol*** 2012; 166:98-106.
3. Rácz E, Kurek D, Kant M, Baerveldt EM, Florencia E, Mourits S, de Ridder D, Laman JD, van der Fits L, Prens EP. GATA3 expression is decreased in psoriasis and during epidermal regeneration; induction by narrow-band UVB and IL-4. ***PLoS One*** 2011; 6:e19806.
4. Rácz E, Prens EP, Kurek D, Kant M, de Ridder D, Mourits S, Baerveldt EM, Ozgur Z, van IJcken WF, Laman JD, Staal FJ, van der Fits L. Effective treatment of psoriasis with narrow-band UVB phototherapy is linked to suppression of the IFN and Th17 pathways. ***J Invest Dermatol*** 2011; 131:1547-58.

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PRZYKLENK, Karin

CARDIOLOGY

AFFILIATION
Cardiovascular Research Institute; Departments of Physiology and Emergency Medicine,
Wayne State University School of Medicine – **Detroit, USA**

RESEARCH INTERESTS
The overall theme of my research is cardioprotection: i.e., salvage of ischemic myocardium and limitation of cardiomyocyte death in the setting of myocardial ischemia-reperfusion. Moreover, my laboratory is dedicated to the rapid translation of novel and 'cutting-edge' cardioprotective strategies to patient care. Current, active research interests include:
• elucidation of the cellular and molecular mechanisms by which endogenous cardioprotective phenomena (preconditioning, postconditioning, remote conditioning) favorably attenuate myocardial ischemia-reperfusion injury, with emphasis on the pivotal role of ERK signaling; • alterations in cardioprotective signaling pathways in the setting of clinically relevant co-morbidities (including, in particular, diabetes and aging); • investigation of novel strategies to attenuate platelet thrombosis and, as a result, better-maintain vessel patency (thereby limiting ischemia) in models of unstable angina and acute coronary syndromes; and •development of new 'point-of-care' approaches to assess platelet reactivity for the rapid clinical diagnosis of acute thrombotic events (including myocardial infarction and stroke) in the emergency room.

MOST IMPORTANT DISCOVERIES
Notable contributions to the literature include:
• the first report of cardioprotection achieved via remote preconditioning (*Circulation* 1993); • the first molecular evidence that ischemic preconditioning attenuates thrombosis via favorable down-regulation of platelet activation/aggregation (*Circulation* 1998; J Thromb Haemostasis 2006); • among the first published studies providing clinical evidence of infarct size reduction with postconditioning in patients with acute myocardial infarction (*Basic Res Cardiol* 2007). • novel observations of a loss in efficacy of postconditioning-induced cardioprotection in models of aging and diabetes (*J Am Coll Cardiol* 2008; Antioxid Redox Signal 2011) • first evidence of an association between up-regulation of autophagy and cardioprotection in a clinically relevant, large animal (porcine) model of acute myocardial infarction (*Circulation* 2010).

MOST IMPORTANT PUBLICATIONS
1. Przyklenk K, Bauer B, Ovize M, Kloner RA, Whittaker P. Regional ischemic "preconditioning" protects remote virgin myocardium from subsequent sustained coronary occlusion. ***Circulation*** 1993; 87:893-99.
2. Linden MD, Whittaker P, Frelinger AL III, Barnard M, Michelson AD, Przyklenk K. Preconditioning ischemia attenuates myocardial indices of platelet activation-aggregation. ***J Thromb Haemostasis*** 2006; 4:2670-77.
3. Przyklenk K, Maynard M, Darling CE, Whittaker P. Aging mouse hearts are refractory to infarct size reduction with postconditioning. ***J Am Coll Cardiol*** 2008; 51:1393-98.
4. Przyklenk K, Maynard M, Grenier DL, Whittaker P. Cardioprotection with postconditioning: loss of efficacy in murine models of type-2 and type-1 diabetes. ***Antioxid Redox Signal*** 2011; 14:781-90.

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QUINTON, Paul M

GASTROENTEROLOGY

AFFILIATION
University of California, San Diego, and University of California, Riverside – **San Diego, USA**

RESEARCH INTERESTS
Epithelial fluid and electrolyte transport of Cl^- and HCO_3^- by the anion channel, CFTR. The impact of CFTR dysfunctions in the genetic disease, Cystic Fibrosis (mucoviscidosis), on the formation and properties of mucins and mucus. The aim of understanding how mutations that disturb basic electrolyte transport result in pathogenic mucus.

MOST IMPORTANT DISCOVERIES
Chloride impermeability defect in Cystic Fibrosis. ATP dependent Cl^- conductance.
Selective activation of Cl^- and HCO_3^- conductances in CFTR. HCO_3^- dependent mucin release/expansion.

PRIZES
1987: Doris Tulcin National Cystic Fibrosis Research Award • 1991: Paul di Sant'Agnese Distinguished Scientific Achievement Award, National Cystic Fibrosis Foundation • 1994: Joseph Levy Memorial Award, Int'l Cystic Fibrosis Foundation • 2000: Fellow, AAAS • 2001: Certificate of Recognition, Ca. State Assembly • 2010: Hans Ussing Award, Am Physiol Society

MOST IMPORTANT PUBLICATIONS
1. Quinton PM. Chloride impermeability in cystic fibrosis. ***Nature*** 1983; 301:421-422.
2. Quinton PM and Reddy MM. Control of CFTR chloride conductance by ATP levels through non-hydrolytic binding. ***Nature*** 1992; 360:79-81.
3. Reddy MM and Quinton PM. Control of dynamic CFTR selectivity by glutamate and ATP in epithelial cells. ***Nature*** 2003; 423:756 - 760.
4. Quinton PM. Role of epithelial transport in mucin secretion: lessons from cystic fibrosis. ***Am J Physiol Cell Physiol*** 2010; 299:C1222-1233.

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RAJNAVÖLGYI, Éva

IMMUNNOLOGY & INFLAMMATION

AFFILIATION

Department of Immunology, Medical and Health Science Centre University of Debrecen – **Debrecen, Hungary**

RESEARCH INTERESTS

Collaboration of innate and adaptive immunity in anti-viral and anti-tumor immune responses. Translation of inflammatory and tolerogenic signals by dendritic cells (DC) to T-lymphocyte activation and polarization. Collaboration of signalling pathways triggered by extra- and intracellular pattern recognition receptors. Contribution of retinoic acid-induced helicases in the induction of type I interferon responses in human DC subsets, effects on the anti-influenza response. Targeting DC subsets for signalling pathway-specific adjuvant activity.

MOST IMPORTANT DISCOVERIES

Identification of factors affecting Ig chain association, conformation, function. Modulation of complement activation and immune complex release by IgG-C3 interaction. Selection of synthetic branched polypeptide carriers to increase immunogenicity of peptides. Characterization of $CD4^+$ T cell epitopes around the cleavage site of influenza HA, in HSV D-glycoprotein and EBNA-6. Interleukin-7 triggers Fas-mediated proliferative and apoptosis signals in T-cells and prevents activation of the JNK and p38-mediated stress pathway. Expression of CD1a and the lipid-induced nuclear hormone receptor PPARγ dissect DC to phenotypically and functionally different subtypes. Internalization of lipids, pathogens, apoptotic cells is mediated by CD1a-$PPARγ^+$ DC. Type I interferon production induced by cytosolic helicases, cell migration and setting the threshold of DC activation by Nav1.7 channel is restricted to $CD1a^+PRARγ^-$ DC.

PRIZES

1990: Prize of the Hungarian Academy of Sciences • 1995: Prize of the Lóránt Eötvös University • 1996: Visiting Professorship of the Swedish Medical Research Council • 1997: Szécsenyi Professorship • 1998: Senior Fulbright Research Fellowship • 2008: Charles Simonyi Research Fellowship • 2011: Knight of Cross from the Order of Merit of the Hungarian Republic

MOST IMPORTANT PUBLICATIONS

1. Szatmari I, Gogolak P, Im JS, Dezso B, Rajnavolgyi E, Nagy L. Activation of PPARgamma specifies a dendritic cell subtype capable of enhanced induction of iNKT cell expansion. ***Immunity*** 2004; 21:95-106.

2. Gogolak P, Rethi B, Szatmari I, Lanyi A, Dezso B, Nagy L, Rajnavolgyi E. Differentiation of CD1a and CD1a+ monocyte-derived dendritic cells is biased by lipid environment and PPARgamma. ***Blood***. 2007; 109:643-65.

3. Majai G, Gogolák P, Ambrus C, Vereb G, Hodrea J, Fésüs L, Rajnavölgyi É: PPARγ modulated inflammatory response of human dendritic cell subsets to engulfed apoptotic neutrophils. ***J Leukoyte Biol*** 2010; 88:981-91.

4. Kis-Toth K, Hajdu P, Bacskai I, Szilagyi O, Papp F, Szanto A, Posta E, Gogolak P, Panyi G, Rajnavolgyi E. Voltage-gated sodium channel Nav1.7 maintains the membrane potential and regulates the activation and chemokine-induced migration of a monocyte-derived dendritic cell subset. ***J Immunol*** 2011; 187:1273-80.

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RAKIC, Pasko

NEUROSCIENCE

AFFILIATION

Yale University Medical School, Department of Neurobiology, Kavli Institute of Neuroscience – **New Haven, CT, USA**

RESEARCH INTERESTS

Pasko Rakic's research interests are in developmental neurobiology, particularly cellular and molecular mechanisms of neuronal proliferation, migration and synaptogenesis during development and evolution of the cerebral and cerebellar cortex.

MOST IMPORTANT DISCOVERIES

Rakic's studies lead to the postulate of the "radial unit" and "protomap" hypotheses of cortical development and evolution that provide the framework for understanding of normal and pathological development and evolution of the human cerebral cortex. By manipulating the rate and pattern of neuronal proliferation, fate determination and migration, using genetic tools and environmental factors, he discovered the hidden abnormalities of neuronal positioning that cannot be discerned by routine postmortem examination of the human brain, providing explanations for the pathogenesis of a variety of congenital malformations including lissencephaly, polymicrogyria and childhood epilepsy, as well as new insight into possible developmental origin of disorders of higher brain functions, such as autism, schizophrenia and forms of mental retardation

PRIZES

Karl Spencer Lashley Prize • Bristol-Myers Squibb • Pasarow Prize • Henry Gray Prize • Gerard Prize • Fyssen Prize • Kavli Neuroscience Prize for discoveries on how neurons in the embryonic brain arrange themselves during development into the complex, densely interconnected synaptic circuitry of the adult cerebral cortex

MOST IMPORTANT PUBLICATIONS

1. Rakic P. Neurons in the monkey visual cortex: Systematic relation between time of origin and eventual disposition. ***Science*** 1974; l83:425-427.

2. Rakic P. Prenatal genesis of connections subserving ocular dominance in the rhesus monkey. ***Nature*** 1976; 26l:467-47l.

3. Rakic P. Specification of cerebral cortical areas. ***Science*** 1988 241:170-176.

4. Komuro H, Rakic P. 1993 Modulation of neuronal migration by NMDA receptors. ***Science*** 1993; 260:95-97.

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RAKONCZAY Jr., Zoltán

GASTROENTEROLOGY

AFFILIATION
First Department of Medicine, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Pancreas, pancreatic bicarbonate and fluid secretion, acute pancreatitis, heat shock proteins, nuclear factor-κB, cytokines, oxidative stress.

MOST IMPORTANT DISCOVERIES
Nuclear factor-κB is activated during L-arginine-induced acute pancreatitis. The inhibition of NF-κB activation is beneficial in acute pancreatitis. Early mitochondrial injury precedes pancreatic trypsinogen and NF-κB activation in L-lysine-induced acute pancreatitis. We were the first to characterize the L-ornithine-induced acute pancreatitis model in rats. Cystic fibrosis transmembrane conductance regulator gene transfer to human cystic fibrosis pancreatic duct cells is associated with a restoration of Cl^- and HCO_3^- transport at the apical membrane.

PRIZES
"Best non-Hungarian language publication in gastroenterology and hepatology" - Rolf Madaus Foundation, Imre Magyar prize, Miklós György prize, NYCOMED publication prize in gastroenterology 2007, Tibor Kovács prize, Sigma prize, 1st place, certificate of merit for outstanding research activity – Advisory Board of the János Bolyai Fellowship of the Hungarian Academy of Sciences

MOST IMPORTANT PUBLICATIONS
1. Biczó G, Hegyi P, Dósa S, Shalbuyeva N, Berczi S, Sinervirta R, Hracskó Z, Siska A, Kukor Z, Járday K, Venglovecz V, Varga IS, Iványi B, Alhonen L, Wittmann T, Gukovskaya A, Takács T, Rakonczay Z Jr. The crucial role of early mitochondrial injury in L-lysine-induced acute pancreatitis. ***Antioxid Redox Signal*** 2011; 15:2669-81.
2. Rakonczay Z Jr, Hegyi P, Dósa S, Iványi B, Járday K, Biczó G, Hracskó Z, Varga IS, Karg E, Kaszaki J, Varró A, Lonovics J, Boros I, Gukovsky I, Gukovskaya AS, Pandol SJ, Takács T. A new severe acute necrotizing pancreatitis model induced by L-ornithine in rats. ***Crit Care Med*** 2008; 36:2117-27.
3. Rakonczay Z Jr, Hegyi P, Hasegawa M, Inoue M, You J, Iida A, Ignáth I, Alton EW, Griesenbach U, Óvári G, Vág J, Da Paula AC, Crawford RM, Varga G, Amaral MD, Mehta A, Lonovics J, Argent BE, Gray MA. CFTR gene transfer to human cystic fibrosis pancreatic duct cells using a sendai virus vector. ***J Cell Physiol*** 2008; 214:442-5.
4. Rakonczay Z Jr, Járday K, Kaszaki J, Mándi Y, Duda E, Hegyi P, Boros I, Lonovics J, Takács T. NF-κB activation is detrimental in arginine-induced acute pancreatitis. ***Free Radic Biol Med*** 2003; 34:696-709.

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RASKÓ, István

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Biol. Res. Center Acad. Sci. Hung. Inst. of Genetics – **Szeged, Hungary**

RESEARCH INTERESTS
Somatic cell genetics, human molecular genetics, archeogenetics.

MOST IMPORTANT DISCOVERIES
Somatic cell fusion, including plant- animal cell heterokaryons. DNA repair: repair characteristics is changing in differentiating mammalian cells. Human molecular genetics: established the molecular characteristics of Hungarian patients with Huntington disease, identified susceptibility loci for patients with idiopathic scoliosis. Archeogenetics: characterized the maternal and paternal lineages and pattern of lactose tolerance in ancient and recent Hungarian populations.

PRIZES
Medium cross of the Order of the Hungarian Republic
Price of the Acad. Sci. Hung.

MOST IMPORTANT PUBLICATIONS
1. Jakab K, Gardian G, Endreffy E, Kalmar T, Bachrati C, Vecsei L, Rasko I. Analysis of CAG repeat expansion in Huntington's disease gene (IT 15) in a Hungarian population ***Eur. Neurol.*** 1999; 41:107-10
2. Kalmar T, Bachrati C, Marcsik A, Rasko I. A simple and efficient method for PCR amplifiable DNA extraction from ancient bones ***Nucl. Acids Res.*** 2000;28:e67
3. Tomory G, Csanyi B, Bogacsi-Szabo E, Kalmar T, Czibula A, Csosz A, Priskin K, Mende B, Lango P, Downes CS, Rasko I. Comparison of maternal lineage and biogeographic analyses of ancient and modern Hungarian populations ***Am. J. Phys. Anthropol.*** 2007; 134:354-68
4. Csanyi B, Bogacsi-Szabo E, Tomory G, Czibula A, Priskin, Csosz A, Mende B, Lango P, Csete K, Zsolnai A, Conant EK, Downes CS, Rasko I. Y-chromosome analysis of ancient Hungarian and two modern Hungarian-speaking populations from the Carpathian Basin ***Ann. Hum. Genet.*** 2008; 72:519-34

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RASTOGI, Nalin

TUBERCULOSIS EVOLUTION

AFFILIATION

Tuberculosis & Mycobacteria Unit, WHO Supranational TB Reference Laboratory Institut Pasteur de la Guadeloupe, Guadeloupe – **Abymes, France**

RESEARCH INTERESTS

In Institut Pasteur de Guadeloupe he established the TB Unit in 1993 (designated as the WHO Supranational TB Reference Laboratory in 2009). Nominated to the "Faculty of 1000 Biology", he is a renowned expert on various aspects of TB: diagnostics, drug resistance, molecular epidemiology, taxonomy, and phylogeny, and is presently coordinating an international consortium on one of the biggest international TB genotyping databases.

MOST IMPORTANT DISCOVERIES

First evidence on the tripartite structure of the mycobacterial cell-wall and its role as exclusion barrier. Mechanisms of pathogenicity in mycobacteria and evidence for inhibition of fusion of lysosomal and prelysosomal compartments with phagosomes in macrophages infected with pathogenic mycobacteria. Mode of action of antimycobacterial drugs, establishment of first *in-vitro* assays of their intracellular bactericidal activity in cultured macrophages, and enhancement of drug susceptibility by inhibitors of cell envelope synthesis. Assays of extracellular and intracellular activities of macrolides, quinolones, rifamycins, and other newer drugs. Evaluation of PCR-based tests as adjunct to smears and culture for direct detection of *M. tuberculosis*, and detection of drug-resistance mutations. TB molecular epidemiology using IS*6110*-RFLP, spoligotyping, MIRU-VNTRs, SNPs, and construction of fingerprinting databases.

PRIZES

He has directed research of 112 scientists and trainees since 1986 (26 in postgraduate & doctoral programs). Author of 294 published papers (243 referenced in Medline), he obtained many distinctions, prizes & grants (best scientist's award in leprosy, grants from NATO, NIAID/NIH, French Ministries of Education & Research, French National AIDS Research Agency, European Union, etc.). He was elected as General Secretary of the European Society for Mycobacteriology (1993-1998), and is presently member of its Steering Committee.

MOST IMPORTANT PUBLICATIONS

1. Brudey K, Driscoll JR, Rigouts L, Prodinger WM, Gori A, Al-Hajoj SA et al. *Mycobacterium tuberculosis* complex genetic diversity: mining the fourth international spoligotyping database (SpolDB4) for classification, population genetics and epidemiology. ***BMC Microbiol.*** 2006; 6:23.
2. Filliol I, Motiwala AS, Cavatore M, Qi W, Hazbón MH, Bobadilla del Valle M et al. Global phylogeny of *Mycobacterium tuberculosis* based on single nucleotide polymorphism (SNP) analysis: insights into tuberculosis evolution, phylogenetic accuracy of other DNA fingerprinting systems, and recommendations for a minimal standard SNP set. ***J Bacteriol.*** 2006; 188:759-72.
3. Filliol I, Driscoll JR, van Soolingen D, Kreiswirth BN, Kremer K, Valétudie G et al. Snapshot of moving and expanding clones of *Mycobacterium tuberculosis* and their global distribution assessed by spoligotyping in an international study. J ***Clin Microbiol.*** 2003; 41:1963-70.
4. Sola C, Filliol I, Legrand E, Lesjean S, Locht C, Supply P, Rastogi N. Genotyping of the *Mycobacterium tuberculosis* complex using MIRUs: association with VNTR and spoligotyping for molecular epidemiology and evolutionary genetics. ***Infect Genet Evol.*** 2003; 3:125-33.

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RAVENS, Ursula (THEOPHILE)

CARDIOLOGY

AFFILIATION

Institut für Pharmakologie und Toxikologie Medizinische Fakultät Carl-Gustav Carus der TU Dresden – **Dresden, Germany**

RESEARCH INTERESTS

Electrical remodeling in cardiac disease (atrial fibrillation; heart failure). Functional role of cardiac ion channels; pharmacological modulation (antiarrhythmic drugs). Cardiac fibroblasts: cellular electrophysiology. Stem cells in regenerative cardiac therapy; reprogramming of adult cells. Pharmacology of the lower urinary tract.

MOST IMPORTANT DISCOVERIES

Cardiac stretch causes spontaneous activity in primate ventricular myocardium and hence is proarrhythmic. Inhibition of Na^+ channel inactivation with sea anbemone toxin ATX II produces prolongation in cardiac action potential duration and a positive inotropic effect. Heart failure and atrial fibrillation are associated with distinct electrophysiological properties of human ventricular and atrial cardiomyocytes. Distinct ion channel profile of block for individual antiarrhythmic drugs.

PRIZES

1968: Prize for best Medical Thesis, Albert-Ludwigs University Freiburg i.Br. • 1991: Honorary Professor of Cardiology, Military Postgrad. Medical School Beijing • 1995: FESC • 2001: FAHA • 2001: Member of the National Academy of Sciences (Leopoldina) • 2006: Member of the Senate and Grants Committees on Collaborative Research Centres of the German Research Foundation (DFG) • 2010: Medal of Merit, International Society for Heart Research, (European section) • 2010:Doctor honoris causa University of Szeged

MOST IMPORTANT PUBLICATIONS

1. Kaufmann R, Theophile U. Automatiefördernde Dehnungseffekte an Purkinje-Fäden, Papillarmuskeln und Vorhoftrabekeln von Rhesus-Affen. **Pflügers Arch** 1967; 297:174-189.
2. Isenberg G, Ravens U (1984) The effects of the Anemonia sulcata toxin (ATX II) on membrane currents of isolated mammalian myocytes. ***J Physiol*** (Lond) 1976; 357:127-149
3. Wettwer E, Amos GJ, Posival H, Ravens U. Transient outward current (Ito) in human ventricular myocytes of subepi- and subendocardial origin. ***Circ Res*** 1994; 75:473-482
4. Wettwer E, Hála O, Christ T, Heubach JF, Dobrev D, Knaut M, Varró, Ravens U. Role of IKur in controlling action potential shape and contractility in the human atrium: Influence of chronic atrial fibrillation. ***Circulation*** 2004; 110:2299-2306

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RAVIGLIONE, Mario

TUBERCULOSIS EVOLUTION

AFFILIATION
STB Dept. World Health Organization – **Geneva, Switzerland**

RESEARCH INTERESTS
Tuberculosis control strategies, surveillance & monitoring, drug resistance surveillance and response, epidemiology, operational research on management of MDR-TB, engagement of community organizations, TB/HIV care, public-private mix (PPM) approaches.

MOST IMPORTANT DISCOVERIES
Contributed to development of the WHO's DOTS strategy in 1993-94 and coordinated global promotion and implementation after 1998. Developed the new WHO's Stop TB Strategy in 2006, a comprehensive approach to TB control. Established the WHO global monitoring and evaluation system for TB (1995-96) and the WHO TB drug resistance surveillance project (1994). Established operational research on management of MDR-TB (1999), TB/HIV (2000), PPM (2000) resulting in major advances in TB control. Described potential regimens for treatment of latent infection in the mouse model (early 1990s). Described among the first the feasibility of preventive therapy among PLHIV (1995). Described first the crisis of TB control in Eastern Europe (1993).

PRIZES
1985: Special Award for Excellence in Patient Care, Cabrini Medical Center, New York,
1987: Special Resolution by Board of Trustees, Cabrini Medical Center, for combating malaria in Swaziland
2005: Princess Chichibu Memorial TB Global Award, by UNION and JATA, Paris, France
2010: Wolfheze Award, for adoption of modern TB control policies in Europe by KNCV, The Netherlands

MOST IMPORTANT PUBLICATIONS
1. Raviglione MC, Snider DE Jr, Kochi A. Global epidemiology of tuberculosis. Morbidity and mortality of a worldwide epidemic. ***JAMA*** 1995; 273:220-226.

2. Raviglione MC, Dye C, Schmidt S, Kochi A. Assessment of worldwide tuberculosis control. ***Lancet*** 1997; 350:624-629.

3. Raviglione MC, Pio A. Evolution of WHO policies for tuberculosis control, 1948-2001. ***Lancet*** 2002; 359:775-780

4. Raviglione MC, Uplekar M. WHO's new StopTB Strategy. ***Lancet*** 2006; 367: 952-955.

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RAVINGEROVA, Tatiana

CARDIOLOGY

AFFILIATION
Institute for Heart Research, Slovak Academy of Sciences, Department of Cardiovascular Physiology and Pathophysiology, **Bratislava, Slovakia**

RESEARCH INTERESTS
Pathophysiological mechanisms of ischemic and reperfusion injury of the heart, arrhythmias and sudden death. Myocardial protection of the heart against ischemia. Ischemic tolerance in the diabetic myocardium. Ischemic preconditioning, adaptation of the heart, molecular mechanisms of endogenous cardioprotection. Pleiotropic effects of hypolipidemic drugs.

MOST IMPORTANT DISCOVERIES
Absence of phase-2 ischemic arrhythmias in the *ex vivo* models of ischemia/reperfusion. Reperfusion-induced arrhythmias as an index of myocardial viability. Involvement of α1-adrenergic activation, NO and ROS signalling, activation of "survival" cascades of protein kinases (ERK1/2 and PI3K/Akt) and mitochondrial K(ATP) opening in the mechanisms of short-term endogenous cardioprotection conferred by ischemic preconditioning including infarct size limitation and reduced incidence of malignant arrhythmias. Anti-infarct protection due to adaptation to chronic hypoxia and the role of "survival" kinases. Increased resistance to ischemia in the experimental models of acute diabetic heart as an alternative *metabolic* form of preconditioning, with similar mechanisms as in the non-diabetic myocardium.

PRIZES
2000, 2002: Prize of the Slovak Physiological Society • 2001: Medal of the Slovak Cardiological Society & Slovak Medical Association
2005: Award of merit of the ISHR-European Section • 2007: Prize of The Physiological Society (UK) • 2010: Diploma of Honour - awarded by Medical Faculty, University of Pecs, Hungary, for long-lasting cooperation and contributions to ISMC Meetings in Hungary • 2011: Elected Fellow of the International Academy of Cardiovascular Sciences • 2011: Medal of the Slovak Physiological Society & Slovak Medical Association
2011: Medal of the Slovak Academy of Sciences

MOST IMPORTANT PUBLICATIONS
1. Ravingerová T, Tribulová N, Ziegelhöffer A, Styk J, Szekeres L. Suppression of reperfusion induced arrhythmias in the isolated rat heart: pretreatment with 7-oxo-prostacyclin in vivo. ***Cardiovasc Res*** 1993; 27:1051-1055.

2. Ravingerová T, Neckář J, Kolář F, Štetka R, Volkovová K, Ziegelhoffer A, Styk J. Ventricular arrhythmias following coronary artery occlusion in rats: Is diabetic heart less or more sensitive to ischemia? ***Basic Res Cardiol*** 2001; 96:160-168.

3. Ravingerová T, Barančík M, Strnisková M. Mitogen-activated protein kinases: a new therapeutic target in cardiac pathology. ***Mol Cell Biochem*** 2003; 247:127-138.

4. Ravingerová T, Adameová A, Kelly T, Antonopoulou E, Pancza D, Ondrejcáková M, Khandelwal VK, Čárnická S, Lazou A. Changes in PPAR gene expression and myocardial tolerance to ischaemia: relevance to pleiotropic effects of statins. ***Can J Physiol Pharmacol*** 2009; 87:1028-36.

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REDL, Heinz

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Ludwig Boltzmann Institute for experimental and clinical Traumatology – **Vienna, Austria**

RESEARCH INTERESTS
General: Diagnostic and therapeutic measures in trauma care.
Specific: Fibrin Matrix for cells and growth factors and its application methods. Adult STEM cells (including iPS)Preclinical Models for musculoskeletal/ neuro area and shock/sepsilmaging techniques for Tissue Engineering & Regenerative. MedicineTranslational Approaches.

MOST IMPORTANT PUBLICATIONS

1. Zhou T, Benda C, Duzinger S, Huang Y, Li X, Li Y, Guo X, Cao G, Chen S, Hao L, Chan YC, Ng KM, Ho JC, Wieser M, Wu J, Redl H, Tse HF, Grillari J, Grillari-Voglauer R, Pei D, Esteban MA. Generation of induced pluripotent stem cells from urine. ***J Am Soc Nephrol.*** 2011; 22:1221-8
2. Mittermayr R, Hartinger J, Antonic V, Meinl A, Pfeifer S, Stojadinovic A, Schaden W, Redl H. Extracorporeal shock wave therapy (ESWT) minimizes ischemic tissue necrosis irrespective of application time and promotes tissue revascularization by stimulating angiogenesis. ***Ann Surg***. 2011; 253:1024-32
3. Lindenmair A, Wolbank S, Stadler G, Meinl A, Peterbauer-Scherb A, Eibl J, Polin H, Gabriel C, van Griensven M, Redl H. Osteogenic differentiation of intact human amniotic membrane. ***Biomaterials***. 2010;31:8659-65
4. Esteban MA, Wang T, Qin B, Yang J, Qin D, Cai J, Li W, Weng Z, Chen J, Ni S, Chen K, Li Y, Liu X, Xu J, Zhang S, Li F, He W, Labuda K, Song Y, Peterbauer A, Wolbank S, Redl H, Zhong M, Cai D, Zeng L, Pei D. Vitamin C enhances the generation of mouse and human induced pluripotent stem cells. ***Cell*** Stem Cell. 2010; 6:71-9.

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REUTER, Gunter

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Developmental Genetics, Martin-Luther-University Halle-Wittenberg, – **Halle/Saale, Germany**

RESEARCH INTERESTS
Epigenetics, Control of heterochromatin formation and gene silencing in Drosophila and Arabidopsis.

MOST IMPORTANT DISCOVERIES
Identification of evolutionary conserved epigentics factors controlling heterochromatin formation.

MOST IMPORTANT PUBLICATIONS

1. Reuter G, Giarre M, Farah J, Gausz J, Spierer A, Spierer P. Dependence of position-effect variegation in Drosophila on dose of a gene encoding an unusual zinc-finger protein. ***Nature*** 1990; 344: 219-23.
2. Schotta G, Ebert A, Krauss V, Fischer A, Hoffmann J, Rea S, Jenuwein T, Dorn R, Reuter G. Central role of Drosophila SU(VAR)3-9 in histone H3-K9 methylation and heterochromatic gene silencing. ***EMBO J.*** 2002; 21: 1121-31.
3. Rudolph T, Yonezawa M, Lein S, Heidrich K, Kubicek S, Schäfer C, Phalke S, Walther M, Schmidt A, Jenuwein T, Reuter G. Heterochromatin formation in Drosophila is initiated throughactive removal of H3K4 methylation by the LSD1 homolog SU(VAR)3-3. ***Mol. Cell*** 2007; 26: 103-15.
4. Phalke S, Nickel O, Wallusche D, Hortig F, Onorati MC, Reuter G. Epigenetic control of retrotransposon silencing and telomere integrity in somatic cells of Drosophila depends on the cytosine 5 methyltransferase DNMT2. ***Nature Genet.*** 2009; 41: 696-702.

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RIEDERER, Peter Franz

NEUROSCIENCE

AFFILIATION

Universitätsklinikum Würzburg, Klinik für Psychiatrie, Klinische Neurochemie – **Würzburg, Germany**

RESEARCH INTERESTS

My major research interests are devoted to elucidate the etiopathogenesis of neurodegenerative disorders, in particular Parkinson's Disease (PD) and Alzheimer dementia. Following a more general concept the studying of early symptoms and comorbidities in these disorders, like depression or diabetes type II became a recent focus of my scientific interest. Neurochemical, molecular biological and –genetic approaches are of interest to clarify the underlying mechanisms of these „spectrum disorders".

MOST IMPORTANT DISCOVERIES

1974: Proposal to MBH Youdim to use L-deprenyl (selegiline; MAO-B inhibitor) for the treatment of PD (publication in 1975) • Mid 1980ths: L-deprenyl be „neuroprotective" • 1973: Concept of „iron-toxicity" in PD, with MBH Youdim; increased iron in the substantia nigra (SN) of PD (1985-1989) • 1989: Respiratory chain deficiency in the SN of PD with Heinz Reichmann • 1990: Concept: Association of iron and neuromelanin (NM) with MBH Youdim; • 1995-2011: NM in blood as an early PD marker with Manfred Gerlach, Kay Double and Carsten Scheller • 1989–1991: Aminoadamantanes are glutamatergic NMDA-receptor channel antagonists (Johannes Kornhuber) • 1986: Initiator of a human pm-brain bank in Würzburg; the basis of the current german brain bank system (H. Kretzschmar, Munich) • 1985–1987: First transmitter changes in RETT-syndrome (with T. Brücke and E. Sofic)

PRIZES

2005: Honorary Member of the Austrian Alzheimer Society • 2006: Honorary President of the German Soc. Biol. Psychiatry • 2007: Honorary President of the German Parkinson Society • 2007: Honorary Member of the Hungarian Academy Sciences • 2007: Honorary Member of the National Academy Sciences, Leopoldina • 2008: Honorary Doctor degree of the Univ.-Catalunya, Barcelona

MOST IMPORTANT PUBLICATIONS

1. Birkmayer W, Riederer P, Youdim MBH, Linauer W. The potentation of the anti-akinetic effect after L-Dopa treatment by an inhibitor of MAO-B, Deprenil. ***J Neural Transm*** 1975; 36:303-326
2. Birkmayer W, Knoll J, Riederer P, Youdim MBH, Hars V, Marton J. Increased life expectancy resulting from addition of L-deprenyl to Madopar treatment in Parkinson's disease: A longterm study. ***J Neural Transm*** 1985; 64:113-127
3. Kornhuber J, Bormann J, Retz W, Hübers M, Riederer P. Memantine displaces [3H]MK-801 at therapeutic concentrations in postmortem human frontal cortex. ***Eur J Pharmacol*** 1989; 166:589-590
4. Riederer P, Sofic E, Rausch WD, Schmid B, Reynolds GP, Jellinger K, Youdim MBH. Transition metals, ferritin, glutathione and ascorbic acid in Parkinsonian Brains. ***J Neurochem*** 1989; 52:515-520

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RIHMER, Zoltán

NEUROSCIENCE

AFFILIATION

Department of Clinical and Theoretical Mental Health and Department of Psychiatry and Psychotherapy, Semmelweis University – **Budapest, Hungary**

RESEARCH INTERESTS

Clinical, biological/genatical and epidemiologcal aspects of mood and anxiety disorders with particular regard to prediction of treatment-response and prediction and prevention of suicide. Relationship berween personality and mood disorders. Interface between psychiatry and cardiology.

MOST IMPORTANT DISCOVERIES

The two major forms of bipolar disorder (bipolar I and bipolar II disorders) are not only clinically, but also biologically distinct forms that need different treatment strategies. Out of the all clinical manifestations of depressive disorders, bipolar disorder in general, and bipolar II disorder in particular, carry the highest risk of suicidal behaviour. Agitation in the frame of major depressive episode is the consequence of intradepressive hypomanic symptoms, therefore agitated major depression belongs to the broader bipolar affective spectrum. Early recognition and appropriate pharmacotherapy of bipolar depression reduces the risk of antidepressant-induced activation syndrome/suicidal behaviour. Postgraduate training of GPs and other doctors on the diagnosis, treatment and referral of depressive disorders is a appropriate method for reducing suicidal behaviour int he given population.

PRIZES

1999: Brickell Suicide Research Award (Columbia University, New York) • 2005: Award of the Presidency of Hungarian Psychiatric Association • 2010: Premio Aretaeus of the Associazione per lo studio della malatia maniaco-depressiva • 2010: Dr. Szabó György Award, Hemingway Foundation • 2011: Lifetime Achivement Award (European Bipolar Forum)

MOST IMPORTANT PUBLICATIONS

1. Rihmer Z, Rutz W, Barsi J. Suicide rate, prevalence of diagnosed depression and precalence of working physicians in Hungary, ***Acta Psychiat. Scand.*** 1993; 88:391-394.
2. Rihmer Z, Rutz W, Pihlgren H. Depression and suicide on Gotland. An intensive study of all suicides before and after a depression-training programme for general practitioners, ***J. Affect. Disord***. 1995; 35:147-152,
3. Rihmer Z, Akiskal HS. Do antidepressantd t(h)reat(en) depressives? Toward a clinically judicious formulation of the antidepressant-suicidality FDA advisory in lihjt of declining national suicide statistics from many countries. ***J Affect Disord***, 2006; 94:3-13.
4. Rihmer Z, Gonda X, Döme P, Erdős P, Ormos M, Pani L. Novel approaches to the drug-placebo difference calculation. Evidence from short-term antidepressant drug-trials. ***Human Pharmacology. Experimental and Clinical*** 2011 Jul 14 [Epub, ahead of print]

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ROBERTS, Charlotte A.

TUBERCULOSIS EVOLUTION

AFFILIATION
Department of Archaeology, Durham University – **Durham, UK**

RESEARCH INTERESTS
Bioarchaeological approaches to interpreting human health (palaeopathology), and the use of medical anthropology and evolutionary medicine to interpret these data; Evolutionary approaches to infectious diseases in antiquity (tuberculosis, leprosy, treponemal disease) and the impact of the environment on their prevalence; The use of scientific methodology (physical and chemical techniques) to answer specific questions in bioarchaeology, including biomolecular analysis (isotopes and aDNA).

MOST IMPORTANT DISCOVERIES
Radiographic interpretations of trauma to explore treatment in antiquity. Differential diagnostic criteria for tuberculosis in skeletal remains; synthetic analyses of health in Britain through time, and the bioarchaeology of tuberculosis; revisions in interpretations of the treatment of those with leprosy in the past; bioarchaeological interpretations of the impact of environment on maxillary sinusitis.

PRIZES
Doctoral supervision and teaching excellence awards; personal research fellowships from the Nuffield Foundation and the Leverhulme Trust (UK)

MOST IMPORTANT PUBLICATIONS
1. Roberts CA, Manchester K. The Archaeology of Disease. 3rd edition. Gloucester, Sutton Publishing, and Ithaca, ***Cornell University Press*** 2005
2. Roberts CA, Cox M.Health and disease in Britain: from prehistory to the present day. ***Stroud***, Sutton Publishing 2003
3. Roberts C, Buikstra JE. The bioarchaeology of tuberculosis: a global view on a re-emerging disease. Gainesville, ***University Press of Florida***. 2003
4. Roberts CA, Lewis ME, Manchester K (eds)The past and present of leprosy. Archaeological, historical, palaeopathological and clinical approaches. Proceedings of the International Congress on the Evolution and palaeoepidemiology of the infectious diseases 3 (ICEPID), University of Bradford, 26th-31st July 1999. ***British Archaeological Reports*** 2002; International Series 1054. Oxford, Archaeopress

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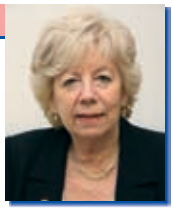
RŐTH, Erzsébet

CARDIOLOGY



AFFILIATION
University of Pécs, Faculty of Medicine – **Pécs, Hungary**

RESEARCH INTERESTS
The role of free radicals in heart ischemia and reperfusion and endogenous adaptation.Effect of antioxidants on neutrophil superoxide production during reperfusion.Investigation of antioxidant effect of anthiarrhytmic drug in animal experiments. Pre-and postconditioning and free radicals as a trigger of endogenous adaptation. Redox regulation and oxidative stress.

MOST IMPORTANT DISCOVERIES
Following experimental heart ischemia there is an increase of free radical mediated lipidperoxidation parallel with reduced activity of antioxidant enzymes depending the former ischemic time. The area of dying heart muscle can be significantly reduced by antioxidant administered in early reperfusion. In a pig model demonstrated the free radical and bradykinin as atrigger of preconditioning. The model of pre-and postconditiononof isolated myocytes was created verifying the protective effect of neuropeptid urocortin and PACAP.

PRIZES
2003: Charles Simonyi Research Award
2003: University Teacher of Excellence
Award of International Academy of Cardiovascular Sciences, for Cardiological Research.

MOST IMPORTANT PUBLICATIONS
1. Rőth E, Török B, Zsoldos T, Matkovics B. Lipid peroxidation and scavenger mechanisms in experimentally induced heart infarct. ***Bas Res Cardiol*** 1985; 80:530-536.
2. Rőth E, Kelemen D, Török B, Nagy S, Pollák Z. Dynamics of prostacyclin and thromboxane during myocardial ischemia. ***Prog Clin Biol Res*** 1989; 308:907-911.
3. Rőth E, Jaberansari MT. Reactive oxygen species in early and delayed cardiac adaptation. ***Exp Clin Cardiol*** 2001; 6:81-86.
4. Rőth E, Hejjel L. Oxygen free radicals in heart disease. In Cardiac Drug Development Guide. Ed. MK Pugsley, ***Humana Press Inc., Totowa NJ***. 2003; 47-66.

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RUZICKA, Thomas

IMMUNNOLOGY & INFLAMMATION

AFFILIATION

Department of Dermatology and Allergology, Ludwig-Maximilian-University Munich – **München, Germany**

RESEARCH INTERESTS

Pathobiochemistry and molecular biology of cutaneous inflammation. Molecular pathophysiology of atopic eczema, psoriasis, cutaneous lupus erythematosus. Mechanism of action of antinflammatory drugs. Interaction of skin and environment. UV-induced carcinogesesis and molecular biology of basalecell carcinoma.

MOST IMPORTANT DISCOVERIES

Introduction of Tacrolimus and Alitretinoin into the treatment of common skin diseases. Insights into the role of Eicosanoids in the skin. Disovery of S-10015 and hurpin in inflamed skin. Description of Interleukin-8 receptor in the skin. Discovery of molecular defects in several genetic skin diseases.

PRIZES

1988: Oscar Gans Award • 1996: Kaposi Medal • 1996: Honorary medal, University Helsinki • 1998: Paul Martini Award • 1999: Leo Brandt Lecture, Academy of Sciences, Northrhine Westfalia, 1999 • 2001-2002: Lady-Davis Visiting Professorship, Hebrew University Jerusalem • 2005: Honorary medal, Charles University Prague • 2009: Gold medal, Czech Medical Society, Purkynje • 2010: Honorary medal University Vilnius

MOST IMPORTANT PUBLICATIONS

1. Ruzicka T, Bieber T, Schöpf E, Rubins A, Dobozy A, Bos J, Jablonska S, Ahmed I, Thestrup-Pedersen K, Daniel F, Finzi A, Reitamo S A short-term trial of tacrolimus ointment for atopic dermatitis. ***N Engl J Med***, 1997; 337:816-21.
2. Michel G, Mirmohammadsadegh A, Olasz E, Jarzebska-Deussen B, Müschen A, Kemény L, Abts H, Ruzicka T Demonstration and functional analysis of IL-10 receptors in human epidermal cells: Decreased expression in psoriatic skin, down-modulation by IL-8, and up-regulation by an antipsoriatic glucocorticosteroid in normal cultured keratinocytes ***J Immunol*** 1997; 159: 6291-6297
3. Schön M, Ruzicka T Psoriasis: the plot thickens ***Nature Immunol*** 2001; 2:91
4. Homey B, Alenius H, Müller A, Soto H, Bowmann E, Yuan W, McEvoy L, Lauerma A, Assmann T, Bünemann E, Lehto M, Wolff H, Yen D, Marxhausen H, To W., Sedgwick J, Ruzicka T, Lehmann P, Zlotnik A CCL27-CCR10 interactions regulate T cell-mediated skin inflammation ***Nature Med*** 2002; 8:157-165

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SAHIN-TÓTH, Miklós

GASTROENTEROLOGY

AFFILIATION

Department of Molecular and Cell Biology, Boston University – **Boston, USA**

RESEARCH INTERESTS

My research interest focuses on the molecular mechanisms of the genetic risk factors associated with human chronic pancreatitis, a destructive and painful inflammatory disorder of the pancreas. Genetic alterations that increase the risk to chronic pancreatitis have been found in genes that encode pancreatic digestive proteases or their inhibitor. My studies combine biochemical and cell biological approaches with data obtained from human genetic association studies to formulate a molecular disease model that explains genetic susceptibility to chronic pancreatitis.

MOST IMPORTANT DISCOVERIES

The most significant achievement of my research program is the discovery of the trypsin-dependent pathological pathway in human chronic pancreatitis. Through identification of genetic risk factors and elucidation of their mechanism of action we demonstrated that chronic pancreatitis is caused by a sustained imbalance between premature, intrapancreatic trypsinogen activation and protective mechanisms responsible for trypsin inactivation. Specifically, we showed that hereditary pancreatitis-associated mutations in cationic trypsinogen (PRSS1) stimulate autoactivation of trypsinogen to trypsin, whereas mutations in the pancreatic secretory trypsin inhibitor (SPINK1) reduce inhibitor expression. More recently, we identified the digestive enzyme chymotrypsin C (CTRC) as a regulator of trypsinogen activation and discovered that loss-of-function mutations in the CTRC gene predispose to chronic pancreatitis.

MOST IMPORTANT PUBLICATIONS

1. Rosendahl J, Witt H, Szmola R, Bhatia E, Ózsvári B, Landt O, Schulz H-U, Gress TM, Pfützer R, Löhr M, Kovacs P, Blüher M, Stumvoll M, Choudhuri G, Hegyi P, te Morsche RHM, Drenth JPH, Truninger K, Macek M Jr., Puhl G, Witt U, Schmidt H, Büning C, Ockenga J, Kage A, Groneberg DA, Nickel R, Berg T, Wiedenmann B, Bödeker H, Keim V, Mössner J, Teich N, Sahin-Tóth M. (2008) Chymotrypsin C (CTRC) alterations that diminish activity or secretion are associated with chronic pancreatitis. ***Nat Genet*** 2008, 40:78-82
2. Szmola R, Sahin-Tóth M. Chymotrypsin C (caldecrin) promotes degradation of human cationic trypsin: Identity with Rinderknecht's enzyme Y. ***Proc Natl Acad Sci USA*** 2007, 104:11227-11232
3. Witt H, Sahin-Tóth M, Landt O, Chen JM, Kahne T, Drenth JP, Kukor Z, Szepessy E, Halangk W, Dahm S, Rohde K, Schulz HU, Le Marechal C, Akar N, Ammann RW, Truninger K, Bargetzi M, Bhatia E, Castellani C, Cavestro GM, Cerny M, Destro-Bisol G, Spedini G, Eiberg H, Jansen JB, Koudova M, Rausova E, Macek M Jr, Malats N, Real FX, Menzel HJ, Moral P, Galavotti R, Pignatti PF, Rickards O, Spicak J, Zarnescu NO, Bock W, Gress TM, Friess H, Ockenga J, Schmidt H, Pfutzer R, Lohr M, Simon P, Weiss FU, Lerch MM, Teich N, Keim V, Berg T, Wiedenmann B, Luck W, Groneberg DA, Becker M, Keil T, Kage A, Bernardova J, Braun M, Guldner C, Halangk J, Rosendahl J, Witt U, Treiber M, Nickel R, Ferec C. A degradation-sensitive anionic trypsinogen (PRSS2) variant protects against chronic pancreatitis. ***Nat Genet*** 2006; 38:668-673
4. Sahin-Tóth M, Tóth M. Gain-of-function mutations associated with hereditary pancreatitis enhance autoactivation of human cationic trypsinogen. ***Biochem Biophys Res Commun*** 2000; 278:286-289

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SAKMANN, Bert

NOBEL LAUREATE

AFFILIATION
Max Planck Florida Institute – **Jupiter, USA**

RESEARCH INTERESTS
Three-dimensional anatomy and synaptic wiring of thalamocortical and cortical circuits.
Reconstruction and simulation of anatomically realistic neuronal network models.
Thalamic activation of neurons in cortical columns.
Functional anatomy of somatosensory cortex.

MOST IMPORTANT DISCOVERIES
Proof of channel concept by recording single channel currents.
Backpropagation of APs into cortical dendrites.
Spike time dependent plasticity in cortical neurons.
Coincidence detection mechanisms in cortical neurons.
Calcium dynamics at release sites of brain presynaptic terminals.

PRIZES
1991: Nobel prize in Medicine or Physiology, shared with E. Neher

MOST IMPORTANT PUBLICATIONS
1. Neher E, Sakmann B. Single-channel currents recorded from membrane of denervated frog muscle fibres. ***Nature*** 1976; 260:799-802.
2. Colquhoun D, Sakmann B. Fast events in single channel currents activated by acetylcholine and its analogues at the frog muscle end-plate. ***J. Physiol***. 1985; 369:501-557.
3. Stuart GJ, Sakmann B. Active propagation of somatic action potentials into neocortical pyramidal cell dendrites. ***Nature*** 1994; 367:69-72.
4. Nevian T, Sakmann B. Single spine Ca^{2+} signals evoked by coincident EPSPs and backpropagating action potentials in spiny stellate cells of layer 4 in the juvenile rat somatosensory barrel cortex. ***J. Neurosci***. 2004; 24:1689-1699.

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SALUJA, Ashok K.

GASTROENTEROLOGY

AFFILIATION
Division of Basic and Translational Research, Department of Surgery, University of Minnesota – **Minneapolis, USA**

RESEARCH INTERESTS
My research focuses on the molecular mechanisms of acute pancreatitis and pancreatic cancer with special emphasis on the role of heat shock proteins. Pancreatitis is a destructive, painful and potentially lethal inflammatory disorder of the pancreas in which heat shock proteins play a protective role. Pancreatic cancer, on the other hand, is a disease with high mortality in which treatment resistance is caused, to a large extent, by heat shock proteins. Our aim is to find novel treatments which exploit the disease-specific idiosyncratic effects of heat shock proteins.

MOST IMPORTANT DISCOVERIES
We showed that acute pancreatitis is initiated by co-localization of zymogen granules with lysosomes inside the acinar cells where cathepsin B activates trypsinogen. We demonstrated, by generating the first trypsinogen knockout mouse model, that trypsin activation is responsible for only some of the cell injury, whereas the rest comes from inflammation. We demonstrated that HSP70 expression is very effective at reducing the growth of pancreatic tumors. We developed strategies to extend these findings into the clinical setting, including the development of novel pharmacologic inhibitors of HSP70 expression. We demonstrated that HSP70 inhibits apoptosis by two independent yet simultaneous means: by attenuating intracellular calcium and by stabilizing the lysosomes.

MOST IMPORTANT PUBLICATIONS
1. Dawra R, Sah RP, Dudeja V, Rishi L, Talukdar R, Garg P, Saluja AK. Intra-acinar trypsinogen activation mediates early stages of pancreatic injury but not inflammation in mice with acute pancreatitis. ***Gastroenterology***, 2011; 141:2210-2217
2. Mujumdar N, Mackenzie TN, Dudeja V, Chugh R, Antonoff MB, Borja-Cacho D, Sangwan V, Dawra R, Vickers SM, Saluja AK. Triptolide induces cell death in pancreatic cancer cells by apoptotic and autophagic pathways. ***Gastroenterology***, 2010; 139:598-608
3. Dudeja V, Mujumdar N, Phillips P, Chugh R, Borja-Cacho D, Dawra RK, Vickers SM, Saluja AK. Heat shock protein 70 inhibits apoptosis in cancer cells through simultaneous and independent mechanisms. ***Gastroenterology***, 2009; 136:1772-1782
4. Phillips PA, Dudeja V, McCarroll JA, Borja-Cacho D, Dawra RK, Grizzle WE, Vickers SM, Saluja AK. Triptolide induces pancreatic cancer cell death via inhibition of heat shock protein 70. ***Cancer Res***, 2007; 67:9407-9416

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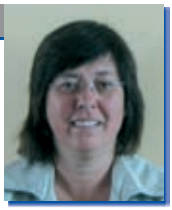
SANTOS, Ana Luisa

TUBERCULOSIS EVOLUTION



AFFILIATION
CIAS and Department of Life Sciences, University of Coimbra – **Coimbra, Portugal**

RESEARCH INTERESTS
Multidisciplinary approach to the study of human skeletal remains, articulating data obtained directly from macroscopic and radiological observations with information from secondary sources, such as documents, archives and iconographies. Evolution of diagnosis, therapeutic and prevention of diseases in the last millennia such as the changes of behaviours and exclusion of patients from society.

MOST IMPORTANT DISCOVERIES
Possible relation between new bone formation in ribs and different types of pulmonary diseases.

MOST IMPORTANT PUBLICATIONS
1. Umbelino C, Santos AL. Portugal. In: Márquez-Grant N, Fibiger L. (eds). The Routledge handbook of archaeological human remains and legislation: an international guide to laws and practice in the excavation and treatment of archaeological human remains. ***London, Routledge*** 2011; 341-352.
2. Santos A L, Alves Cardoso F, Assis S, Villotte S. The Coimbra Workshop in Musculoskeletal Stress Markers (MSM): annotated review and outcomes. ***Antropologia Portuguesa***, 2011; 28:135-161.
3. Matos V, Santos AL. On the trail of pulmonary tuberculosis based on rib lesions: results from the Human Identified Skeletal Collection from the Museu Bocage (Lisbon, Portugal). ***American Journal of Physical Anthropology***, 2006; 130:190-200.
4. Santos AL, Roberts C. Anatomy of a serial killer: differential diagnosis of tuberculosis based on rib lesions of adult individuals from the Coimbra Identified Skeletal Collection, Portugal. ***American Journal of Physical Anthropology***, 2006; 130:38-49.

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SARKADI, Balázs

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Hungarian Academy of Sciences, Membrane Research Group – **Budapest, Hungary**

RESEARCH INTERESTS
Investigation of biological membrane transport processes, focusing on membrane ABC transporters, which play a major role in the multidrug resistance of cancer, in general pharmacology, and in stem cell function. Generation of new diagnostic methods for the quantitative functional analysis of ABC proteins. Development of compounds to specifically and selectively modulate the function of ABC transporters. Studying membrane transporters and calcium signaling in human pluripotent stem cells.

MOST IMPORTANT DISCOVERIES
Regulation of the active calcium transport in the plasma membrane of human cells by calmodulin, proteolytic cleavage and acidic lipids. Description of key transporters involved in the volume regulation of human cells. Development of functional diagnostic methods for studying human ABC multidrug transporters. Generation and characterization of expression systems for human ABC transporters. Demonstration of the expression of ABCG2 multidrug transporter in human embryonic stem cells.

PRIZES
1995-2005: Howard Hughes International Scholar • 2003: Academy Award, Hungary • 2006: Denis Gabor Award
2004: Membership, Hungarian Academy of Sciences

MOST IMPORTANT PUBLICATIONS
1. Elkind NB, Szentpétery Z, Apáti A, Özvegy-Laczka C, Várady G, Ujhelly O, Szabó K, Homolya L, Váradi A, Buday L, Kéri G, Német K, Sarkadi B. The multidrug transporter ABCG2 prevents tumor cell death induced by the EGF receptor inhibitor Iressa (ZD1839, Gefitinib). ***Cancer Research*** 2005; 65:1770-1777
2. Sarkadi B, Homolya L, Szakács G and Váradi A. Physiological role of the human multidrug resistance ABCB and ABCG transporters: participation in a chemoimmunity defense system. ***Physiol. Rev.*** 2006; 86:1179-1236
3. Hegedűs C, Szakács G, Homolya L, Orbán TI, Telbisz Á, Jani M, and Sarkadi B. Ins and outs of the ABCG2 multidrug transporter: an update of in vitro functional assays. ***Advanced Drug Delivery Reviews*** 2009; 61:47–56
4. Sarkadi B, Szakács G. Understanding transport through pharmacological barriers--are we there yet? ***Nat Rev Drug Discov.*** 2010; 9:897-898

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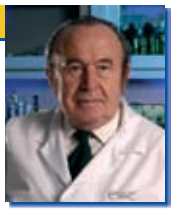
SCHALLY, Andrew V

NOBEL LAUREATE



AFFILIATION
Veterans Affairs Medical Center, Research Service, Department of Pathology, Division of Hematology/Oncology and Division of Endocrinology Department of Medicine Miami VA Medical Center – **Miami, USA**

RESEARCH INTERESTS
Peptide analogs with antitumor activity, including various GHRH, LHRH and Bombesin/GRP antagonists and targeted cytotoxic analogs of LHRH, somatostatin and bombesin the so-called Magic Bullets. Effects of peptide analogs on various cancers, including prostate cancer, pancreatic cancer, gastric cancer, colon cancer, malignant brain tumors, lung cancer (SCLC and non-SCLC), renal cancer and osteosarcomas, melanomas, hepatocellular carcinoma and lymphomas, breast cancers, ovarian cancers and endometrial cancers. Endocrinology and oncology of peptides. Agonists of GHRH.

MOST IMPORTANT DISCOVERIES
Received the Nobel Prize in Medicine in 1977 for his discoveries of the hypothalamic hormones TRH, LHRH, and somatostatin. Developed agonistic and antagonistic analogs of LHRH. Developed the present therapy for men with advanced hormone-dependent prostate cancer based on LHRH agonists. Discovered a beneficial effect of LHRH antagonist Cetrorelix in various conditions. Developed targeted cytotoxic peptide analogs of LHRH, bombesin, and somatostatin. Discovered the receptors for growth hormone-releasing hormone (GHRH) on tumors. Developed antagonists of GHRH for treatment of various cancers. Developed agonists of GHRH for cardiac applications.

PRIZES
1974: Charles Mickle Award of the Faculty of Medicine, University of Toronto • 1974: Gairdner Foundation International Award, Toronto, Canada • 1975: Albert Lasker Basic Medical Research Award of the Albert and Mary Lasker Foundation • 1977: Nobel Prize in Physiology or Medicine • 1989: The Heath Memorial Award from the M.D. Anderson Cancer Center, Houston, Texas • 2004: Légion d'Honneur, Chevalier Grade, France

MOST IMPORTANT PUBLICATIONS
1. Schally AV, Arimura A, Kastin AJ, Matsuo H, Baba Y, redding TW, Nair RMG, Debeljuk L, and White WF. The Gonadotropin-releasing hormone: one polypeptide regulates the secretion of luteinizing and follicle-stimulating hormone. ***Science*** 1971; 173:1036-1038
2. Schally AV, Kastin AJ, and Arimura A. Hypothalamic FSH and LH-regulating hormone: Structure, physiology and clinical studies. ***Fertil Steril*** 1971; 22:703-721
3. Tolis G, Ackman D, Stellos A, Mehta A, Labrie F, Fazekas A, Comaru-Schally AM, Schally AV. Tumor growth inhibition in patients with prostatic carcinoma treated with luteinizing hormone-releasing hormone agonists. ***Proc Natl Acad Sci USA*** 1982; 79:1658-1662
4. Schally AV, Varga JL. Antagonistic analogs of growth hormone-releasing hormone: New potential antitumor agents. ***Trends in Endocrinology and Metabolism*** 1999; 10:383-391

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SCHMIDTKE, Jörg

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Department of Human Genetics, Hannover Medical Scchool – **Hannover, Germany**

RESEARCH INTERESTS
One research focus is on Marfan Syndrome and related disorders, another one deals with TSPY and TSPY-related genes. Over the last years he has become active in genetic health care research and participated in several EU-funded projects devoted to this field including CAGSE, GenEd, Capability, Orphanet, and Eurogentest. He is editor-in-chief of the new "Journal of Community Genetics", and section editor for the "Clinical Utility Gene Cards" in the European Journal of Human Genetics.

MOST IMPORTANT DISCOVERIES
Contributing to mapping the cystic fibrosis locus. Identification of the TSPY locus and the TSPY gene family. Relationship between social rank and reproductive success in primates.

PRIZES
1981-1983: Heisenberg fellow of the Deutsche Forschungsgemeinschaft
1987: Research Prizes of the German Society of Human Genetics and the German Cystic Fibrosis Society

MOST IMPORTANT PUBLICATIONS
1. Cooper DN, Smith BA, Cooke HJ, Niemann S, Schmidtke J. An estimate of unique DNA sequence heterozygosity in the human genome. ***Hum Genet*** 1985; 69:201-5.
2. Wainwright BJ, Scambler PJ, Schmidtke J, Watson EA, Law HY, Farrall M, Cooke HJ, Eiberg H, Williamson R. Localization of cystic fibrosis locus to human chromosome 7cen-q22. ***Nature*** 1985; 318:384-5.
3. Schnieders F, Dörk T, Arnemann J, Vogel T, Werner M, Schmidtke J. Testis-specific protein, Y-encoded (TSPY) expression in testicular tissues. ***Hum Mol Genet*** 1996; 5:1801-7.
4. Berard JD, Nurnberg P, Epplen JT, Schmidtke J. Alternative reproductive tactics and reproductive success in male rhesus macaques. ***Behaviour*** 1994; 129:177-201.

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SCHMIDT-SCHULTZ, Tyede H

TUBERCULOSIS EVOLUTION

AFFILIATION
Abteilung Biochemie -I, Zentrum Biochemie der UMG, Universität Göttingen – **Göttingen, Germany**

RESEARCH INTERESTS
Proteomic (ECM's) in ancient and recent macerated bones; Paleopathology: nature, etiology and epidemiology of diseases in past populations; molecular neurobiology.

MOST IMPORTANT DISCOVERIES
Evidence of extracellular matrix proteins in recent and ancient human bone; special factors for myelination of oligodendrocytes in the Göttingen minipig; evidence of special proteins in the nucleus of lymphoma cells.

MOST IMPORTANT PUBLICATIONS
1. Schultz M, Parzinger H, Posdnjakov DV, Chikisheva TA, Schmidt-Schultz TH. Oldest known case of metastasizing prostate carcinoma diagnosed in the skeleton of a 2,700-year-old Scythian king from Arzhan (Siberia, Russia). ***Int J Cancer 2007***; 121:2591-2595.
2. Schmidt-Schultz TH, Schultz M. Intact growth factors are conserved in the extracellular matrix of ancient human bone and teeth: a storehouse for the study of human evolution in health and disease. ***Biol Chem*** 2005; 386:767-776.
3. Schmidt-Schultz TH, Schultz M. Bone protects proteins over thousands of years: extraction, analysis, and interpretation of extracellular matrix proteins in archaeological skeletal remains. ***Am J Phys Anthropol*** 2004; 123:30-39.
4. Schmidt-Schultz TH, Althaus HH. Monogalactosyl diglycerid a marker for myelination, activates oligodendroglial protein kinase ***C. J. Neurochem*** 1994; 62:1578-1585.

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SCHULTZ, Michael

TUBERCULOSIS EVOLUTION

AFFILIATION
AG Paläopathologie, Zentrum Anatomie der UMG, Universität Göttingen – **Göttingen, Germany**

RESEARCH INTERESTS
Paleopathology: nature, etiology and epidemiology of diseases in past populations; paleohistology; proteomic (ECM's) in ancient bones; functional and clinical anatomy; comparative and functional anatomy of the primate skeleton; paleoantrophology; archaeology of the prehistoric Indians of the North American Southwest and Mexico.

MOST IMPORTANT DISCOVERIES
Evidence of meningeal reactions on the internal lamina of macerated skulls including changes due to tuberculous meningitis; differentiation between the different diseases (e.g., anemia, scurvy, rickets, osteomyelitis, periostitis) causing porotic hyperostosis of the skull vault (*cribra cranii*) and the orbital roof (*cribra orbitalia*) using microscopy; epidemiology of the diseases of the infant and child age in prehistoric and protohistorical populations; evidence of special morphological features due to locomotion in the primate forelimb, particularly the hand.

MOST IMPORTANT PUBLICATIONS
1. Schultz M. Light microscopic analysis of macerated pathologically changed bones. In: Crowder C, Stout S (eds) Hard Tissue Histology: An Anthropological Perspective. ***CRC Press*** 2011, Boca Raton / New York / London, pp. 253-295.
2. Schultz M. Results of the anatomical-paleopathological investigations on the Neanderthal skeleton from the Kleine Feldhofer Grotte (1856) including the new discoveries from 1997/2000. In: Schmitz RW (ed) Neanderthal 1856 – 2006. Rheinische Ausgrabungen 58. Mainz 2006, Philipp von Zabern Verlag, pp. 277-318.
3. Schultz M. Paleohistopathology of bone: A new approach to the study of ancient diseases. ***Am J Phys Anthropol*** 2001, 33:106-147.
4. Schultz M. The forelimb of the Colobinae. In: Swindler DR, Erwin J (eds) ***Comparative Primate Biology***, Band 1: Systematics, Evolution, and Anatomy. New York 1986, Alan R Liss, Inc, pp. 559-669.

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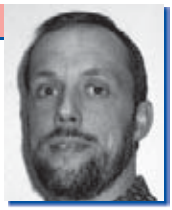
SCHULZ, Rainer

CARDIOLOGY



AFFILIATION

Physiologisches Institut Justus-Liebig University Giessen – **Giessen, Germany**

RESEARCH INTERESTS

I had established and led an independent research group within the Department of Pathophysiology, University of Essen, Medical School, and have (since January 2011) been appointed as Chairman of Physiology at the Justus-Liebig University Giessen. I have achieved international recognition for my research on myocardial ischemia/reperfusion injury (IRI) and protection from it. My research group uses a translational approach from subcellular particles towards large animal model to define new targets involved in IRI and investigate novel treatment strategies for protecting the heart.

MOST IMPORTANT DISCOVERIES

My research is internationally recognised as evidenced by numerous invitations to speak at international scientific meetings. I received the Young Investigator Award from the European Society of Cardiology (ESC), the Fraenkel and Franz-Groedel Award as well as the Basic Science Lecture Award of the German Cardiac Society. I served as Chairman of the Working Group on Cellular Biology of the Heart of the ESC and I am currently member of the International Council of the Society of Heart Research (ISHR) and the program committee of the German Cardiac Society. I have been appointed as Fellow of the ESC and have been invited to join the AHA as fellow. My research has advanced the field of IRI and protection from it by being the first to: (1) demonstrate an inotropic reserve in chronically ischemic myocardium, a phenomenon used now routinely in daily clinical practice for identification; (2) highlight the cross talk between protein kinases involved in cardioprotection, and (3) demonstrate the mitochondrial location of a highly expressed cellular protein (named connexin 43) being essential for cardioprotection. The latter is of utmost importance since a number of human diseases (including genetic variations) are associated with reduced connexin 43 expression.

PRIZES

1994: Young Investigator Award of the European Society of Cardiology • 1999: „Fraenkel-Preis" of the German Cardiac Society • 2002: „Franz-Groedel Forschungspreis" of the German Cardiac Society • 2009: Basic Science Lecture of the German Cardiac Society

MOST IMPORTANT PUBLICATIONS

1. Heusch G, Böngler K, Schulz R. Cardioprotection: nitric oxide, protein kinases and mitochondria. ***Circulation*** 2008; 118:1915-1919
2. Rottlaender D, Boengler K, Wolny M, Michels G, Endres-Becker J, Motloch LJ, Schwaiger A, Buechert A, Schulz R, Heusch G, Hoppe UC. Connexin 43 acts as a cytoprotective mediator of signal transduction by stimulating mitochondrial KATP channels in mouse cardiomyocytes. ***J Clin Invest.*** 2010; 120:1441-53
3. Ovize M, Baxter GF, Di Lisa F, Ferdinandy P, Garcia-Dorado D, Hausenloy DJ, Heusch G, Vinten-Johansen J, Yellon DM, Schulz R; Working Group of Cellular Biology of Heart of European Society of Cardiology. Postconditioning and protection from reperfusion injury: where do we stand? Position paper from the Working Group of Cellular Biology of the Heart of the European Society of Cardiology. ***Cardiovasc Res.*** 2010; 87:406-23
4. Boengler K, Heusch G, Schulz R. Mitochondria in postconditioning. ***Antioxid Redox Signal.*** 2011; 14:863-80.

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SCHULZ, Richard

CARDIOLOGY

AFFILIATION

Departments of Pediatrics & Pharmacology, Cardiovascular Research Centre,
Mazankowski Alberta Heart Institute, University of Alberta – **Edmonton, Canada**

RESEARCH INTERESTS

We study the roles of oxidative stress damage to the heart and vasculature. My lab found that peroxynitrite activates matrix metalloproteinase-2 (MMP-2) within cardiac and smooth muscle cells to cause acute injury. We found that MMP-2 is also localized to and cleaves sarcomeric and cytoskeletal proteins to effect acute contractile dysfunction. Drugs specifically targeting intracellular MMP-2 are being developed to treat cardiovascular and other diseases caused by enhanced oxidative stress.

MOST IMPORTANT DISCOVERIES

First to discover that normal cardiac myocytes synthesize NO and in response to endotoxemia synthesize higher levels through Ca^{2+}-independent NO synthase. Showed that cardiac biosynthesis of peroxynitrite effects myocardial ischemia-reperfusion (I/R) injury and pro-inflammatory cytokine heart failure. Discovered that activation of matrix metalloproteinase-2 (MMP-2) contributes to acute myocardial I/R injury. MMP-2 was found in the sarcomere, cytoskeleton, nucleus and mitochondria. By cleaving specific intracellular proteins MMP-2 causes contractile dysfunction. Its targets in cardiac myocytes include troponin I, titin, α-actinin, myosin light chain-1 and GSK-3β. Found that MMP-2 and MMP-9 are nuclear proteins and that MMP-2 is a phosphoprotein as another means to regulate its activity.

PRIZES

1993-2010: Alberta Heritage Fdn. for Med. Research (AHFMR) Scholar, Senior Scholar, Scientist • 1993-1998: Medical Research Council Scholar
1999: Merck-Frosst Award, Pharmacological Soc. Canada • 2005: N. Dhalla Award-Outstanding Investigator in Cardiovasc. Sci., IACS • 2010: Pfizer Senior Scientist Award, Canadian Soc. Pharmacology & Therapeutics

MOST IMPORTANT PUBLICATIONS

1. Schulz R, Nava E, Moncada S. Induction and potential biological relevance of a Ca^{2+}-independent nitric oxide synthase in the myocardium. ***Br J Pharmacol*** 1992; 105:575-80.
2. Cheung PY, Sawicki G, Wozniak R, Wang W, Radomski M, Schulz R. Matrix metalloproteinase-2 contributes to ischemia-reperfusion injury in the heart. ***Circulation*** 2000; 101:1833-49.
3. Wang W, Schulze CJ, Suarez-Pinzon WL, Dyck JRB, Sawicki G, Schulz R. Intracellular action of MMP-2 accounts for acute myocardial ischemia and reperfusion injury. ***Circulation*** 2002; 106:1543-49.
4. Sariahmetoglu M, Crawford B, Leon H, Sawicka J, Li L, Ballermann BJ, Holmes C, Berthiaume LG, Holt A, Sawicki G, Schulz R. Regulation of matrix metalloproteinase-2 (MMP-2) activity by phosphorylation. ***FASEB J*** 2007; 21:2486-95.

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SCHÜPBACH, Trudi

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

HHMI and Princeton University, Moffett Laboratory, Department of Molecular Biology – **Princeton, USA**

RESEARCH INTERESTS

My research has focused on the developmental mechanisms that establish pattern and polarity using Drosophila melanogaster as model organism. We have shown that during oogenesis localized activation of the Drosophila EGF receptor plays a crucial role in the establishment of both the anterior-posterior as well as the dorso-ventral axis of the egg and embryo. Building on these results we have investigated mechanisms of RNA localization and translational control, and we have been investigating the response to EGFr activity, and the morphogenesis of the follicle cell epithelium.

MOST IMPORTANT DISCOVERIES

We have isolated and characterized a number of maternally expressed genes that are crucial for the establishment of the major axis of the egg and embryo in Drosophila. In particular, we have shown that cell communication between the germ cells and the surrounding follicle cells is required to set up the initial asymmetries in the egg that ultimately lead to correct patterning of the embryo. Signaling from the oocyte to the follicle cells involves the Drosophila EGF receptor and its ligand, Gurken. Localization of gurken mRNA in the oocyte is crucial for the localized activation of EGFR in the follicle cells and we have identified factors that are involved in this localization process. We have also shown that a meiotic checkpoint exists that can downregulate the translation of Gurken. In addition, we have identified factors required in the follicle cells to respond to EGFR signaling, and for follicle cell polarity and differentiation.

PRIZES

Edwin F. Conklin Medal, Society for Developmental Biology • Elected Fellow, American Academy of Arts and Sciences • Elected Associate Member, European Molecular Biology Organization • Elected to the National Academy of Sciences

MOST IMPORTANT PUBLICATIONS

1. Price JV, Clifford RJ Schüpbach T. The maternal ventralizing locus torpedo is allelic to *faint little ball*, an embryonic lethal, and encodes the Drosophila EGF receptor homolog. ***Cell*** 1989; 56:1085-1092.
2. Roth S, Neuman-Silberberg FS, Barcelo G, Schüpbach T. *cornichon* and the EGF Receptor Signaling Process are Necessary for Both Anterior-Posterior and Dorsal-Ventral Pattern Formation in Drosophila. ***Cell*** 1995; 81:967-978.
3. Ghabrial A, Schüpbach T. Activation of a meiotic checkpoint regulates translation of Gurken during Drosophila oogenesis. ***Nature Cell Biology*** 1999; 1:354-357.
4. Yan Y, Denef N, Schüpbach T. The vacuolar proton pump (V-ATPase) is required for Notch signaling and endosomal trafficking in Drosophila. ***Dev Cell*** 2009; 17:387-402.

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Princeton, NJ 08544, USA – **e-mail: schupbac@princeton.edu – Tel.: 00 1 609 258 1365, Fax: 00 1 609 258 1547**

SEIDLER, Ursula

GASTROENTEROLOGY

AFFILIATION

Hannover Medical School, Department of Gastroenterology, Hepatology und Endocrinology – **Hannover, Germany**

RESEARCH INTERESTS

The research focus is on the molecular mechanisms of gastric acid secretion, and the molecular regulation of intestinal acid/base transport and salt and water absorption. The group studies structure-function relationships, membrane trafficking, formation of multiprotein signalling complexes and phosphorylation of involved ion transporters in GI epithelia in health and disease.

MOST IMPORTANT DISCOVERIES

Molecular elucidation of gastric acid/base transporters. Role of CFTR anion channel in epithelial bicarbonate transport. Role of Slc26 anion transporters in intestinal fluid and acid/base balance. Molecular function of PDZ adaptor proteins of the NHERF family in the regulation of intestinal electrolyte transport. Inflammation-induced defects in intestinal electrolyte transport and barrier function.

MOST IMPORTANT PUBLICATIONS

1. Seidler U, Blumenstein I, Viellard-Baron D, Rossmann H, Kretz A, Colledge W, Evans M, Ratcliff R und Gregor M. A functional CFTR protein is required for cAMP-, cGMP-, and Ca^{2+}- dependent stimulation of mouse intestinal HCO_3- secretion. ***J. Physiol.*** (Lond.) 1997; 505.2:411-423
2. Jacob P, Rossmann H, Lamprecht G, Kretz A, Neff C, Lin-Wu E, Gregor M, Groneberg DA, Kere J und Seidler U. Down-regulated in adenoma mediates apical Cl^-/HCO_3- exchange in rabbit, rat, and human duodenum. ***Gastroenterology***. 2006; 122:709-24
3. Kaufhold MA, Krabbenhöft A, Song P, Engelhardt R, Riederer B, Fährmann M, Klöcker N, Beil W, Manns MP, Hagen SJ und Seidler U. Localization, trafficking and significance for acid secretion of parietal cell Kir4.1 and KCNQ1 K^+ channels. ***Gastroenterology***, 2008; 134:1058-69
4. Singh AK, Riederer B, Krabbenhöft A, Rausch B, de Jonge H, Donowitz M, Weinman EJ, Kocher O, Hogema BM und Seidler U. Differential role for the PDZ proteins NHERF1, NHERF2 and PDZK1 in the regulation of CFTR-mediated intestinal anion secretion in vivo. ***J. Clin. Invest.***, 2009; 119:540-50

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SILVA, Alcino

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

University of California, Los Angeles (UCLA) – **Los Angeles, USA**

RESEARCH INTERESTS

Learning, memory, and its disorders, including cognitive deficits associated with aging, learning disabilities, autism, and schizophrenia. Our field of study is molecular and cellular cognition. The goal of this field is to derive explanations of cognitive processes that integrate molecular, cellular, and behavioral mechanisms and to find treatmetns for cognitive disorders. Recently, we have shown that is it possible to reverse neurodevelopmental disorders, such as learning disabilities associated with TSC and NF1 in adults.

MOST IMPORTANT DISCOVERIES

I pioneered an interdisciplinary approach that integrates molecular, electrophysiological and behavioral studies of genetically modified mice. My work was key in demonstrating that the molecular machinery that regulates synaptic changes is central to learning and memory. The multidisciplinary analysis of genetically modified mice I introduced has become one of the most widely used approaches in neuroscience. I was also the first to use this integrative approach in mechanistic studies of genetic models of behavioral disorders. My studies of Neurofibromatosis type I (and later on Tuberous Sclerosis) showed that it is possible to reverse in adults the behavioral pathology associated with neurodevelopmental disorders. More recently, my laboratory used my integrative approach to discover memory allocation, a new memory phase that refers to mechanisms that determine which cells in a circuit are committed to a given memory.

PRIZES

2011: Leslie Chair in Pioneering Brain Research • 2011: Richard Merkin Foundation • 2009: Medal of Science, Marco de Canavezes, Portugal • 2009: Senior Roche Award for Translational Neuroscience • 2009: Order of Prince Henry (Portuguese National Order of Knighthood)
2007: Cajal Neuroscience Institute Honorary Membership

MOST IMPORTANT PUBLICATIONS

1. Silva AJ, Paylor R, Wehner JM and Tonegawa S. Impaired spatial learning in alpha-calcium-calmodulin kinase II mutant mice. Science, 1992; 257:206-11.
2. Costa RM, Federov NB, Kogan JH, Murphy GG, Stern J, Ohno M, Kucherlapati R, Jacks T and Silva AJ. Mechanism for the learning deficits in a mouse model of neurofibromatosis type 1. Nature 2002; 415:526-30.
3. Frankland PW, Bontempi B, LE Talton, Kaczmarek L and Silva AJ, The involvement of the anterior cingulate cortex in remote contextual fear memory. Science 2004; 304:881-3.
4. Cui Y, Costa RM, Murphy GG, Elgersma Y, Zhu Y, Gutmann DH, Parada LF, Mody I and Silva AJ. Neurofibromin regulation of ERK signaling modulates GABA release and learning. Cell 2008; 135:549-560.

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SIPIDO, Karin

CARDIOLOGY

AFFILIATION

Katholieke Universiteit Leuven, Department Cardiovascular Diseases Experimental Cardiology – **Leuven, Belgium**

RESEARCH INTERESTS

My main field of interest is cardiac cellular electrophysiology and calcium homeostasis, and the changes with cardiac hypertrophy and heart failure, in particular in ischemic cardiomyopathy. A major focus is the role of altered [Ca2+]i regulation in arrhythmogenesis. In collaboration with other labs we relate cellular data with in vivo findings.

MOST IMPORTANT DISCOVERIES

Major contributions include quantitative approaches to excitation-contraction coupling; the characterization of the role of Na/Ca exchange in arrhythmogenesis in cardiac hypertrophic remodeling and evaluation of Na/Ca exchange as therapeutic target; the role of organization of T-tubules to altered excitation-contraction coupling in disease.

PRIZES

1996: Prize Dr. Karel Verleysen, Royal Academy of Medicine, Belgium
2001: Fellow of the European Society of Cardiology
2008: Fellow of the American Heart Association
2009: William Harvey Lecturer, European Society of Cardiology
2010: Fellow of the International Society for Heart Research

MOST IMPORTANT PUBLICATIONS

1. Sipido KR, Maes M, Van de Werf F. Low efficiency of Ca^{2+} entry through the Na(+)-Ca^{2+} exchanger as trigger for Ca^{2+} release from the sarcoplasmic reticulum. A comparison between L-type Ca^{2+} current and reverse-mode Na$(^{+})$-Ca^{2+} exchange. ***Circ Res.*** 1997; 81:1034-44.
2. Sipido KR, Volders PG, de Groot SH, Verdonck F, Van de Werf F, Wellens HJ, Vos MA. Enhanced Ca$(^{2+})$ release and Na/Ca exchange activity in hypertrophied canine ventricular myocytes: potential link between contractile adaptation and arrhythmogenesis. ***Circulation***. 2000; 102:2137-44.
3. Louch WE, Bito V, Heinzel FR, Macianskiene R, Vanhaecke J, Flameng W, Mubagwa K, Sipido KR. Reduced synchrony of Ca^{2+} release with loss of T-tubules-a comparison to Ca^{2+} release in human failing cardiomyocytes. ***Cardiovasc Res.*** 2004; 62:63-73.
4. Heinzel FR, Bito V, Biesmans L, Wu M, Detre E, von Wegner F, Claus P, Dymarkowski S, Maes F, Bogaert J, Rademakers F, D'hooge J, Sipido K. Remodeling of T-tubules and reduced synchrony of Ca^{2+} release in myocytes from chronically ischemic myocardium. ***Circ Res.*** 2008; 102:338-46.

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SKUSE, David H

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

Institute of Child Health, London Behavioural and Brain Sciences Unit University College – **London, United Kingdom**

RESEARCH INTERESTS

Primary research interest is in the development of social communication skills, through childhood into adulthood. Studies on genetic influences upon social cognition, in both clinical and general populations. Investigations have centered on possibility that X-linked epigenetic mechanisms could influence male vulnerability to social-cognitive deficits (e.g. in autistic disorders). Current research includes twin and population studies to identify processes by which genetic variation influences social decision-making using economic games.

MOST IMPORTANT DISCOVERIES

Discovered new syndrome (Hyperphagic Short Stature) in which highly stressed or abused children cease growth hormone release, leading to growth impairment and excessive appetite. Identified the risk of sexually abused boys becoming sexual abusers in adulthood in a national prospective follow-up study. Discovered the first evidence for X-chromosome imprinting in humans, a potential mechanism for sexual dimorphism. Undertook collaborative studies to develop an X-monosomic mouse model, and identified the first imprinted X-linked gene. Showed X-linked genes could influence the efficiency of neural connectivity between the amygdala and cortex in response to eye-contact in emotional expression. Employing measures derived from economic theory, he has demonstrated that uncooperative social behaviour is strongly influenced by genetic variation, unlike cooperative behaviour.

PRIZES

Fellowship Royal College of Physicians (UK)
Fellowship Royal College of Psychiatrists (UK)
Fellowship Royal College Paediatrics and Child Health (UK)
Platinum Award from National Health Service (UK) for services to research and teaching

MOST IMPORTANT PUBLICATIONS

1. Skuse DH, Gallagher L. Dopaminergic-neuropeptide interactions in the social brain ***Trends Cognitive Sciences*** 2009; 13:27-35.
2. Weiss LA, Purcell S, Waggoner S, Lawrence K, Spektor D, Daly MJ, Sklar P, Skuse D. Identification of EFHC2 as a quantitative trait locus for fear recognition in Turner syndrome. ***Human Molecular Genetics*** 2007; 16:107-13.
3. Skuse DH, James RS, Bishop DV, Coppin B, Dalton P, Aamodt-Leeper G, Bacarese-Hamilton M, Creswell C, McGurk R, Jacobs PA. Evidence from Turner's syndrome of an imprinted X-linked locus affecting cognitive function. ***Nature*** 1997; 387:705-8.
4. Skuse D, Albanese A, Stanhope R, Gilmour J, Voss L. A new stress-related syndrome of growth failure and hyperphagia in children, associated with reversibility of growth-hormone insufficiency. ***Lancet*** 1996; 348:353-8.

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SOLA, Christophe

TUBERCULOSIS EVOLUTION

AFFILIATION

Université Paris-Sud et Institut de Génétique et Microbiologie – **Paris, France**

RESEARCH INTERESTS

Our team focuses on *Mycobacterium tuberculosis* complex (MTC) diversity and evolution as well on genotyping in a public health perspective. We also develop high-throughput hybridization methods on microbeads (suspension arrays) to characterize MTC drug resistance mutations and to characterize bacterial pathogens such as *Salmonella enterica* by CRISPR (Clustered Regularly Interspaced Palindromic Repeats). A last interest concerns bioinformatics and data-mining methods to better classify complex genotyping patterns.

MOST IMPORTANT DISCOVERIES

Discovery of the bio-phylogeographical structure of the MTC using spoligotyping, definition of the LAM (Latin-American-Mediterranean) and EAI (East-African-Indian) clades in 2000. This discovery is linked to the discovery of linkage disequilibrium between VNTR and spoligotyping markers in this species (Sola et al. J.Mol. Evol. 2001). Discovery of spoligotyping signatures allowing sub-classification of MTC at the geographical level (Filliol et al. 2002, 2003). Discovery of the heterogenity of the world-wide *Mycobacterium tuberculosis* genetic population structure; description of the first prevalence maps of major clades (Beijing, EAI, LAM, Haarlem) thanks to SpolDB4 (largest world-database on MTC, Brudey et al. 2006). Discovery of IS6110 transposition as a driving force of CRISPR locus evolution by linking the absence of specific spacers in some spoligotypes and the presence of extra-IS copies. (first example of direct link between IS6110 transposition and CRISPR evolution)(Filliol et al. 200, Legrand et al. 2001).

PRIZES

2007: Excellency Chair in Microbiology, University Paris-Sud 11
Collective Prize: Louis D. 2000 attributed to the International Network of the Pasteur Institute

MOST IMPORTANT PUBLICATIONS

1. Sola C, Filliol I, Legrand E, Mokrousov I, Rastogi N. *Mycobacterium tuberculosis* phylogeny reconstruction based on combined numerical analysis with IS1081, IS6110, VNTR and DR-based spoligotyping suggests the existence of two new phylogeographical clades. ***J. Mol. Evol.*** 2001 53:680-689.
2. Brudey K, Driscoll J, Rigouts L, Prodinger WM, Gori A, Al-Hajoj SAM, et al. *Mycobacterium tuberculosis* complex genetic diversity: mining the fourth international spoligotyping database (SpolDB4) for classification, Population Genetics, and Epidemiology. ***BMC Microbiol.*** 2006; 6:23.
3. Supply P, Allix C, Lesjean S, Cardoso-Oelemann M, Rusch-Gerdes S, Willery E, et al. Proposal for Standardization of Optimized Mycobacterial Interspersed Repetitive Unit-Variable-Number Tandem Repeat Typing of *Mycobacterium tuberculosis*. ***J Clin Microbiol.*** 2006; 44:4498-510.
4. Filliol I, Motiwala AS, Cavatore M, Qi W, Hazbon MH, Bobadilla del Valle M, et al. Global phylogeny of *Mycobacterium tuberculosis* based on single nucleotide polymorphism (SNP) analysis: insights into tuberculosis evolution, phylogenetic accuracy of other DNA fingerprinting systems, and recommendations for a minimal standard SNP set. ***J Bacteriol.*** 2006; 188:759-72.

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SOMFAY, Attila

TUBERCULOSIS EVOLUTION

AFFILIATION

Department of Pulmonology, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Chronic obstructive pulmonary disease (COPD), asthma, pulmonary rehabilitation, cardiopulmonary exercise testing, exercise physiology.

MOST IMPORTANT DISCOVERIES

Supplemental oxygen during exercise improves hyperinflation and exercise capacity in a dose-dependent way in patients with severe COPD without resting hypoxemia. Oxygen supplementation during moderate intensity exercise does not influence oxygen uptake kinetics in patients with non-hypoxemic COPD. Oxygen supplementation during exercise reconditioning in pulmonary rehabilitation results in higher physiological adaptation in patients with non-hypoxemic COPD. High intensity dynamic training during rehabilitation mitigates lactate buildup during exercise thereby reduces hyperinflation and improves exercise capacity in patients with severe COPD. High intensity continuous and intermittent dynamic trainings are equally efficient in patients with COPD.

PRIZES

Markusovszky-Medal • Kováts Ferenc-Medal • Medicina Thoracalis Award • 22nd Southern California Pulmonary and Critical Care Research Conference, „Best clinical presentation", Palm Springs, CA, USA • Guideline refers two publications as „Evidence-A" for the effect of oxygen on exercise capacitiy in COPD. • Honorary Member, Victor Babes Universitiy, Timisoara, Romania

MOST IMPORTANT PUBLICATIONS

1. Somfay A, Porszasz J, Lee SM, Casaburi R. Dose-response effect of oxygen on hyperinflation and exercise endurance in non-hypoxemic COPD patients. ***Eur. Respir. J***. 2001; 18:77-84.
2. Somfay A, Porszasz J, Lee SM, Casaburi R. Effect of hyperoxia on gas exchange and lactate kinetics during exercise in non-hypoxemic COPD patients. ***Chest*** 2002; 121:393-400.
3. Emtner M, Porszasz J, Burns M, Somfay A, Casaburi R. Benefits of supplemental oxygen in exercise training in nonhypoxemic chronic obstructive pulmonary disease patients. ***Am. J. Respir. Critic. Care Med.*** 2003; 168:1034-1042.
4. Varga J, Porszasz J, Boda K, Casaburi R, Somfay A: Supervised high intensity continuous and interval training vs. self-paced training in COPD. ***Respir Med*** 2007; 101:2297-2304.

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SOMOGYI, Péter

NEUROSCIENCE

AFFILIATION

MRC Anatomical Neuropharmacology Unit, Department of Pharmacology, The University of Oxford – **Oxford, UK**

RESEARCH INTERESTS

I work on the high-resolutions dissection of synaptic circuits in the brain and investigate specific neuronal connections, their molecular constituents and temporal dynamics. I have proposed that explanations of normal and pathological events *in the brain can only come from the rigorous definition of the neuronal circuits that underlie these events*. In practice, I explore the molecular, spatial and temporal organisation of networks in the brain at the synaptic and cellular level by analysing areas such as the cerebellum, the basal ganglia, the thalamus, the cerebral cortex and, in particular, the hippocampus.

MOST IMPORTANT DISCOVERIES

I have discovered and defined:
• Neuronal types and the rules of their synaptic connections. • The cell domain specific GABAergic innervation of pyramidal cells by distinct neurons. • The target cell specific concentration of presynaptic neurotransmitter receptors along single axons. • The perisynaptic concentration of postsynaptic metabotropic glutamate receptors, thereby defining a novel subcellular signalling compartment. • With Eberhard Buhl, the postsynaptic receptor mechanism of the axo-axonic and bistratified cells that I discovered. • With Zoltan Nusser, the molecular difference between synaptic and some extrasynaptic GABA-A receptors. • With Zoltan Nusser, the target cell and input specific allocation of postsynaptic glutamate receptors. • With Thomas Klausberger, the brain state and cell type specific spike timing of hippocampal interneurons. • I have interpreted these discoveries in the framework of neuronal chronocircuits, a term that I coined to express the unity of space and time in the brain.

PRIZES

1976, 1977: First Prize of the Hung. Acad. Sci. for Junior Scientists • 1984: Charles Judson Herrick Award, Association of American Anatomists • 1990: Honorary Doctorate, Jozsef Attila Univ, Szeged, Hungary • 1991: Krieg Cortical Discoverer Award, American Anat. Soc. • 1995: Yngve Zotterman Prize, Physiol. Soc. Stockholm, Sweden • 2000: Janos Arany Medal, Hung. Acad. Sci. • 2006: Istvan Bathory Award, Hung. Nat. Council Transylvania • 2009: The Feldberg Prize and Lectures, Germany • 2010: Sanford L. Palay Prize (USA) • 2011: The Brain Prize - Grete Lundbeck Eur. Brain Res. Found. Denmark
Learned Societies:
2000: Fellow of the Royal Society, London • 2004: Corresponding Fellow, Hung. Acad. Sci. • 2006: Fellow of The Medical Acad. Sci., London • 2006: Member of The German National (Leopoldina) Acad. Sci. • 2009: Member, Academia Europaea

MOST IMPORTANT PUBLICATIONS

1. Somogyi P. A specific 'axo-axonal' interneuron in the visual cortex of the rat. ***Brain Res*** 1977; 136:345-350.
2. Cobb SR, Buhl EH, Halasy K, Paulsen O, Somogyi P. Synchronization of neuronal activity in hippocampus by individual GABAergic interneurons. ***Nature*** 1995; 378:75-78.
3. Klausberger T, Magill PJ, Márton LF, Roberts JDB, Cobden PM, Buzsáki G, Somogyi P. Brain state- and cell type-specific firing of hippocampal interneurons in vivo. ***Nature*** 2003; 421:844-848.
4. Klausberger, T. & Somogyi, P. Neuronal diversity and temporal dynamics: the unity of hippocampal circuit operations. ***Science*** 2008; 321:53-57.

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SPIGELMAN, Mark

TUBERCULOSIS EVOLUTION

AFFILIATION

Centre for Clinical Microbiology, University College – **London, UK**
Department of Anatomy and Anthropology, Sackler Medical School Tel Aviv University – **Tel Aviv, Israel**

RESEARCH INTERESTS

Archeaology study of diseases of the ancients and paleomicrobiology. helyett Archeaology, study of diseases of the ancients, paleomicrobiology., Discoveries: First to isolate TB DNA from archaelogical specimens and I have since worked to develop the field and expand the diseases and biomolecules that can be studied. helyett First to isolate TB DNA from archaelogical specimens, since then has worked to develop the field and expand the diseases and biomolecules that can be studied.

MOST IMPORTANT DISCOVERIES

First to isolate TB DNA from archaelogical specimens and I have since worked to develop the field and expand the diseases and biomolecules that can be studied.

MOST IMPORTANT PUBLICATIONS

1. Greenblatt C and Spigelman M. Associate Editors Emerging pathogens: Archaeology, ecology and evolution of infectious disease: Greenblatt C and Spigelman M (eds) Oxford University Press Oxford.2003
2. Spigelman, M and Lemma, E. The use of the polymerase chain reaction to detect *Mycobacterium tuberculosis* in ancient skeletons. International ***Journal of Osteoarchaeology*** 1993; 3:137-143.
3. Donoghue H, Fletcher H, Spigelman M. Widespread occurrence of *Mycobacterium tuberculosis* DNA from 18th-19th century Hungarians. American ***Journal of Physical Anthropology***. 2003; 12:144-52.
4. Hershkovitz I, Donoghue HD, Minnikin DE, Besra GS, Lee O, Gernaey AM, Galili E, Eshed V, Greenblatt CL, Lemma E, Bar-Gal GK, Spigelman M. Detection and Molecular Characterization of 9000-Year-Old *Mycobacterium tuberculosis* from a Neolithic Settlement in the Eastern Mediterranean ***PlosOne*** 2008; 3:e3426.

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STINGL, Georg

IMMUNNOLOGY & INFLAMMATION

AFFILIATION

Department of Dermatology, Division of Immunology, Allergy and Infectious Diseases (DIAID)
Medical University of Vienna, Vienna General Hospital – **Vienna, Austria**

RESEARCH INTERESTS

Immunological functions of the skin; Immunulogically mediated skin diseases; Inflammatory skin diseases; Tumor immunity; Immunopharmacology.

MOST IMPORTANT DISCOVERIES

First demonstration of immune cell characteristics on the surface of epidermal Langerhans cells; First functional characterization of Langerhans cells as antigen-presenting cells; Discovery of the indigenous T cell population of murine epidermis; Gene therapy of metastatic melanoma using IL-2-transfected tumor cells; Detection and functional characterization of high affinity IgE receptors on Human dendritic cells; First demonstration of cytotoxic effector functions of human dendritic cells.

MOST IMPORTANT PUBLICATIONS

1. Stingl G, Wolff-Schreiner EC, Pichler WJ, Gschnait F, Knapp W, Wolff K. Epidermal Langerhans cells bear Fc and C3 receptors. ***Nature*** 1977; 268:245-246.
2. Stingl G, Koning F, Yamada H, Yokohama WM, Tschachler E, Bluestone JA, Steiner G, Samelson LE, Lew AM, Coligan JE, Shevach EM. Thy-1+ dendritic epidermal cells express T3 antigen and the T-cell receptor γ chain. ***Proceedings of the National Academy of Sciences U.S.A.*** 1987; 84:4586-4590.
3. Schreiber S, Kämpgen E, Wagner E, Pirkhammer D, Trcka J, Korschan H, Lindemann A, Dorfner R, Kittler H, Kastelnik F, Küpcü Z, Sinski A, Zatloukal K, Buschle M, Schmidt W, Birnstiel M, Kempe RE, Voigt T, Weber HA, Pehamberger H, Mertelsmann R, Bröcker EB, Wolff K, Stingl G. Immunotherapy of Metastatic Malignant Melanoma by a Vaccine Consisting of Autologous Interleukin-2-Transfected Cancer Cells: Outcome of a Phase I Study. ***Human Gene Therapy*** 1999; 10:983-993.
4. Stary G, Bangert C, Tauber M, Strohal R, Kopp T, Stingl G. Tumoricidal activity of TLR7/8-activated inflammatory dendritic cells. ***The Journal of Experimental Medicine*** 2007; 204:1441-145.

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SUPPLY, Philip

TUBERCULOSIS EVOLUTION

AFFILIATION

CNRS, CIIL - Center for Infection and Immunity of Lille INSERM U1019 – CNRS UMR 8204 Univ Lille Nord de France, Institut Pasteur de Lille – **Lille, France**

RESEARCH INTERESTS

Studying and understanding mechanisms of genome plasticity, in relationship with adaptive evolution of pathogenic mycobacteria. My research interests focus on the molecular evolution and population structure of the tubercle bacilli, and their implications for the epidemiology and physiopathology of *M. tuberculosis*.

MOST IMPORTANT DISCOVERIES

Based on genetic markers that I identified in *M. tuberculosis* and other mycobacterial pathogens, I developed a powerful genotyping methodology for identifying and tracking strains of tubercle bacilli, and co-developed an ad hoc freely accessible, multifunctional database for strain genotyping analysis (http://www.miru-vntrplus.org). These tools are now used as a new international standard in many Reference Centres, for applications ranging from clinical diagnostics to epidemiological surveillance and control at Public Health level. I am leading a research project focused on whole genome analysis and comparative genomics of five special, non-clonal strains of tubercle bacilli, which putatively reflect the progenitor pool from which the *M. tuberculosis* clonal complex emerged.

PRIZES

Ref. 3 below cited amongst the 20 most important publications on tuberculosis research over the last three years by Nature Medicine, 13, 276-277 (2007). 2007: Trophy for innovation, National Institute for Intellectual Property (INPI), awarded to the laboratory for research on tuberculosis.

MOST IMPORTANT PUBLICATIONS

1. Wirth T, Hildebrand F, Allix-Beguec C, Wolbeling F, Kubica T, Kremer K, van Soolingen D, Rusch-Gerdes S, Locht C, Brisse S, Meyer A, Supply P*, and Niemann S*. Origin, spread and demography of the *Mycobacterium tuberculosis* complex. ***PLoS Pathog*** 2008; 4:e1000160. *, equivalent last authors
2. Supply P, Allix C, Lesjean S, Cardoso-Oelemann M, Rusch-Gerdes S, Willery E, Savine E, de Haas P, van Deutekom H, Roring S, Bifani P, Kurepina N, Kreiswirth B, Sola C, Rastogi N, Vatin V, Gutierrez MC, Fauville M, Niemann S, Skuce R, Kremer K, Locht C, and van Soolingen D. Proposal for standardization of optimized mycobacterial interspersed repetitive unit-variable-number tandem repeat typing of *Mycobacterium tuberculosis*. ***J Clin Microbiol*** 2006; 44:4498-510.
3. Gutierrez MC, Brisse S, Brosch R, Fabre M, Omais B, Marmiesse M, Supply P, and Vincent V. Ancient origin and gene mosaicism of the progenitor of *Mycobacterium tuberculosis*. ***PLoS Pathog*** 2005; 1:e5.
4. Mazars E, Lesjean S, Banuls AL, Gilbert M, Vincent V, Gicquel B, Tibayrenc M, Locht C, and Supply P. High-resolution minisatellite-based typing as a portable approach to global analysis of *Mycobacterium tuberculosis* molecular epidemiology. ***Proc Natl Acad Sci USA*** 2001; 98:1901-6.

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SZABAD, János

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

Department of Biology, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Developmental genetics of Drosophila in lights of dominant female-sterile mutations. Importin-β and nuclear protein import, microtubule formation and function during egg development and the onset of embryogenesis, chromatin remodeling and nuclear positioning mechanisms. Development of methods to detect and characterize environmental mutagens.

MOST IMPORTANT DISCOVERIES

The mechanism of germ-line stem cell divisions in Drosophila.
The involvement of importin-β in nuclear envelope reassembly.
The role of α4-tubulin in (i) speeding up microtubule formation and (ii) attaching the interpolar micrutubules to the nuclear envelope to push apart the daughter centrosomes. Wriggling nuclei represent a novel nuclear positioning mechanism.

PRIZES

Young Scientist Prize of the Hungarian Academy of SciencesPrize of the Hungarian Academy of Sciences

MOST IMPORTANT PUBLICATIONS

1. Klingler M, Erdélyi M, Szabad J and Nüsslein-Volhard C. The role of *torso* in determining the terminal anlagen of the Drosophila embryo. ***Nature*** 1988; 335:275-277
2. Brunner D, Oellers N, Szabad J, Biggs WH, Zipursky SA and Hafen E. A gain of function mutation in Drosophila MAP kinase activates multiple receptor tyrosine kinase signalling pathways. ***Cell*** 1994;76:1-20
3. Timinszky G, Tirián L, Nagy FT, Tóth G, Perczel A, Kiss-László Z, Boros I, Clarke PR and Szabad J. The Importin-β P446L dominant negative mutant protein loses RanGTP binding ability and blocks the formation of intact nuclear envelope. ***Cell Science*** 2002; 115:1675-87
4. Szalontai T, Gaspar I, Belecz I, Kerekes I, Erdelyi M, Boros I and Szabad J. Horka[D], a chromosome instability-causing mutation in Drosophila, is a dominant-negative allele of lodestar. ***Genetics*** 2009; 181:367–377

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SZALAI, Csaba

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Heim Pál Hospital; Semmelweis University – **Budapest, Hungary**

RESEARCH INTERESTS
Genetic and genomic background of multifactorial diseases, especially asthma, allergy and acute lymphoid leukemia (ALL). Development of bioinformatics tools for evaluation of gene association studies. Pharmacogenomics of ALL.

MOST IMPORTANT DISCOVERIES
Detection of mutations in familial hypercholesterolemia, nephrogen diabetes insipidus, palmoplantar keratoderma. Distribution of polymorphisms of >30 genes in Hungarian population; exon-intron organization of gp130; detection of polymorphism which influence susceptibility of several multifactorial diseases.

PRIZES
1996: Apáthy Fund: The Best Publication of the year • 1999: Richter Gedeon research prize • 2001: TEVA-Biogal scientific research prize • 2003: Bolyai plaque from the Hungarian Academy of Sciences • 2003: Markusovszky prize • 2003: Heim Pál memorial coin • 2007: Bolyai memorial leaf from the Hungarian Academy of Sciences • 2010: Antal Végh niveau price from the Hungarian Pharmacology Society • 2011: LAM price

MOST IMPORTANT PUBLICATIONS
1. Szalai C, Duba J, Prohászka Z, Kalina Á, Szabó T, Nagy B, Horváth L, Császár A. Involvement of polymorphisms in the chemokine system in the susceptibility for coronary artery disease (CAD). Coincidence of elevated Lp(a) and MCP-1 –2518 G/G genotype in CAD patients. ***Atherosclerosis*** 2001; 158:233-239.
2. Szalai C, Füst G, Duba J, Kramer J, Romics L, Prohászka Z, Császár A. Association of polymorphisms and allelic combinations in the tumor necrosis factor-α-complement MHC region with coronary artery disease. ***J Med Genet*** 2002; 39:46-51.
3. Ungvári I, Tölgyesi G, F. Semsei Á, Nagy A, Radosits K, Keszei M, T Kozma G, Falus A, Szalai Cs. CCR5Δ32 mutation, Mycoplasma pneumoniae infection and asthma. ***J Allergy Clin Immunol.*** 2007; 119:1545-7
4. Tölgyesi G, Molnár V, Semsei ÁF, Kiszel P, Ungvári I, Pócza P, Wiener Z, Komlósi ZI, Kunos L, Gálffy G, Losonczy G, Seres I, Falus A, Szalai C. Gene expression profiling of experimental asthma reveals a possible role of paraoxonase-1 in the disease. ***Int Immunol***. 2009; 21:967-75.

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SZEGEDI, Andrea

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Department of Dermatological Allergology, Medical and Health Science Centre, University of Debrecen – **Debrecen, Hungary**

RESEARCH INTERESTS
The main interests of her scientific work are dermatological allergology and immunology. She mainly conducts investigations to reveal the adaptive and innate immune alterations in atopic dermatitis, psoriasis, dermatomyositis and to develop new diagnostic and therapeutic modalities in chronic autoimmune urticaria and in SLE. Currently she is also interested in analyzing the connection between skin barrier alterations and distorted keratinocyte innate immune functions in atopic dermatitis.

MOST IMPORTANT DISCOVERIES
Her research group was the first that described the basophil CD63 expression assay as an effective tool in the diagnosis of chronic autoimmune urticaria. They proved that UVA1 can be an effective and safe adjuvant therapy in SLE patients and that it may act by reducing the frequency of IFN-γ producing T cells. In atopic dermatitis they detected elevated frequency of regulatory T cells and IL-13 producing Th2 effector cells in the peripheral blood and in the lesional skin. They also prooved that the number and percentage of total iNKT cells and their subgroups were significantly decreased. In addition, the double negative subgroup exhibited the most pronounced functional alteration with significantly decreased IFN-γ and significantly increased IL-4 production in AD patients.

PRIZES
1998-2000 Bólyai János Research Scholarship
2005. University of Debrecen, Medical- and Health Science Centre, Best scientific publication of the year with clinical topic
She won "Best lecture", "Best publication" and "Best poster" awards of the Hungarian Dermatological Society several times

MOST IMPORTANT PUBLICATIONS
1. Aleksza M, Szegedi A, Antal-Szalmás P, Irinyi B, Gergely L, Ponyi A, Hunyadi J, Sipka S, Zeher M, Szegedi Gy, Dankó K. Altered cytokine expression of whole blood Thelper and Tcytotoxic lymphocytes of patients suffering from polymyositis and dermatomyositis. ***Ann Rheum Dis*** 2005; 64:1485-1489.
2. Szegedi A, Simics E, Aleksza M, Horkay I, Gaál K, Sipka S, Hunyadi J, Kiss E. Ultraviolet-A1 Phototherapy Modulates Th_1/Th_2 and Tc^1/Tc^2 Balance in Patients with Systemic Lupus Erythematosus. ***Rheumatology*** 2005; 44:925-931.
3. Szegedi A, Irinyi B, Gál M, Hunyadi J, Dankó K, Kiss E, Sipka S, Gyimesi E. Significant correlation between the CD63 assay and the histamine release assay in chronic urticaria. ***Br J Dermatol*** 2006; 155:67-75.
4. Szegedi A, Baráth S, Nagy G, Gál M, Sipka S, Bagdi E, Banham AH, Krenács L. Regulatory T cells in atopic dermatitis – epidermal dendritic cell clusters may contribute to their local expansion. ***Br J Dermatol*** 2009; 160:984-993.

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SZÉLL, Márta

MOLECULAR BIOLOGY & GENETICS

AFFILIATION

Department of Dermatology and Allergology, Dermatological Research Group of the Hungarian Academy of Sciences, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Genomics and molecular biology of immunemediated multifactorial skin diseases.

MOST IMPORTANT DISCOVERIES

Our lab focuses on the identification and characterisation of genetic factors of immunemediated multifactorial skin diseases.
We have shown that EDA+ fibronectin produced by keratinocytes of the uninvolved skin of psoriatic patients contributes to the maintenance of the „vicious cycle" of the hyperproliferation of the cells. We have first identified and characterized a long non-coding RNA, PRINS that contributes to psoriasis susceptibility and is involved in cellular stress response. We have shown that PRINS interacts with a nucleolar phosphoprotein, nucleophosmin and regulates the expression of several genes such as the anti-apoptic interferon-induced G1P3.
We are engaged in the identification and functional characterisation of CDKN2A mutations in the population of Hungarian familial melanoma patients. Some of the mutations we identified in Hungary have been already described wordwide as strong melanoma susceptibility factors, however we also identifed rare mutations. We first performed the functional characterization of an intronic CDKN2A mutation and proved that indeed it causes the emergence of an aberrant CDKN2A splice variant that may contribute to melanoma susceptibility.

MOST IMPORTANT PUBLICATIONS

1. Széll M et al.: Proliferating keratinocytes are putative sources of the psoriasis susceptibility related EDA+ oncofoetal fibronectin. ***J. Invest. Dermatol.*** 2004; 123:537

2. Sonkoly E, Bata-Csörgő Z, Pivarcsi A, Polyánka H, Kenderessy-Szabó A, Molnár G, Szentpáli K, Megyeri K, Mándi Y, Dobozy A, Kemény L, Széll M. Identification and characterization of a novel, psoriasis susceptibility-related noncoding RNA gene, PRINS. ***J. Biol. Chem.*** 2005; 280: 24159

3. Széll M et al.: First Detection of the Melanoma-Predisposing Proline-48-Threonine Mutation of p16 in Hungarians – Was There a Common Founder Either in Italy or in Hungary? ***Melanoma Res.*** 2007; 17: 251

4.Széll M et al.: The enigmatic world of mRNA-like ncRNAs: their role in human evolution and in human diseases. ***Semin. Cancer Biol***. 2008; 18:141

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SZOLCSÁNYI, János

NEUROSCIENCE

AFFILIATION

University of Pécs, Department of Pharmacology and Pharmacotherapy
Hungarian Academy of Sciences - Neuropharmacology Group – **Pécs, Hungary**

RESEARCH INTERESTS

Life-long interest to study capsaicin and capsaicin-sensitive sensory mechanisms has been devoted to open new horizons for the pharmacology and physiology of nociceptors. Role and operation features of the capsaicin receptor (TRPV1) and other receptors on nociceptors have been analysed to pave the way for developing novel groups of analgesic/antiinflammatory agents and initiation translational research. Novel sensory-efferent and systemic sensocrine functions of these nociceptive endings and their participation in pathological experimental models and human diseases.

MOST IMPORTANT DISCOVERIES

Direct evidence for neurogenic inflammation (1967). First evidence for the existence of a membrane receptor for capsaicin (1975). Discovery of the capsaicin-sensitive peptidergic sensory-efferent neural system in internal organs and under in vitro conditions (1978). First CNS effects of capsaicin in thermoregulation (1970, 1975). Selective activation and desensitization of C-polymodal nociceptors by capsaicin which induces selective chemo-and heat-analgesia (1977, 1987). Release of somatostatin from the capsaicin-sensitive nociceptors elicits counteracting systemic analgesic/antiinflammatory effects (1998) which are mediated by activation somatostatin (sst4, sst1) receptors suitable for drug development in preclinical studies (2001-, patents). Gastroprotective effect of capsaicin (1981-). Site of action for introduction two new drugs (thynoxamine 1966, setastine 1990).

PRIZES

Awards from Universities: 1992: Helsinki • 1996: Seoul • 2011: Krakow
State awards: 1994: Szent-Györgyi Albert • 2003: Széchenyi • 1997: Batthyány-Strattman L. • 2008: Order of Merit of the Hungarian Republic (Medium Cross)
Further awards: 1999: Arnold Ipolyi (OTKA) • 2003: Miklós Jancsó (Szeged) • 2004: Manfred Zimmermann (ENC)

MOST IMPORTANT PUBLICATIONS

1. Jancsó N, Jancsó-Gábor A, Szolcsányi J. Direct evidence for neurogenic inflammation and its prevention by denervation and by pretreatment with capsaicin. ***Brit J Pharmacol*** 1967; 31: I38-151.

2. Szolcsányi J. Actions of capsaicin on sensory receptors. In: Capsaicin in the study of pain. J.N. Wood. (ed.) ***Neuroscience Perspectives, Academic Press*** 1993; pp. 1-23

3. Szolcsányi J. Capsaicin-sensitive sensory nerve terminals with local and systemic efferent functions: facts and scopes of an unorthodox neuroregulatory mechanism. ***Prog Brain Res*** 1996; 113:343-359.

4. Helyes Z, Pintér E, Sándor K, Elekes K, Bánvölgyi Á, Keszthelyi D, Szőke É, Tóth MD, Sándor Z, Kereskai L, Pozsgai G, Allen JP, Piers EC, Markovics A, Szolcsányi J. Impaired defense mechanism against inflammation, hyperalgesia, and airway hyperreactivity in somatostatin 4 receptor gene-deleted mice. ***PNAS*** 2009; 103:13088-13093.

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TAKÁCS, Tamás

GASTROENTEROLOGY

AFFILIATION
First Department of Medicine, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Experimental and clinical aspects of pancreatic and biliary disorders.

MOST IMPORTANT DISCOVERIES
Role of cholecystokinine receptor antagonists and somatostatin in the regulation of pancreatic secretion.
Inflammatory mediators in different experimental pancreatitis models.

PRIZES
2007: Géza Hetényi's Medalion
2010: Pro optimo merito in gastroenterologia medalion

MOST IMPORTANT PUBLICATIONS
1. Takács T, Nagy I, Pap Á, Varró V. The effect of long-term administration of lorglumide (CR 1409) on rat pancreatic growth and enzyme composition. ***Pancreas*** 1990; 5:606-610
2. Takács T, Pap Á. Perspectives of CCK antagonists in pancreatic research and clinical use. ***Int. J. Pancreatol.*** 1991; 10:1-8
3. Takács T, Hajnal F, Nagy I, Montet JC, Lonovics J. Effective dissolution therapy of common bile duct stones with a new multicomponent solvent. ***Eur. J. Gastroenterol. Hepatol.*** 1993; 5:867-870
4. Takács T, Farkas G Jr, Czakó L, Jármay K, Mándi Y and Lonovics J. Time-course changes in serum cytokine levels in two experimental acute pancreatitis models in rats. ***Res. Exp. Med.*** 1996; 196:153-161

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TAKEDA, Shin'ichi

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Translational Medical Center, Department of Molecular Therapy
National Institute of Neuroscience, National Center of Neurology and Psychiatry – **Tokyo, Japan**

RESEARCH INTERESTS
I am paricularly interested in molecular pathology and therapy of muscular dystrophy, especially Duchenne muscular dystrophy (DMD), caused by the mutation of the *dystrophin* gene. I first proposed the concept of micro-dystrophin, the small truncated dystrophin in 1997, and that can be applicable to gene therapy of DMD. The strategy with adeno-associated virus (AAV) vector and the micro-dystrophin has been now recognized as one of the most promising approaches to DMD. These days, I extended my idea of the small, but functional dystrophin to the therapy of DMD by exon skipping.

MOST IMPORTANT DISCOVERIES
To further extend our idea of small truncated but funtional dystrophin, we tried to get the protein by the way of exon-skipping with antisense oligonucleotides (AOs). We recently reported systemic delivery of AOs targeting exon 6 and 8 of the canine dystrophin gene to dystrophic dogs, efficiently restored functional dystrophin proteins at the sarcolemma, and improved performance of affected dogs without serious side effects (Ann Neurol. 2009;65:667-76). To optimize therapeutic AOs for more frequent mutations of the *dystrophin* gene, we designed AOs targeting exon 51 of the mouse gene. A combination of two AOs showed an excellent restoration of the sarcolemmal dystrophin and this expression was accompanied by amelioration of dystrophic phenotypes (Mol Ther. 2010;18:1995-2005). This study provides a proof of concept for exon 51 skipping in the DMD animal model and that can be applicable up to 15% of DMD deletion patients.

PRIZES
1993: grant-in-aid from the Fugaku Trust for Medical Research • 1993: grant-in-aid from the Sankyo Life Science Foundation
2000: grant-in-aid from Human Frontier Science Program

MOST IMPORTANT PUBLICATIONS
1. Taniguchi-Ikeda M, Kobayashi K, Kanagawa M, Yu CC, Mori K, Oda T, Kuga A, Kurahashi H, Akman HO, Dimauro S, Kaji R, Yokota T, Takeda S, Toda T. Pathogenic exon-trapping by SVA retrotransposon and rescue in Fukuyama muscular dystrophy. ***Nature*** 2011; 478:127-31.
2. Uezumi A, Fukada S, Yamamoto N, Takeda S, Tsuchida K. Mesenchymal progenitors distinct from satellite cells contribute to ectopic fat cell formation in skeletal muscle. ***Nat Cell Biol*** 2010; 12:143-52.
3. Yokota T, Lu QL, Partridge T, Kobayashi M, Nakamura A, Takeda S, Hoffman E. Efficacy of systemic morpholino exon-skipping in Duchenne dystrophy dogs. ***Ann Neurol*** 2009; 65:667-76.
4. Dezawa M, Ishikawa H, Itokazu Y, Yoshihara T, Hoshino M, Takeda S, Ide C, Nabeshima Y. Bone marrow stromal cells generate muscle cells and repair muscle degeneration. ***Science*** 2005; 309: 314-7.

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TAMÁS, Gábor

NEUROSCIENCE

AFFILIATION
Research Group for Cortical Microcircuits of the Hungarian Academy of Sciences Department of Physiology, Anatomy and Neuroscience, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
We address mechanisms linking the activity of single neurons with network events by defining the function of identified cell types in the cerebral cortex. We propose that spatial unspecificity of neurotransmitter action leads to unprecedented functional capabilities for a single neuron simultaneously acting on neuronal, glial and vascular components of the surrounding area allowing synchronization of metabolic demand and supply in microcircuits.

MOST IMPORTANT DISCOVERIES
We identified the first cell type, the so-called neurogliaform cells, capable of eliciting slow inhibition in the cerebral cortex. Neurogliaform cells reach GABAA and GABAB receptors on target cells through unitary volume transmission going beyond the classical theory which states that single cortical neurons act in or around synaptic junctions. Axo-axonic cells were considered as the most potent inhibitory neurons of the cortex. However, our experiments suggested that axo-axonic cells could be the most powerful excitatory neurons known to date by triggering complex network events. Our unprecedented recordings in the human cortex show that axo-axonic cells are crucial in activating functional Hebbian assemblies which were implicated in higher order cognitive representations.

PRIZES
2002: Senior Research Fellowship, The Wellcome Trust, UK • 2002: Krieg Cortical Explorer Prize • 2005: International Research Scholarship, Howard Hughes Medical Institute, USA • 2006: European Young Investigator Award, European Science Foundation, EU • 2010: European Research Council Advanced Grant, EU

MOST IMPORTANT PUBLICATIONS
1. Olah S, Fule M, Komlosi G, Varga C, Baldi R, Barzo P and Tamas G. Regulation of cortical microcircuits by unitary GABA-mediated volume transmission. ***Nature*** 2009; 461:1278-81.
2. Szabadics J, Varga C, Molnar G, Olah S, Barzo P, and Tamas G. Excitatory effect of GABAergic axo-axonic cells in cortical microcircuits. ***Science*** 2006; 311:233-5.
3. Tamas G, Lorincz A, Simon A and Szabadics J. Identified sources and targets of slow inhibition in the neocortex. ***Science*** 2003; 299:1902-1905.
4. Molnar G, Olah S, Komlosi G, Fule M, Szabadics J, Varga C, Barzo P and Tamas G. Complex Events Initiated by Individual Spikes in the Human Cerebral Cortex ***PLoS Biology*** 2008; 6:e222.

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TELEGDY, Gyula

NEUROSCIENCE

AFFILIATION
Department of Pathophysiology, University Medical School Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Neuroendocrinology, neuropeptides and brain function.

MOST IMPORTANT DISCOVERIES
Discovering the mechanism of action of number of neuropeptides on behavior such as learning and memory, depression, anxiety etc.

PRIZES
Széchenyi Award

MOST IMPORTANT PUBLICATIONS
More than 400 papers have been published, therefore it is difficult to select any of them. Can be found in PUBMED listed on the name.

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TESCHLER-NICOLA, Maria

TUBERCULOSIS EVOLUTION

AFFILIATION
Department of Anthropology, Natural History Museum Vienna – **Vienna, Austria**

RESEARCH INTERESTS
Palaeoanthropology and palaeopathology. Archaeometry, history of anthropology.

MOST IMPORTANT DISCOVERIES
Pany D. & Teschler-Nicola M. (2007). Klippel-Feil Syndrome in an Early Hungarian Period Juvenile Skeleton from Austria. Int. J. of Osteoarchaeology 17, 403-415.
Teschler-Nicola, M. (2009). Ein erster Nachweis von Lepra aus dem frühmittelalterlichen Österreich. Archäologie Österreichs 20/2, 25-27.
Einwögerer, Th., Friesinger, H., Händel, M., Neugebauer-Maresch, Ch., Simon, U. & Teschler-Nicola, M. (2006). Upper Palaeolithic infant burials. Nature (Brief Communications) 444, 285.

PRIZES
2010: Wissenschaftspreis (Würdigungspreis) des Landes Niederösterreich

MOST IMPORTANT PUBLICATIONS
1. Wild EM, Teschler-Nicola M, Kutschera W, Steier P, Trinkaus E. & Wanek, W. Direct dating of Early Upper Paleolithic human remains from Maldeč. ***Nature*** 2005; 435:332-335.
2. Teschler-Nicola M. & Trinkaus E. Human Remains from the Austrian Gravettian: The Willendorf femoral diaphysis and mandibular symphysis. ***J. Human Evolution*** 2001; 40:451-465.
3. Teschler-Nicola M. (i.p.): The Early Neolithic site Asparn/Schletz (Lower Austria): anthropological evidence of interpersonal violence. In: Rick Schulting, Sticks, Stones.(in press).
4. Bachmann, L, Däubl B, Lindqvist Ch, Kruckenhauser L, Teschler-Nicola M., Haring E. PCR diagnostics of *Mycobacterium tuberculosis* in historic human long bone remains from 18th century burials in Kaiserebersdorf, Austria. ***BMC Res. Notes*** 2008; 1:83.

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THANOS, Dimitris

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Biomedical Research Foundation, Academy of Athens – **Athens, Greece**

RESEARCH INTERESTS
Investigation of the mechanisms by which genes are turned on and off. We use highthroughput genomics approaches to determine the molecular basis of the human antiviral response by stydying the epigenetic landscape and the nuclear structure of human and mouse cells infected with viruses. Investigation of the role of transcription factor networks in stem cell differentiation and generation of induced pluripotency stem cells from different types of somatic cells. The use of molecular and cellular approaches to understand both basic biological and disease mechanisms.

MOST IMPORTANT DISCOVERIES
Discovery of the enhanceosomes (higher-order nucleoprotein complexes composed of transcription factors bound on enhancer DNA) and their function in eukaryotic transcription. Discovery of the dynamics of recruitment of transcription factors, general transcriptional machinery and chromatin remodellers to promoters and enhancers. Elucidation of what chromatin remodeling means in vivo by discovering nucleosome sliding. Discovery and decoding of the histone acetylation code for a human gene. Demonstrating the mechanisms by which enhancers activate remote genes. Discovery of the role of the histone variant macroH2A in gene expression Discovery of the role of stochastic interchromosomal interaction in coordinating transcriptional programs.

PRIZES
1992-1994: Postdoctoral Fellowship Award from the Lucille P. Markey Charitable Trust • 1996: Irma T. Hirschl Career Scientist Award • 1996: March of Dimes-Basil O'Connor Starter Research Scholar Award • 1996: Pew Scholars Award in Biomedical Sciences • 2000: Scholar of the Leukemia and Lymphoma Society of America • 2001: Christopher Lambort Award in Basic Sciences • 2002: Dean's Distinguished Lecturer Award in Basic Sciences • 2004: European Molecular Biology Organization (EMBO) Member • 2005: National Representative in European Union for Research Infrastructures (ESFRI) • 2007: Life Sciences Panel Member of the European Research Council • 2010: Elect Member of the FEBS (Federation European Biochemical Sciences) Publication Committee • 2011–2014: Elect member of the EMBO Council (European Molecular Biology Organization)

MOST IMPORTANT PUBLICATIONS
1. Lomvardas S and Thanos D. Nucleosome sliding via TBP DNA binding in vivo. ***Cell*** 2001; 106:685-696.
2. Lomvardas S and Thanos D. Modifying gene expression programs by altering core promoter chromatin architecture. ***Cell*** 2002; 110: 261-271
3. Agalioti T, Chen G, and Thanos D. Deciphering the Transcriptional histone acetylation code for a human gene. ***Cell*** 2002; 111:381-392
4. Apostolou E and Thanos D. Virus infection induces NF-kB-dependent Interchromosomal associations mediating monoallelic IFN-b gene expression. ***Cell*** 2008; 134:85-96

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TÓSAKI, Árpád

CARDIOLOGY

AFFILIATION
Department of Pharmacology, Faculty of Pharmacy, University of Debrecen, – **Debrecen, Hungary**

RESEARCH INTERESTS
The pathology and mechanisms of cardiovascular and myocardial ischemia/reperfusion-induced injury including ventricular arrhythmias, heart function, ion metabolisms, and gene expression/repression changes. The development of cardiovascular pharmacology studying and searching effective agents, which could attenuate the severety of ischemia/reperfusion-induced injury in vasular and cardiac tissues.

MOST IMPORTANT DISCOVERIES
Endogenous carbon monoxide (CO) produced by heme oxygenase-1 (HO-1) plays an important role in the recovery of cardiovascular function after ischemia followed by reperfusion. HO-1 enzyme is capable of substantially reducing oxidative stress by several mechanisms. HO-1 metabolizes heme that accumulates in tissues due to red blood cell turnover. Two products of this degradation – CO and bilirubin – have potent capacity for reducing oxidative tissue damage on tissue. A description will be provided of how HO-1-related endogenous CO maintains tissue function and remediates outcomes of oxidative stress. Thus, interventions which are able to increase endogenous CO production may prevent the development of ischemia/reperfusion-induced damage.

PRIZES
1988: Cserháti István Award, Univ. Albert Szent-Györgyi, Szeged • 2009: Szent-Györgyi Albert Award, Ministry of Education, Budapest • 2009: Award of the Univ. Debrecen, Debrecen • 2009: Award of the Ministry of Health, Budapest • 2010: Award of the Romanian Academy of Medical Sciences

MOST IMPORTANT PUBLICATIONS
1. Bak I, Szendrei L, Turoczi T, Papp G, Joo F, Das DK, de Leiris J, Der P, Juhasz B, Varga E, Backskay I, Balla J, Kovacs P, Tosaki A. Heme oxygenase-1 related carbon monoxide production and ventricular fibrillation in isolated ischemic/reperfused mouse myocardium. ***FASEB J*** 2003; 17:2133-2135.
2. Bak I, Lekli I, Juhasz B, Nagy N, Varga E, Varadi J, Gesztelyi R, Szabo G, Szendrei L, Backskay I, Vecsernyes M, Antal M, Fesus L, Boucher F, de Leiris J, Tosaki A. Cardioprotective mechanisms of Prunus cerasus (sour cherry) seed extract against ischemia/reperfusion-induced damage in isolated rat hearts. ***Am J Physiol Heart Circ Physiol*** 2006; 291:H1329-H1336.
3. Lekli I, Szabo G, Juhasz B, Das S, Das M, Varga E, Szendrei L, Gesztelyi R, Varadi J, Bak I, Das DK. Tosaki A. Protective mechanizms of resveratrol against ischemia/reperfusion-induced damage in hearts obtained from Zucker obese rats: the role of GLUT-4 and endothelin. ***Am J Physiol Heart and Circ Physiol*** 2008; 294:H859-H866.
4. Juhasz B, Varga B, Czompa A, Bak I, Lekli I, Gesztelyi R, Zsuga J, Kemeny-Beke A, Antal M, Szendrei L, Tosaki A. Postischemic cardiac recovery in heme oxygenase-1 transgenic ischemic/reperfused mouse myocardium. ***J Cell Mol Med*** 2011; 15:1973-82.

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TÓTH, Kálmán

CARDIOLOGY

AFFILIATION
Medical School, 1st Department of Medicine, University of Pécs – **Pécs, Hungary**

RESEARCH INTERESTS
Hemorheological parameters in cardiovascular diseases. The mechanisms of red blood cell aggregation. In vivo and in vitro rheological effects of different cardiovascular drugs. Role of oxidative stress in myocardial damage, and the possibilities of cardio- and vascular protection by scavenger molecules and PARP-inhibitors.

MOST IMPORTANT DISCOVERIES
We described the pathogenetic role of hemorheological parameters in the development of myocardial ischemia. We verified the in vitro and in vivo significant rheological effects of a non-ionic copolymer surfactant (RheothRx), and thus collected important data on the possible mechanisms of red blood cell aggregation. We clarified the role and the signal transduction pathways of enhanced ADP-ribosylation in myocardial cell injury and the protective effect of some synthetic antioxidants and poly(ADP-ribose) polymerase inhibitors. We verified that PARP inhibition delays transition of hypertensive cardiopathy to heart failure in spontaneously hypertensive rats, and also has a vascular protective effect.

PRIZES
1998: Széchenyi Professorial Fellowship • 2003: Regional Committee of the Hungarian Academy of Sciences, Pécs, Award for Organization of Research
2006: Hungarian Society of Hemorheology, Árpád Mátrai Medal • 2006: Hungarian Society of Internal Medicine, Transdanubian Section's Itinerary Congress Medal

MOST IMPORTANT PUBLICATIONS
1. Habon T, Szabados E, Kesmarky G, Halmosi R, Past T, Sumegi B, Toth K. The effect of carvedilol on enhanced ADP-ribosylation and red blood cell membrane damage caused by free radicals. ***Cardiovasc Res*** 2001; 52:153-60.
2. Szapary L, Horvath B, Marton Z, Alexy T, Kesmarky G, Habon T, Szots M, Koltai K, Juricskay I, Czopf J, Toth K. Short term effect of low-dose atorvastatin on hemorheological parameters, platelet aggregation and endothelial function in patients with cerebrovascular disease and hyperlipidaemia. ***CNS Drugs*** 2004; 18:165-72.
3. Palfi A, Toth A, Kulcsar G, Hanto K, Deres P, Bartha E, Halmosi R, Szabados E, Czopf L, Kalai T, Hideg K, Sumegi B, Toth K. The role of Akt and MAP kinase systems in the protective effect of PARP inhibition in Langendorff perfused and in isoproterenol damaged rat hearts. ***J Pharmacol Exp Ther*** 2005; 315:273-82.
4. Bartha E, Solti I, Kereskai L, Lantos J, Plozer E, Magyar K, Szabados E, Kalai T, Hideg K, Halmosi R, Sumegi B, Toth K. PARP inhibition delays transition of hypertensive cardiopathy to heart failure in spontaneously hypertensive rats. ***Cardiovasc Res*** 2009; 83:501-10.

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TSCHACHLER, Erwin

IMMUNNOLOGY & INFLAMMATION

AFFILIATION

Department of Dermatology, Research Division Biology and Pathobiology of the Skin, Medical University Vienna
Vienna Austria

RESEARCH INTERESTS

1. The role of microbial pathogens in the pathogenesis of skin diseases with emphasis on the retroviruses HIV-1 and HTLV-1 and human herpesviruses 6-8. 2. The skin barrier in health and disease in particular the regulation of terminal keratinocyte differentiation 3. The microanatomy of the skin nervous system.

MOST IMPORTANT DISCOVERIES

1. Discovery of gamma delta T cells in mouse epidermis (first author 1983) • 2. First description of antigen-presenting dendritic cells in the bronchial mucosa (co-author, 1986) • 3. Discovery that Langerhans cells represent targets for HIV Infection (first author, 1987) • 4. Identification of host cell range for HHV-6 (co-author 1988) • 5. Discovery of synergistic infection of HHV-6 and HIV-1 (co-author 1989) • 6. Demonstration of infection of monocytes by HHV-8 (co-author 1997) • 7. Identification of lymphatic cells as tumor cells in Kaposi's sarcoma (last author 1999) • 8. Demonstration that the touch dome in human skin contains different nerve fibre qualities (last author 2005)

PRIZES

1986: Max Kade Fellowship • 1986: Unilever Award of the Austrian Society of Dermatology
1987: AIDS Research Award of the Austrian Society for Immunology and Allergology • 1990, 1995: Award of the Hoechst-AG
1994: Ferdinand von Hebra Award of the Austrian Society of Dermatology • 1999: AESCA Award of the Austrian Society of Dermatology
2011: Hellerström lecture and medal, Karloniska Institute, Stockholm, Sweden

MOST IMPORTANT PUBLICATIONS

1. Tschachler E, Schuler G, Hutterer J, Leibl H, Wolff K, Stingl G. Expression of Thy-1 antigen by murine epidermal cells. ***The Journal of Investigative Dermatology*** 1983; 81:282-285
2. Tschachler E, Groh V, Popovic M, Mann DL, Konrad K, Safai B, Eron L, diMarzo Veronese F, Wolff K, Stingl G. Epidermal Langerhans cells - a target for HTLV-III/LAV infection. ***The Journal of Investigative Dermatology*** 1987; 88:233-237
3. Weninger W, Partanen TA, Breiteneder-Geleff S, Mayer C, Kowalski H, Mildner M, Pammer J, Sturzl M, Kerjaschki D, Alitalo K, Tschachler E. Expression of vascular endothelial growth factor receptor-3 and podoplanin suggests a lymphatic endothelial cell origin of Kaposi's sarcoma tumor cells. ***Lab Invest*** 1999; 79:243-51
4. Eckhart L, Declercq W, Ban J, Rendl M, Lengauer B, Mayer C, Lippens S, Vandenabeele P, Tschachler E. Terminal differentation of human keratinocytes and stratum corneum formation is associated with caspase-14 activation. ***J Invest Dermatol*** 2000; 115:1148-1151

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TULASSAY, Zsolt

GASTROENTEROLOGY

AFFILIATION

Semmelweis University, 2nd Department of Medicine, – **Budapest, Hungary**

RESEARCH INTERESTS

Gastrointestinal operative endoscopy; Pancreatic diseases; The role of somatostatin in gastroenterology; Clinicopharmacology of peptic ulcer disease; Inflammatory bowel disease; Osteoporosis in gastrointestinal diseases; Helicobacter pylori infection; Gastrointestinal oncology.

MOST IMPORTANT DISCOVERIES

In patients with regular use of NSAIDs, PPI therapy healed and prevented gastroduodenal ulcers. • In uncomplicated duodenal ulcer, prolonging acid inhibition with PPI is not recommended after H.pylori eradication. • Genetic variability may be a major determinant of bone loss in inflammatory bowel disease (IBD). • Circulating colon cancer cells and cell clusters should be detected in colon carcinoma patients. • Determinations of proteinases have a strong prognostic impact in patients with colorectal cancer. • The active form of vitamin-D has a more prominent short-term beneficial effect on bone metabolism and disease activity in Crohn's disease compared with plain vitamin-D. • Endoscopic abnormalities are common in patients with gastric ulcer (GU), and persist after H. pylori eradication. Follow-up endoscopy and histology may be necessary to improve the detection rate of gastric malignancy.

PRIZES

2002: László Batthyány-Strattmann Prize • 2004: Order of Merit of the Hungarian Republic, Officer's Cross
2010: Széchenyi Prize • 2011: Honorary Member of German Society of Gastroenterology

MOST IMPORTANT PUBLICATIONS

1. Yeomans ND, Tulassay Z, Juhász L, Rácz I, Howard JM, Van Rensburg J, Swannel AJ, Hawkey LCJ. A comparison of omeprazole with ranitidine for ulcers associated with nonsteroidal antiinflammatory drugs. ***New England Journal of Medicine*** 1998, 338:719-726
2. Hawkey CJ, Tulassay Z, Szczepanski L, Von Rensburg CJ, Filipowicz A, Sosnowska A, Lanas A, Wason CM, Peacock RA, Gillon KRW. Helicobacter pylori eradication in patients taking non-steroidal anti-inflammatory drugs: the HELP NSAIDs study. ***Lancet*** 1998;352:1016-1021
3. Nemetz A, Tóth M, Garcia-Gonzalez MA, Zágoni T, Fehér J, Pena AS, Tulassay Z. Alleic variation at the interleukin 1 (beta) gene is associated with decreased bone mass in patients with inflammatory bowel disease. ***Gut*** 2001; 49:644-649
4. Molnár B, Ladányi A, Tankó L, Sréter L, Tulassay Z. Circulating tumor cell clusters in the pheriperal blood of colorectal cancer patients. ***Clinical Cancer Research*** 2001; 7:4080-4085

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TÚRI, Sándor

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
Department of Pediatrics and Child Health Center, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Nephrology, hypertension, metabolic diseases, pathogenesis of vascular diseases.

MOST IMPORTANT DISCOVERIES
Role of oxidative stress in essential juvenile hypertension.
Different etiological factors in obesity associated and essential hypertension.
Mass tandem spectrometry in newborn screening of metabolic diseases.

PRIZES
1977: Grand Prize of Society for Infectious Diseases
1980: Society of Hungarian Paediatricians I. Prize
1981: Application named in the honour of Géza Petényi I. Prize
1998: Professorial Scholarship named in the honour of Széchenyi
1998: International Pediatric Nephrology Association Prize for the Council membership
2003: Sándor Korányi Prize
2004: Best lecturer award of SZTE Faculty of Medicine 2003/2004. (Hungarian, English)
2005: Best teacher award of the Faculty of Medicine 2004/2005.
2008: Áoston Schoepf-Merei Medallion
2008: Kunó Klebelsberg Prize

MOST IMPORTANT PUBLICATIONS
1. Monostori P, Wittmann Gy, Karg E, Túri S Determination of reduced and oxidized glutathione in biological samples: an in-depth review. ***Journal of Chromatography B-analytical Technologies in the Biomedical and Life Sciences*** 2009; 877:3331-3346.
2. Karg E, Papp F, Tassi N, Janáky T, Wittmann Gy, Túri S Enhanced methylglyoxal formation in the erythrocytes of hemodialyzed patients. ***Metabolism-Clinical and Experimental*** 2009; 58:976-982.
3. Wittmann Gy, Karg E, Mühl A, Bodamer OA, Túri S Comparison of tetrahydrofuran and ethyl acetate as extraction solvents for urinary organic acid analysis. ***Journal of Inherited Metabolic Disease*** 2008; 31:73-80.
4. Turi S, Friedman A, Bereczki C, Papp F, Kovacs J, Karg E, Nemeth I Oxidative stress in juvenile essential hypertension. ***Journal of Hypertension*** 2003; 21:145-152.

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UHER, Ferenc

MOLECULAR BIOLOGY & GENETICS

AFFILIATION
National Blood Service, Stem Cell Biology Unit – **Budapest, Hungary**

RESEARCH INTERESTS
My lab focuses on the biology and function of murine and human mesenchymal stem cells (MSC). Defined subsets of these multipotent stem cells isolated from different tissues and organs are studied in various functional and molecular aspects. Specific projects address the possible regenerative and immunosuppressive role of MSCs in a variety of animal models of human disease, such as streptozotocin-induced diabetes and experimental autoimmune encephalomyelitis (EAE) in mice, mimicking human type-1 diabetes and multiple sclerosis, respectively.

MOST IMPORTANT DISCOVERIES
The soluble form of a Notch ligand, Jagged-1 is able to inhibit the function of its multivalent form to induce hematopoietic stem cell self-renewal both in vitro and in vivo. Recombinant galectin-1 has a biphasic effect on the growth, migration and death of early hematopoietic stem and progenitor cells. Cotransplantation of syngeneic unfractionated bone marrow hematopoietic cells and syngeneic or allogeneic culture expanded mesenchymal stem celss can reverse streptozotocin-induced diabetes in mice.

MOST IMPORTANT PUBLICATIONS
1. Uher F and Dickler H: Cooperativity between B lymphocyte membrane molecules. Independent ligand occupancy and cross-linking of antigen receptors and Fcγ receptors downregulates B lymphocyte function. ***J Immunol*** 1986; 137:3124-29.
2. Vas V, Szilágyi L, Pálóczi K and Uher F: Soluble Jagged-1 is able to inhibit the function of its multivalent form to induce hematopoietic stem cell self-renewal in a surrogate in vitro assay. ***J Leukoc Biol*** 2004; 75:714-20.
3. Vas V, Fajka-Boja R, Ion G, Dudics V, Monostori É, Uher F: Biphasic effect of recombinant galectin-1 on the growth and death of early hematopoietic cells. ***Stem Cells*** 2005; 23:279-87.
4. Urbán VS, Kiss J, Kovács J, Gócza E, Vas V, Monostori É, Uher F: Mesenchymal stem cells cooperate with bone marrow cells in therapy of diabetes. ***Stem Cells*** 2008; 26:244-53.

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VADÁSZ, Imre

TUBERCULOSIS EVOLUTION

AFFILIATION
Korányi Natl. Inst. TB and Pulmonology (ret.), Hungarian Respiratory Society – **Budapest, Hungary**

RESEARCH INTERESTS
TB control (epidemiology/management, prophylaxis), tobacco control (smoking cessation).

MOST IMPORTANT DISCOVERIES
Fibrotic pulmonary lesion and homelessness are high risk for active TB; Prophylactic chemotherapy of fibrotic lesions reduces risk of active TB; Importance of individual registration and follow up of TB cases (surveillance); Effectivity of comprehensive smoking cessation programmes (behavioural and pharmacotherapy).

PRIZES
Korányi Memorial Medal

MOST IMPORTANT PUBLICATIONS
1. Vadász I, Nyárády I, Németh T. Tuberkulose-Registrierung System in Ungarn. ***Öff Gesundheitswesen*** 1974; 36:123-129.

2. Vadász I, Demény É. The impact of BCG vaccination programme in Hungary on the tuberculosis problem in children. ***Pneumonologie*** 1974; 151:151-159.

3. Vadász I. Adverse reactions to Isoniazid. ***Bull UIAT*** 1974; 49:294-300.

4. Vadász I. Smoking as risk factor for cardiovasculary morbidity and mortality (in Hungarian). ***Metabolizmus*** 2010; 8:29-31.

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VAN SOOLINGEN, Dick

TUBERCULOSIS EVOLUTION

AFFILIATION
Tuberculosis Reference Laboratory National Institute for Public Health and the Environment – **Bilthoven, The Netherlands**

RESEARCH INTERESTS
Molecular epidemiology, taxonomy, resistance, treatment, nontuberculous mycobacteria.

MOST IMPORTANT DISCOVERIES
Introduction of structural and meaningful DNA typing of *Mycobacterium* isolates, IS6110 RFLP typing of *M. tuberculosis* complex, IS1245 RFLP typing of *M. avium*, disclosure of genotype families among *M. tuberculosis* isolates, the Beijing genotype of *Mycobacterium tuberculosis*, use of DNA fingerprinting to disclose laboratory cross contaminations, description of *M. avium hominissuis*, *M. canettii*, *M. microti*, *M. noviomagense*, the clinical relevance of nontuberculous mycobacteria in Africa, LED as a light source for FM microscopy, utility of Thioridazin to treat MDR-TB in a mouse model.

MOST IMPORTANT PUBLICATIONS
1. Van Soolingen D, Hermans PWM, de Haas PEW, Soll DR, and van Embden JDA. Occurence and stability of insertion sequences in *Mycobacterium tuberculosis* complex strains; evaluation of IS-dependent DNA polymorphism as a tool in the epidemiology of tuberculosis. ***J. Clin. Microbiol.*** 1991; 29:2578 2586

2. Van Soolingen D, Qian L, de Haas PE, Douglas JT, Traore H, Portaels F, Qing HZ, Enkhsaikan D, Nymadawa P, van Embden JD. Predominance of a single genotype of *Mycobacterium tuberculosis* in countries of east Asia. ***J. Clin. Microbiol.*** 1995; 33:3234-8

3. Van Soolingen D, Hoogenboezem T, de Haas PEW, Hermans PWM, Koedam MA, Teppema KS, Brennan PJ, Besra GS, Portaels F, Top J, Schouls LM, and van Embden JDA. A novel pathogenic taxon of the *Mycobacterium tuberculosis* complex, 'Canettii', characterization of an exceptional isolate from Africa. ***Int. J. Syst. Bact.*** 1997; 47:1236-1245.

4. Van Hung N, Sy DN, Anthony RM, Cobelens FG, and van Soolingen D. Fluorescence microscopy for tuberculosis diagnosis. ***Lancet Infect Dis.*** 2007; 7:238-9.

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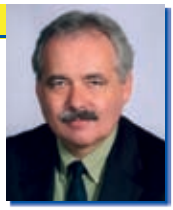
VARGA, Gábor

GASTROENTEROLOGY



AFFILIATION
Department of Oral Biology, Semmelweis University – **Budapest, Hungary**

RESEARCH INTERESTS
Dr. Varga was originally an in vivo physiologist engaged in epithelial function. In 2002 he was appointed to become the head of the Department of Oral Biology, Semmelweis University. His research gradually moved to the salivary field with special attention on the molecular physiology of human salivary cells. He also studies stem cells of other oral origins. His present research focuses on reengineering salivary glands and also mineralizing oral structures combining isolated stem cells gene transfer technology and constructed scaffolds.

MOST IMPORTANT DISCOVERIES
His early work focused on the characterization of the peptidergic regulation of pancreatic secretory function and gastric motility with special emphasis on cholecystokinin, bombesing and galanin and their specific receptors. Then he contributed to a better understanding of the molecular mechanism of epithelial water and bicarbonate transport. Recently his team has developed new methods for isolating and differentiating progenitors from human salivary glands, as well as from dental pulp and periodontal ligament. One of the most promising direction among these is the description of a new method for differentiating neuronal cells from human dental pulp originated stem cell culture for in vivo application in the damaged central nervous system.

PRIZES
1984 and 1986: Youth Award, Hungarian Academy of Sciences (HAS) • 1989: Fogarty Fellowship, NIH, Bethesda • 1992: Madaus Award, Hung. Soc. Gastroenterology (HSG) • 1998-2001: Széchényi Professorial Award, Hung. Ministry Educat. (HME) • 1999: Kuntz Award, HSG • 2000: Simor János Award: „Pro optimo merito in pancreatioco-oncologica", HAS • 2011: Heténi Géza Lectureship, HSG • 2011: Master Tutor, HME

MOST IMPORTANT PUBLICATIONS
1. Rácz GZ, Kittel Á, Riccardi D, Case RM, Elliott AC, Varga G. Extracellular calcium sensing receptor in human pancreatic cells. ***Gut***, 2002; 51:705-711
2. Szlávik V, Szabó T, Vicsek T, Barabás J, Bogdán S, Gresz V, Varga G, O'Connell B, Vág J. Differentiation of primary human submandibular gland cells cultured on basement membrane extract. ***Tissue Eng Part A***, 2008; 14:1915-26
3. Király M, Porcsalmy B, Pataki Á, Kádár K, Jelitai M, Molnár B, Hermann P, Gera I, Grimm W-D, Ganss B, Zsembery Á, Varga G. Simultaneous PKC and cAMP activation induces differentiation of human dental pulp stem cells into functionally active neurons. ***Neurochem Int*** 2009; 55:323-332
4. Király M, Kádár K, Horváthy DB, Nardai P, Rácz GZ, Lacza Z, Varga G, Gerber G.: Integration of neuronally predifferentiated human dental pulp stem cells into rat brain in vivo. ***Neurochem Int*** 2011; 59:371-81.

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VARRÓ, András

CARDIOLOGY

AFFILIATION
Department of Pharmacology and Pharmacotherapy, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
The physiology and pharmacology of the cardiovascular system which includes the cellular and molecular investigations of the cardiac potassium channels, the repolarization process of the cardiac muscle and its pathophysiological and pharmacological modulations. Particularly important research area is the investigations of the mode of action of amiodarone and other new antiarrhythmics including the repolarization related proarrhythmic mechanisms.

MOST IMPORTANT DISCOVERIES
Recognition of the use dependent sodium channel inhibition of amiodarone. Recognition of the role of slow delayed rectifier potassium current (IKs) in the cardiac repolarization reserve. Recognition of the contribution of the transient cutward potassium current (Ito) in the cardiac repolarization reserve. Recognition of the proarrhythmic potential of the sodium-calcium exchanger in cardiac tissue.

PRIZES
1997: Distinguished Széchenyi Professorship (given by Hungarian Ministry Education and Science)
2006: Issekutz Memorial Award (given by the Hungarian Pharmacological Society)

MOST IMPORTANT PUBLICATIONS
1. Jost N, Virág L, Bitay M, Takács J, Lengyel C, Biliczki P, Nagy Z, Bogáts G, Lathrop DA, Papp JGy, Varró A. Restricting excessive cardiac action potential and QT prolongation: a vital role for IKs in human ventricular muscle. ***Circulation*** 2005; 112:1392-99.
2. Nagy Z, Virág L, Tóth A, Biliczki P, Acsai K, Bányász T, Nánási P, Papp JGy, Varró A. Selective inhibition of sodium-calcium exchanger by SEA-0400 decreases early and delayed afterdepolarization in canine heart. ***Br. J. Pharmacol.*** 2004; 143:827-31.
3. Varró A, Baláti B, Iost N, Takács J, Virág L, Lathrop DA, Lengyel C, Tálosi L, Papp JG. The role of IKs in dog ventricular muscle and Purkinje fibre repolarisation ***J. Physiol.*** (London) 2000; 523:67-81.
4. Varró A, Nakaya Y, Elharrar V, Surawicz B. Use-dependent effects of amiodarone on Vmax in cardiac Purkinje and ventricular muscle fibers. ***Eur. J. Pharmacol.*** 1985; 112:419- 22.

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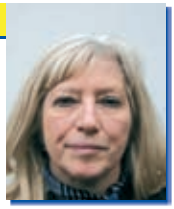
VARRÓ, Andrea

GASTROENTEROLOGY



AFFILIATION
Departments of Cell & Molecular Physiology and Molecular & Clinical Medicine, Institute of Translational Medicine, University of Liverpool – **Liverpool, UK**

RESEARCH INTERESTS
Maintenance of epithelial archictecture in health and disease. Role of gastrin in gastric epthelial cell function. Identification of biomarkers for patients at risk for gastric and oesophageal cancers. Regulation of preneplastic and neoplastic microenvironment; role of stromal cells in modifying the epithelial microenvironment.

MOST IMPORTANT DISCOVERIES
Elucidated the biosynthetic pathways of the gastric acid secretagogue hormone, gastrin, including characterisation of the post-translational processing mechanisms and the role of prohormone phosphorylation in regulating subsequent proteolytic cleavage. Characterisation of the role of gastrin in the determining gastric epithelial architecture in health and disease. Identification of novel targets of *Helicobacter pylori* in gastric epithelial cells and their functional significance. Characterisation of epithelial-mesenchymal signalling mechanisms and in particular the identification of MMP-7 as a key modifyer of the gastric microenvironment through interactions with myofibroblasts.

PRIZES
2006: Hetenyi Geza medal winner, and Honorary Elected Foreign Member of the Hungarian Gastroenterological Society
2007: Prize lecture, A Century of Advance in Neuroendocrine Tumor Disease
2008: Prize lecture, the Hungarian Academy of Sciences

MOST IMPORTANT PUBLICATIONS
1. Varro A, Henry J, Vaillant C and Dockray GJ. Discrimination between temperature- and brefeldin A-sensitive steps in the sulfation, phosphorylation and cleavage of progastrin and its derivatives. ***J. Biol. Chem.***, 1994; 269:20764-20770.
2. Varro A, Hemers E, Archer D, Pagliocca A., Haigh C, Ahmed S, Dimaline R, & Dockray GJ. Identification of plasminogen activator inhibitor-2 as a gastrin-regulated gene: Role of Rho GTPase and menin. ***Gastroenterology*** 2002; 123:271-280.
3. Wroblewski LE, Noble PJ, Pagliocca A, Pritchard DM, Hart CA, Campbell F, Dodson AR, Dockray GJ, & Varro A. Stimulation of MMP-7 (matrilysin) by Helicobacter pylori in human gastric epithelial cells: role in epithelial cell migration. ***J. Cell Sci.*** 2003; 116:3017-3026.
4. McCaig C, Duval C, Hemers E, Steele I, Pritchard DM, Przemeck S, Dimaline R., Ahmed S, Bodger K, Kerrigan DD, Wang TC, Dockray GJ, Varro A. The role of matrix metalloproteinase-7 (MMP-7) in redefining the gastric-microenvironment in response to *Helicobacter pylori*. ***Gastroenterology***, 2006; 123: 271-280.

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VÉCSEI, László

NEUROSCIENCE

AFFILIATION
Department of Neurology, Faculty of Medicine, Albert Szent-Györgyi Clinical Center, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
Neurodegeneration and neuroprotection in different neurological disorders and their experimental models. Neuropharmacological studies with kynurenines. Extrapyramidal disorders, multiple sclerosis, migraine and stroke.

MOST IMPORTANT DISCOVERIES
Somatostatin improves cognitive function in experimental models and the somatostatin depleting substance cysteamine has an oppostie effect. Novel kynurenic acid analogues have beneficial effects in models of migraine, Huntington's disease, epilepsy, stroke and intestinal inflammation.

PRIZES
István Apáthy Medal • Makusovszky Medal • Sántha Kálmán Medal • Klebelsberg Kuno Award • Senator Dr Franz Burda Award • Szőkefalvy-Nagy Béla Award • Talentum Award • Natural Science Discovery Award

MOST IMPORTANT PUBLICATIONS
1. Fülöp F, Szatmári L, Vámos E, Zádori D, Tajti J, Vécsei L. Synthesis, transformation and pharmaceutical applications of kynurenic acid derivatives. ***Curr Med Chem*** 2009; 16:4828-42.
2. Sas K, Robotka H, Toldi J, Vécsei L. Mitochondria, metabolic disturbances, oxidative stress and the kynurenine system, with focus on neurodegenerative disorders. ***J Neurol Sci*** 2007; 257:221-39
3. Vécsei L, Király C, Bollók I, Nagy A, Varga J, Penke B, Telegdy G. Comparative studies with somatostatin and cyteamine in different behavioral tests in rats. ***Pharmacol Biochem Behav*** 1984; 21:833-37.
4. Vécsei L, Beal MF. Comparative behavioral and neurochemical studies with striatal kainic acid and quinolinic acid lesioned rats. ***Pharmacol Biochem Behav*** 1991; 39:473-478.

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VÉGH, Ágnes

CARDIOLOGY

AFFILIATION
Department of Pharmacology and Pharmacotherapy, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS
The general scientific interests are the pathophysiology and pharmacology of heart diseases, such as the acute myocardial ischaemia and infarction, heart failure and cardiac arrhythmias. Over the last twenty-five years her primary scientific interest has been focused on the preconditioning-induced cardioprotective mechanisms with particular emphasis on the protection against the acute ischaemia and reperfusion-induced ventricular arrhythmias. More recently she is interested in the exploration of the role of gap junctions and gene expression changes in the antiarrhythmic protection.

MOST IMPORTANT DISCOVERIES
Over the years they developed in vivo large animal models of multiple coronary artery diseases, pacing-induced heart failure and acute ischaemia and reperfusion-induced ventricular arrhythmias. Her research team was the first to show that preconditioning provides marked protection not only against ischaemic injury but also against the ischaemia and reperfusion-induced life-threatening ventricular arrhythmias. They made the first proposal for the involvement of bradykinin and nitric oxide in the cardioprotective effects of preconditioning. They have pointed out that a marked protection against ischaemia and reperfusion-induced arrhythmias can be achieved also by rapid cardiac pacing and by vigorous exercise. They proposed a hypothesis that endogenous myocardial protective substances play an important role in both the early and the delayed antiarrhythmic effects of preconditioning.

PRIZES
1983: Firt Prize of Young Investigator Competition
2003: Medal and Award of the György Gábor Foundation by the Hungarian Cardiological Society
1997-2001: Széchenyi Professorship, by the Hungarian Government
2009: Makoto Nagano Award by the International Academy of Cardiovascular Scieneces

MOST IMPORTANT PUBLICATIONS
1. Végh Á, Komori S, Szekeres L, Parratt JR. Antiarrhythmic effects of preconditioning in anaesthetized dogs and rats. ***Cardiovasc Res*** 1992; 26: 487-952.
2. Végh Á, Szekeres L, Parratt JR. Preconditioning of the ischaemic myocardium; involvement of the L-arginine - nitric oxide pathway. ***Br J Pharmacol*** 1992; 107:648-52.
3. Babai L, Szigeti Z, Parratt JR, Végh Á. Delayed cardioprotective effects of exercise in dogs are aminoguanidine sensitive: possible involvement of nitric oxide. ***Clin Sci*** 2002; 102:435-45.
4. Papp R, Gönczi M, Kovács M, Seprényi Gy, Végh Á. Gap junctional uncoupling plays a trigger role in the antiarrhythmic effect of ischaemic preconditioning. ***Cardiovasc Res*** 2007; 74:396-405.

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VERKMAN, Alan S

GASTROENTEROLOGY

AFFILIATION
University of California – **San Francisco, USA**

RESEARCH INTERESTS
Physiology and biophysics of membrane transport, with focus on aquaporin water channels and epithelial chloride channels. Small-molecule discovery with focus on epithelial transporters, with relevance to human diseases including cystic fibrosis, polycystic kidney disease, secretory diarrheas, dry mouth and neuromyelitis optica. Development and application of novel biophysical methods to study dynamics and protein interactions in live cells, including single molecule dyanmics, fluorescence correlation spectroscopy and super-resolution imaging.

MOST IMPORTANT DISCOVERIES
Disovery of novel roles of aquaporin water channels from analysis of transgenic mouse and cell models, including the role of aquaporins cell migration and proliferation, epithelial cell secretion, fat metabolism and epidermal hydration.
Discovery of small-molecule inhibitors of CFTR, activators of mutant CFTR causing cystic fibrosis, inhibitors of urea transporters, blocking of NMO autoantibody to AQP4, and others, with directly translational potential to human diseases.

PRIZES
Elected American Association of Physicians and American Society of Clinical Investigation
Young investigator award, American Society of Nephrology and American Heart Association
MERIT award, National Institutes of Health, NIDDK and NIBIB

MOST IMPORTANT PUBLICATIONS
1. Saadoun S, Papadopoulos MC, Hara-Chikuma M and Verkman AS. Impairment of angiogenesis and cell migration by targeted of aquaporin-1 gene disruption. ***Nature*** 2005; 434:786-792.
2. Pedemonte N, Lukacs GL, Du K, Caci E, Zegarra-Moran O, Galietta LJ and Verkman AS. Small molecule correctors of defective ΔF508-CFTR cellular processing identified by high-throughput screening. ***J. Clin. Invest.*** 2005; 115:2564-2571.
3. Namkung W, Z Yao, Finkbeiner WE and Verkman AS. Small-molecule activators of TMEM16A, a calcium-activated chloride channel, stimulate epithelial chloride secretion and intestinal contraction. ***Faseb J.*** 2011; 25:4048-4062.
4. Tradtrantip L, Zhang H, Saadoun S, Phuan P, Lam C, Papdopoulos MC, Bennett JL and Verkman AS. Anti-aquaporin-4 monoclonal antibody blocker therapy for neuromyelitis optica. ***Ann. Neurol.*** 2011; In press.

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VIZI, E. Szilveszter

NEUROSCIENCE

AFFILIATION

Hungarian Academy of Sciences, Institute of Experimental Medicine – **Budapest, Hungary**

MOST IMPORTANT DISCOVERIES

Chemical communication between neurons. Presynaptic inhibition of transmitter release from nerve terminals via stimulation of presynaptic heteroreceptors (1). The existence of non-synaptic functional interaction between axon terminals. This was a conceptual turning point, he demonstrated a functional interaction between neurons lacking synaptic arrangements (2). Presynaptic inhibitory effect of adenosine and ATP on transmitter release via adenosine receptors (3). Non-synaptic communication: he found that steroid synthesis and secretion in the adrenal cortex is under direct local neuronal modulation by dopamine released from noradrenergic varicosities (4). He also showed that the immune cells are under the tonic influence of noradrenaline released from non-synaptic sympathetic varicosities, an effect mediated via β-adrenoceptors. Presynaptic inhibition of chemical signals in the nervous system and of a non-synaptic "cross-talk" between neurons. A new concept of non-synaptic transmission was proposed by Vizi, which represents a milestone in explaining chemical interactions between neurons. This discovery has resulted in developing new medicines. This was the first evidence that adenosine and ATP act on neurons. He has several patents.

PRIZES

Member of the Hungarian Academy of Sciences, the Academia Europaea (London), the Academia Scientiarum et Artium Europaea (Salzburg), the Belgian Royal Academy of Medicine, Honorary Member of The Czech Learned Society
2004: Foreign Member of the Russian Medical Academy • 1993: Széchenyi Award
1997: Middle Cross of the Order of the Hungarian Republic • 1998: Galileo Galilei Award (Italy)
2002: The Order of the Sacred Treasure, Gold and Silver Star • 2003: Pro Meritis Academiae Gold Medal (European Academy of Science and Arts)
2004: Loyality to Homeland the Honour Grand Cross • 2005: V. I. Vernadszkij Gold Medal – National Scientific Academy of Ukraine

MOST IMPORTANT PUBLICATIONS

1. Paton WDM, Vizi ES. The inhibitory action of noradrenaline and adrenaline on acetylcholine output by guinea-pig ileum longitudinal muscle strip. ***Br J Pharmac*** 1969; 35:10-28.
2. Vizi ES. Modulation of cortical release of acetylcholine by noradrenaline released from nerves arising from the rat locus coeruleus. ***Neuroscience*** 1980; 5:2139-44.
3. Vizi ES, Knoll J. The inhibitory effect of adenosine and related nucleotides on the release of acetylcholine. ***Neuroscience*** 1976; 1:391-8.
4. Vizi ES, Toth IE, Szalay KS, Windisch K, Orsó E, Szabó D, Vinson GP. Catecholamines released from local adrenergic axon terminals are possibly involved in fine tuning of steroid secretion from zona glomerulosa cells: functional and morphological evidence. ***J. Endocrinol*** 1992; 135:551-6.

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VOLDERS, Paul

CARDIOLOGY

AFFILIATION

School for Cardiovascular Diseases Cardiovascular Research Institute Maastricht (CARIM) Department of Cardiology, Maastricht University Medical Centre – **Maastricht, The Netherlands**

RESEARCH INTERESTS

Paul Volders, MD, PhD, Cardiologist and CARIM Principal Investigator (PI), coordinates the care of patients with inherited arrhythmias and structural cardiomyopathies at Maastricht University Medical Centre, The Netherlands. He leads an active research program to gain novel pathogenetic insights in ventricular arrhythmias and sudden cardiac death. Currently, Dr. Volders is the vice-chairman of the European Working Group on Cardiac Cellular Electrophysiology (EWGCCE) and the EWGCCE Representative within the Board of the European Heart Rhythm Association.

MOST IMPORTANT DISCOVERIES

Traditionally, the Volders team has focused on the electrophysiological characterization of arrhythmia substrates in inherited cardiomyopathies and acquired cardiac overload. Several important discoveries have been made (see publications below). More recently, research activities are also directed to:
(1) intracellular signaling pathways determining ion-channel function;
(2) the genetic and genomic basis of cardiac arrhythmias; and
(3) systems biology to integrate the basic molecular and functional determinants of arrhythmia syndromes with the clinical characteristics of individual patients, in order to provide better risk management and treatment. A paper combining these research activities has just been accepted for *Circ Res*. In this paper, the long-QT-syndrome hot-spot mutation KCNQ1 A341V is shown to express loss of cAMP-dependent upregulation of the potassium current I_{Ks} under *heterozygous* conditions.

PRIZES

• 1999 May 15: Young Investigator Award (First Prize, Basic) of the Heart Rhythm Society (formerly North American Society of Pacing and Electrophysiology), Toronto, Canada. • 2004 April 15: Best Grant Reviewer of the Netherlands Heart Foundation in 2003 – 2004, Leiden, The Netherlands.

MOST IMPORTANT PUBLICATIONS

1. Volders PGA, Sipido KR, Vos MA, Spätjens RLHMG, Leunissen JDM, Carmeliet E, Wellens HJJ. Downregulation of delayed rectifier K^+ currents in dogs with chronic complete atrioventricular block and acquired torsades de pointes. ***Circulation*** 1999; 100:2455-2461.
2. Volders PGA, Stengl M, van Opstal JM, Gerlach U, Spätjens RLHMG, Beekman JDM, Sipido KR, Vos MA. Probing the contribution of IKs to canine ventricular repolarization: key role for ß-adrenergic receptor stimulation. ***Circulation*** 2003; 107:2753-2760.
3. Gallacher DJ, Van de Water A, van der Linde H, Hermans AN, Lu HR, Towart R, Volders PGA. In vivo mechanisms precipitating torsades de pointes in a canine model of drug-induced long-QT1 syndrome. ***Cardiovasc Res*** 2007; 76:247-256.
4. Heijman J, Spätjens RLHMG, Seyen SRM, Lentink V, Kuijpers HJH, Boulet IR, de Windt LJ, David M, Volders PGA. Dominant-negative control of cAMP-dependent I_{Ks} upregulation in human long-QT syndrome type 1. ***Circ Res*** 2012; [Epub, ahead of print]

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VOLLMAR, Brigitte

IMMUNNOLOGY & INFLAMMATION

AFFILIATION
Institute for Experimental Surgery, Medical Faculty, University of Rostock – **Rostock, Germany**

RESEARCH INTERESTS
Mechanisms of organ injury and regeneration, surgical pathophysiology, cell-cell interaction, inflammation and sepsis, ischemia/reperfusion and shock, angiogenesis, wound healing, thrombosis, organ blood flow regulation.

PRIZES
2011: Franz-Kuhn-Medaille (Deutsche Gesellschaft für Anästhesiologie und Intensivmedizin)
2008: Walter Brendel Award (European Society for Surgical Research) • 2007: Hans-Jürgen-Bretschneider-Preis (Deutsche Gesellschaft für Chirurgie)
2005: Ferdinand-Sauerbruch-Forschungspreis (Vereinigung der Chirurgen Berlins und Brandenburgs) • 2000: Förderpreis des Vereins der Freunde der Universitätskliniken Homburg e.V.
1999: Calogero-Pagliarello-Forschungspreis (Universität des Saarlandes) • 1998: Investigator Award (Orthopedic Research Society)
1996: Lucie-Bolte Award (European Association of the Study of the Liver) • 1996: Heinz Kalk-Gedächtnispreis (Heinz Kalk Krankenhaus, Bad Kissingen)
1994: Rudolf Thauer Preis (Deutsche Gesellschaft für Kardiologie) • 1994: Otto-Goetze Preis (Deutsche Gesellschaft für Chirurgie)

MOST IMPORTANT PUBLICATIONS
1. Lindenblatt N, Menger MD, Klar E, Vollmar B. Darbepoetin-alpha does not promote microvascular thrombus formation in mice: role of eNOS-dependent protection through platelet and endothelial cell deactivation. ***Arterioscler Thromb Vasc Biol*** 2007; 27:1191-98.
2. Sorg H, Krueger C, Schulz T, Menger MD, Schmitz F, Vollmar B. Effects of erythropoietin in skin wound healing are dose related. ***FASEB J*** 2009; 23:3049-58.
3. Vollmar B, Menger MD. The hepatic microcirculation: mechanistic contributions and therapeutic targets in liver injury and repair. ***Physiol Rev*** 2009; 89:1269-339.
4. Tu-Rapp H, Pu L, Marques A, Kulisch C, Yu X, Gierer P, Ibrahim SM, Vollmar B. Genetic control of leucocyte--endothelial cell interaction in collagen-induced arthritis. ***Ann Rheum Dis*** 2010; 69:606-10.

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VOS, Marc

CARDIOLOGY

AFFILIATION
Medical Physiology, Division Heart and Lung, University Medical Center Utrecht, Utrecht University
Utrecht, The Netherlands

RESEARCH INTERESTS
The ventricular adaptations that take place in both ventricles of the heart (remodelling) after a pathological stimulus (disease) are of great importance to understand the enhanced susceptibility for ventricular arrhythmias in this patient population. Especially the triggered arrhythmias based upon repolarization disorders have been the subject of mine research. Both early diagnosis as well as induction by drugs as treatment for these triggered arrhythmias has mine interest.

MOST IMPORTANT DISCOVERIES
Early diagnosis: beat to beat variability of ventricular repolarization quantified as short trem variability has emerged as an important methodology to identify patients at risk for sudden cardiac death. Treatment: Numerous anti-arrhythmic drugs have been tested for the provoking and suppression of cardiac arrhythmias related to focal sources. The most beneficial uptill now have been (multi target) drugs that at least have the ability to block the L-type calcium channel. The search for such a drug without negative hemodynamic effects, that hampers application in patients with heart failure, is still ongoing.

PRIZES
Member of the "Hall of Fame" of the Faculty of Movement Sciences of the Free University Amsterdam since 2008

MOST IMPORTANT PUBLICATIONS
1. Nuyens D, Stengl M, Dugarmaa S, Rossenbacker T, Compernolle V, Rudy Y, Smits JF, Flameng W, Clancy CE, Moons L, Vos MA, Dewerchin M, Benndorf MK, Collen D, Carmeliet E, Carmeliet P. Abrupt rate acceleration or premature beats cause life-threatening arrhythmias in mice with long QT-syndrome. ***Nat Medicine*** 2001; 7:1021-1027
2. van Opstal JM, Schoenmakers M, Verduyn SC, de Groot SHM, Leunissen HDM, van der Hulst FF, Molenschot MMC, Wellens HJJ, Vos MA. Chronic amiodarone evokes no Torsade de Pointes arrhythmias despite QT lengthening in an animal model of acquired long QT syndrome. ***Circulation*** 2001; 104:2722-2727.
3. Thomsen MB, Verduyn SC, Stengl M, Beekman HDM, de Pater G, van Opstal JM, Volders PGA, Vos MA. Increased short-term variability of repolarisation is predicting d-sotalol induced Torsade de Pointes in dogs. ***Circulation*** 2004; 110:2460-2466
4. Hinterseer M, Beckmann BM, Thomsen MB, Pfeufer A, Ulbrich M, Sinner MF, Perz S, Wichmann HE, Lengyel C, Schimpf R, Maier SK, Varro A, Vos MA, Steinbeck G, Kaab S. Usefulness of short-term variability of QT intervals as a predictor for Electrical remodeling and pro-arrhythmia in patients with non-ischemic heart failure. ***Am J Cardiol*** 2010: 106:216-220.

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WALKER, John E.

NOBEL LAUREATE

AFFILIATION
Medical Research Council Mitochondrial Biology Unit – **Cambridge, UK**

RESEARCH INTERESTS
Understanding the fundamental processes taking place in mitochondria, and how dysfunction of those processes is involved in human disease, with the aim of developing new therapies to treat and possibly prevent the diseases. The fundamental work has concentrated on two areas: the molecular basis of energy conversion, and the biogenesis of the organelle. Current research interests are focussed on the involvement of mitochondria in the aetiology, treatment and prevention of neurodegenerative diseases.

MOST IMPORTANT DISCOVERIES
Established the details of the modified genetic code of mitochondria. Helped to discover overlapping genes in bacteriophages. Discovered the Walker A and B protein sequence motifs involved in binding nucleotides in NTPases. Determined the structure of the catalytic domain of ATP synthase and proposed its rotary mechanism. Discovered that the energy cost of making an ATP molecule is constant throughout multi-cellular animals, but not in unicellular organisms which are less efficient. Discovered that complex I is a complex of 45 proteins, and opened it up to structural analysis, culminating in its structure being determined his Unit. Defined the protein family that transports metabolites, co-factors and biosynthetic precursors across the mitochondrial membrane.

PRIZES
1994: Johnson Foundation Prize, University of Pennsylvania Medical School, Philadelphia, USA • 1995: CIBA Medal and Prize of The Biochemical Society, London • 1996: The Peter Mitchell Medal of the European Bioenergetics Congress
1997: Nobel Prize in Chemistry
2011: The Keilin Memorial Medal and Prize of The Biochemical Society, London

MOST IMPORTANT PUBLICATIONS
1. Walker JE, Saraste M, Runswick MJ, Gay NJ. Distantly related sequences in the α and β subunits of ATP synthase, myosin, kinases and other ATP requiring enzymes and a common nucleotide binding fold. ***EMBO J*** 1982; 1: 945-51.
2. Abrahams J P, Leslie A G W, Lutter R, Walker J E. Structure at 2.8 Å resolution of F_1-ATPase from bovine heart mitochondria. ***Nature*** 1994; 370:621-28.
3. Stock D, Leslie AGW, Walker JE. Molecular architecture of the rotary motor in ATP synthase. ***Science*** 1999; 286:1700-05.
4. Watt IN, Montgomery M G, Runswick MJ, Leslie AGW, Walker JE. Bioenergetic cost of making an adenosine triphosphate molecule in animal mitochondria. ***Proc Natl Acad Sci USA*** 2010; 107:16823-27.

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Hills Road, Cambridge CB2 0XY, UK
e-mail: walker@mrc-mbu.cam.ac.uk – Tel.: 00 44 0 1223 252701, Fax: 00 44 0 1223 252705

WELLS, Jerry

GASTROENTEROLOGY

AFFILIATION
University of Wageningen – **Wageningen, The Netherlands**

RESEARCH INTERESTS
Jerry Wells has 20 years research experience since obtaining his PhD and has developed a major interest in the field of host-microbe interactions, bacterial infection and immunity, microbial genomics and mucosal immunology.

MOST IMPORTANT DISCOVERIES
During his PhD Jerry Wells and colleagues discovered a system of gene exchange in the pathogenic African trypanosome *T. brucei*. Previously this organism had been considered asexual so this discovery had major implications for spread of drug resistance and variable antigen genes as well as the biology of *Trypanosoma*. Jerry Wells and his colleagues carried out pioneering research on the development of harmless lactic acid bacteria as mucosal delivery vehicles. His group published the first oral vaccination and protection study with *L. lactis* expressing tetanus fragment C. Several research studies followed demonstrating expression and delivery of cytokines to boost immunity as well as HIV-1 viricides and fusion inhibitors. His research on pathogenic bacteria has led to the discovery of new protective vaccine antigens (Group B *Streptococcus*), new virulence factors and virulence mechanisms (*Campylobacter jejuni* and *Streptococcus suis*) and the identification of pathways regulated by the novel drug target YycF/G in *Streptococcus pneumoniae*.

PRIZES
Oct. 1993 - Oct. 1998: BBSRC Advanced Fellowship • Nov. 1998 - 2004: Sainsbury Management Fellowship in the Life Sciences. A prestigious award administered by the Royal Academy of Engineering for career development

MOST IMPORTANT PUBLICATIONS
1. Jenni L, Marti S, Schweizer J, Betschart B, Le Page RW, Wells JM, Tait A. Paindavione P, Pays E and Steinert M. Hybrid formation between African trypanosomes during cyclical transmission. ***Nature*** 1986; 322:173-75
2. Wells JM and Mercenier A. Mucosal delivery of therapeutic and prophylactic molecules using lactic acid bacteria. ***Nature Reviews Microbiol*** 2008; 6:349-62.
3. Meijerink M, van Hemert S, Taverne N, Wels M, de Vos P, Bron PA, Savelkoul HF, van Bilsen J, Kleerebezem M, Wells JM. Identification of genetic loci in *Lactobacillus plantarum* that modulate the immune response of dendritic cells using comparative genome hybridization. ***PLoS One.*** 2010; 13:5(5):e10632.
4. Wells JM, Rossi O, Meijerink M and van Baarlen P. Epithelial Crosstalk at the Microbiota-Mucosal Interface. ***Proc Natl Acad Sci USA***. 2011; 15:108 Suppl 1:4607-14.

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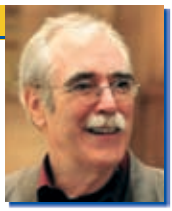
WIESCHAUS, Eric

NOBEL LAUREATE



AFFILIATION

Hoard Hughes Medical Institute, Department of Molecular Biology, Princeton University – **Princeton, USA**

RESEARCH INTERESTS

Developmental biology, pattern formation during embryonic development, the genetic control of cell shape and cell motility.

MOST IMPORTANT DISCOVERIES

Cell Lineage Analysis during early Drosophila development showing segmental determination at the blastoderm stage. Establishment of mosaic techniques to test contributions of germline and somatic cells to maternal pattening duriing oogeneisis in Drsophila. Identification of zygotic and maternal genes controling embryonic development in Drosophila. Molecular cloning and analysis of the Armadillo Gene, the Drosophila homologue of Beta Catenin, and the demonstration that its degradation and levels are control by Wnt signaling. Identification of genes requried for cellularization and the cell biological basis of the process in in sect embryos. Demosntration of the role of Actin Myosin contractility during cell shape change during Drosophila gastrulation. Robustness of the Bicoid Gradient and maternal patterning during Early embryonic development.

PRIZES

1974: John Spangler Niclaus Prize, Yale University • 1989-1999; 2003-2013: NIHHD Merit Award
1993: Associate Member, European Molecular Biology Organization • 1993: Member, American Academy of Arts and Sciences
1994: Member, National Academy of Sciences, USA • 1995: The Genetics Society of America Medal
1995: Nobel Prize in Physiology or Medicine
1998: Member, American Philosophical Society • 1999: Foreign Member, Max-Planck Society • 1999: Mendel Medal, UK Genetical Society
2003: Inducted into the NICHD Hall of Honor • 2005: Wilbur Lucius Cross Medal of the Yale Graduate School • Honorary Degrees (University of Alabam (Birmingham); Rutgers University, Rider University, University of Zurich • 2007: President, Society for Developmental Biology

MOST IMPORTANT PUBLICATIONS

1. Nüsslein-Volhard C. and Wieschaus E. Mutations affecting segment number and polarity in Drosophila. ***Nature*** 1980; 287:795-801.
2. Riggleman R., Schedl P. and Wieschaus E. Spatial expression of the Drosophila segment polarity gene armadillo is post-transcriptionally regulated by wingless. ***Cell*** 1990; 63:549-560.
3. Grosshans J. and Wieschaus E. A Genetic link between morphogenesis and cell division during formation of the ventral furrow in Drosophila. ***Cel***, 2000; 101: 523-531.
4. Martin AC, Kaschube M, Wieschaus E. Pulsed contractions of an actin-myosin network drive apical constriction. ***Nature*** 2009; 457: 495-499

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WILDE, Arthur AM

CARDIOLOGY

AFFILIATION

Heart Failure Research Centre, Department of Clinical and Experimental Cardiology Academic Medical Centre
Amsterdam, The Netherlands

RESEARCH INTERESTS

Clinical and Basic Cardiac electrophysiology. Genetics of arrhythmia syndromes and Sudden Cardiac Death.

MOST IMPORTANT DISCOVERIES

The main contribution to science of Arthur Wilde are the studies in the field of cardiac electrophysiology in general and in the inherited arrhythmia syndromes in particular. My group has identified, over 15 years, several novel genes, among which the first gene for idiopathic ventricular fibrillation (an immediate life threatening arrhythmia without any discernable abnormality in heart structure or function). In addition, the extensive basic electrophysiological studies and the extensive studies in which the clinical picture of the patients (phenoype) is carefully compared with the genetic makeup (genotype) have led to very significant increase in our understanding of the pathophysiological basis (i.e. the mechanisms) of these syndromes. A short line between â bench and bedsideâ has enabled the immediate use of gained knowledge in clinical care with significant impact on therapeutic choices. This includes new treatment modalities, some of which were, world wide, first successfully applied in Amsterdam. Finally, the format of the worldâ s first cardiogenetic clinic, an outpatient clinic established by the candidate in the AMC in 1996, where cardiologist and clinical geneticists counsel patients together, is copied in various European countries after visits by cardiologists and geneticists from abroad.

PRIZES

1995: Appointed by the Netherlands Heart Foundation as a Clinical Established Investigator (1996-2000)
2009: Descartes Huygens prize (French Academy of Science) • 2011: Member of the Dutch Academy of Science

MOST IMPORTANT PUBLICATIONS

1. Wilde AAM, Antzelevitch Ch, Borggrefe M, Brugada J, Brugada R, Brugada P, Corrado D, Hauer RNW, Kass RS, Nademanee K, Priori SG, Towbin JA for the study group on the molecular basis of arrhythmias of the European Society of Cardiology. Diagnostic Criteria for the Brugada Syndrome. A Consensus Report. ***Circulation*** 2002; 106:2514-2519.
2. Wilde AAM, Bhuiyan ZA, Crotti L, M.D. Facchini M, De Ferrari GM, Paul, Ferrandi C, Koolbergen DR, Odero A, Schwartz PJ. Left Cardiac Sympathetic Denervation for Catecholaminergic Polymorphic Ventricular Tachycardia. ***NEJM*** 2008; 358:2024-2029.
3. Alders M, Koopmann TT, Christiaans I, Postema PG, Beekman L, Tanck MWT, Zeppenfeld K, Loh P, Kock KT, Demolombe S, Mannens MMAM, Bezzina CR, Wilde AAM. Haplotype Sharing Analysis Implicates Chromosome 7q36 harboring DPP6 in Familial Idiopathic Ventricular Fibrillation. ***Am J Hum Genet*** 2009; 84:468-476.
4. Bezzina CR*, Pazoki R*, Bardai A*, Marsman RJ*, de Jong JSSG*, Blom MT, Scicluna BP, Jukema JW, Bindraban NR, Lichtner P, Pfeufer A, Bishopric N, Roden DM, Meitinger T, Chugh S, Myerburg RJ, Jouven X, KÃ¤Ã¤b S, Dekker LRC, Tan HL, Tanck MWT, Wilde AAM. A Genome-wide Association Study identifies a region at chr 21q21 as a susceptibility locus for Ventricular Fibrillation In Acute Myocardial Infarction. ***Nature Genetics*** 2010; 42:688-694.

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WILLIAMS, John A

GASTROENTEROLOGY

AFFILIATION

Department of Molecular & Integrative Physiology, University of Michigan – **Ann Arbor, USA**

RESEARCH INTERESTS – MOST IMPORTANT DISCOVERIES

Dr. Williams' research over the last thirty years has dealt with the control of function of the exocrine pancreas. Initially this work focused on the control of digestive enzyme secretion which has continued to date where it now is centered on the molecular mechanism of exocytosis and the proteomics of the zymogen granule. Subsequently the work expanded to also embrace the control of digestive enzyme synthesis, the regulation of pancreatic growth, and the cellular mechanisms involved in rodent models of experimental pancreatitis. In fact, there is hardly an area of pancreatic biology that has not been influenced by his work. Some of his major contributions include:

• The demonstration that pancreatic secretagogues act by mobilization of stored intracellular calcium • That acinar cells are regulated by insulin through portal vascular connections • Characterization in detail of cholecystokinin receptors in pancreas and brain, including description of the two classes of CCK and gastrin (CCK-B) receptors 4) Characterization of new proteins on or in the pancreatic zymogen granule • The acute regulation of pancreatic digestive enzyme synthesis at the translational level • The regulation of MAPK and other signaling cascades not involved in secretion in acinar cells • the control of acinar cell adaptive growth mediated by CCK and amino acids. This work has led to over 280 peer reviewed papers in high quality journals and more than 85 reviews and book chapters, and has been continuously funded by multiple NIH grants since 1973. Currently one of his grants has been award MERIT status.

PRIZES

President of the American Physiology Society and the American Pancreatic Association
Gastrointestinal Section Prize of the American Physiological Society Ismar Boas Medal of the German Gastroenterological Association Fellow of the American Association for the Advancement of Science Lifetime Achievement Award American Pancreatic Association

MOST IMPORTANT PUBLICATIONS

1. Saito A, Sankaran H, Goldfine ID, Williams JA. Cholecystokinin receptors in the brain: Characterization and distribution. ***Science*** 1980; 208:1155-1156.
2. Liddle RA, Goldfine ID, Rosen MS, Taplitz RA, Williams JA. Cholecystokinin bioactivity in human plasma: molecular forms, response to feeding, and relationship to gallbladder contraction. ***J Clin Invest*** 1985; 75:1144-1152.
3. Tashiro M, Samuelson LC, Liddle RA, Williams JA. Calcineurin mediates pancreatic growth in protease inhibitor-treated mice. ***Am J Physiol*** 2004; 286:G784-G790.
4. Crozier SJ, D'Alecy LG, Ernst SA, Ginsberg LE and Williams JA. Molecular mechanisms of pancreatic dysfunction induced by protein malnutrition. ***Gastroenterology*** 2009; 137:1093-1101.

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WITTMANN, Tibor

GASTROENTEROLOGY

AFFILIATION

1st Department of Medicine, University of Szeged – **Szeged, Hungary**

RESEARCH INTERESTS

Gastroenterology- functional gastrointestinal disorders; Gastrointestinal motility in health and diseases; Gastroesophageal reflux disease (extraesophageal complications and Barrett's esophagus); Pathogenesis of visceral hypersensitivity in different subtypes of irritable bowel syndrome (IBS); the role of fecal proteases in the pathogenesis of ulcerative colitis; alcohol and diabetes related impairments in the enteric nervous system and the gut function.

MOST IMPORTANT DISCOVERIES

Esophago-cardiac and bronchial reflexes are common in patients with GERD.More advanced forms of Barrett's metaplasia are associated with more severe acidic and biliary reflux and esophageal dysfunctions.
In the pathogenesis of visceral hypersensitivity intraluminal serine proteases have a role in diarrhoea predominant, whereas cystein proteases in constipation predominant form of IBS. Fecal cathepsin-G plays a role in the pathogenesis of ulcerative colitis via activation of PAR-4.
The inhibitory effect of alcohol on gastrointestinal motility is mediated via capsaicin sensitive afferent nerves and type-A CCK receptors in rats. Chronic alcohol intake and advanced diabetes cause regionally different neurodegenerative damage of the nitrergic subpopulation of enteric neurons in rats.

PRIZES

2005: Pro Optimo Merito in Gastroenterologia Medallion
2009: Géza Hetényi Memorial Medallion
2011: Order of Merit of the Hungarian Republic, Officer's Cross

MOST IMPORTANT PUBLICATIONS

1. Rosztóczy A, Vass A, Izbéki F, Nemes A, Rudas L, Csanády M, Lonovics J, Forster T, Wittmann T. The evaluation of gastro-oesophageal reflux and oesophagocardiac reflex in patients with angina-like chest pain following cardiologic investigations. ***Int J Cardiol*** 2007; 118:62-8.
2. Rosztóczy A, Izbéki F, Róka R, Németh I, Gecse K, Vadászi K, Kádár J, Vetró E, Tiszlavicz L, Wittmann T. The Evaluation of Oesophageal Function in Patients with Different Types of Oesophageal Metaplasia. ***Digestion*** 2011; 84:273-280.
3. Gecse K, Róka R, Ferrier L, Leveque M, Eutamene H, Cartier C, Ait-Belgnaoui A, Rosztóczy A, Izbéki F, Fioramonti J, Wittmann T, Bueno L.Increased faecal serine protease activity in diarrhoeic IBS patients: a colonic luminal factor impairing colonic permeability and sensitivity. ***Gut*** 2008; 57:591-9.
4. Annaházi A, Gecse K, Dabek M, Ait-Belgnaoui A, Rosztóczy A, Róka R, Molnár T, Theodorou V, Wittmann T, Bueno L, Eutamene H. Fecal proteases from diarrheic-IBS and ulcerative colitis patients exert opposite effect on visceral sensitivity in mice. ***Pain*** 2009; 144:209-17.

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WOOD, John N

NEUROSCIENCE

AFFILIATION
University College London and Seoul National University – **London, UK**

RESEARCH INTERESTS
Pain and somatosensation.

MOST IMPORTANT DISCOVERIES
Identification of ligand and voltage gated channels involved in peripheral pain pathways – e.g. P2X3, Nav1.8, Nav1.9. ASIC4 etc and analysis of their function using tissue-specific gene deletion in transgenic mice. Identification of human monogenic pain channelopathies in FEPS and FRP

PRIZES
2009: Grand Prix Scientifique de L'Academie de France

MOST IMPORTANT PUBLICATIONS
1. Wood JN, Hudson L, Jessell TM and Yamamoto M. A monoclonal antibody defiantigenic determinants on subpopulations of mammalian neurons and T. cruzi Parasites, ***Nature*** 1982; 296:34 38.
2. Chen Chih-Cheng, Akopian A, Sivilloti L, Colquhoun D, Burnstock G. and Wood JN. A subset of sensory neurons express a novel P2X receptor. ***Nature*** 1995; 377, 428-432.
3. Souslova V, Cesare P, Ding Y, Akopian AN, Stanfa L, Suzuki R, Carpenter K, Dickenson A, Boyce S, Hill R, Nebenuis-Oosthuizen D, Smith AJ, Kidd EJ, Wood JN. Warm-coding deficits and aberrant inflammatory pain in mice lacking P2X3 receptors. ***Nature*** 2000; 407:1015-7.
4. Abrahamsen B, Zhao J, Asante C, Cendan C, Marsh S, Martinez-Barbera J, Nassar, MA, Dickenson AS and John N. Wood The cell and molecular basis of mechanical, cold and inflammatory pain. ***Science*** 2008; 321:702-5

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YONATH, Ada

NOBEL LAUREATE

AFFILIATION
Weizmann Institute of Science – **Rehovot, Israel**

RESEARCH INTERESTS
Life science.

MOST IMPORTANT DISCOVERIES
The structure of the ribosme and the modes of action of its antibiotics.

PRIZES
Nobel Prize for Chemistry
Albert Einstein World Award
UNESCO-L'Oréal Award
Linus Pauling Gold Medal
Wolf Prize for Chemistry
Paul Ehrlich-Ludwig Darmstaedter Medal
Louisa Gross Horwitz Prize
Paul Karrer Gold Medal
Harvey Prize
Israel Prize for Chemical Research
The 1st European Crystallography Prize

MOST IMPORTANT PUBLICATIONS
1. Bashan A, Agmon I, Zarivach R, Schluenzen F, Harms J, Berisio R, Bartels H, Franceschi F, Auerbach T, Hansen HAS, Kossoy E, Kessler M and Yonath A. Structural basis of the ribosomal machinery for peptide bond formation, translocation, and nascent chain progression. ***Mol Cell*** 2003; 11:91-102
2. Schluenzen F, Zarivach R, Harms J, Bashan A, Tocilj A, Albrecht R, Yonath A and Franceschi F. Structural basis for the interaction of antibiotics with the peptidyl transferase centre in eubacteria. ***Nature*** 2001; 413:814-21
3. Harms J, Schluenzen F, Zarivach R, Bashan A, Gat S, Agmon I, Bartels H, Franceschi F and Yonath A. High resolution structure of the large ribosomal subunit from a mesophilic eubacterium. ***Cell*** 2001; 107:679-88
4. Schluenzen F, Tocilj A, Zarivach R, Harms J, Gluehmann M, Janell D, Bashan A, Bartels H, Agmon I, Franceschi F and Yonath A. Structure of functionally activated small ribosomal subunit at 3.3 A resolution. ***Cell*** 2000; 102:615-23

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ZINK, Albert

TUBERCULOSIS EVOLUTION

AFFILIATION

European Academy – Institute for Mummies and the Iceman – **Bolzano, Italy**

RESEARCH INTERESTS

Scientific study of the Tyrolean Iceman. Genetic, anthropological and paleopathological investigations of royal Egyptian mummies. Anthropological and paleopathological investigations of mummies and skeletons from different time periods and geographical origins. Molecular characterization of different tuberculosis strains from skeletal and mummified material. Reconstruction of evolutionary pathways. Presence, spread and transmission of infectious diseases in historic populations, including tuberculosis, leprosy, syphilis, leishmaniasis and malaria.

MOST IMPORTANT DISCOVERIES

Whole genome sequencing of the Tyrolean Iceman and detection of the completely filled stomach. Familial relationship of King Tutankhamun, including the identification of his father and mother and detection of different pathologies in his mummy, such as an aseptic bone necrosis and malaria. Molecular detection and identification of different member of the *Mycobacterium tuberculosis* complex in ancient Egyptian mummies. First evidence for the presence of *M. africanum* in 4000-year-old mummies. Evidence for leishmaniasis and malaria in ancient Egyptian mummies. Molecular identification of tuberculosis in skeletal findings from Hungary. Discovery of the oldest used prosthesis in the world in a female mummy from ancient Egypt, who lived more than 3000 years ago.

PRIZES

2000: Poster prize XIII PPA Meeting in Chieti, Italy
2004: Poster prize XV Biennial European PPA Meeting in Durham, UK

MOST IMPORTANT PUBLICATIONS

1. Nerlich AG, Haas CJ, Zink A, Szeimies U, Hagedorn HG. Molecular evidence for tuberculosis in an ancient Egyptian mummy. ***Lancet*** 1997; 350:1404.
2. Nerlich AG, Zink A, Szeimies U, Hagedorn HG. Ancient Egyptian prosthesis of the big toe. ***Lancet*** 2000; 356:2176-9.
3. Zink AR, Sola C, Reischl U, Grabner W, Rastogi N, Wolf H, Nerlich AG. Characterization of *Mycobacterium tuberculosis* complex DNAs from Egyptian mummies by spoligotyping. ***J Clin Microbiol*** 2003; 41:359-67.
4. Hawass Z, Gad YZ, Ismail S, Khairat R, Fathalla D, Hasan N, Ahmed A, Elleithy H, Ball M, Gaballah F, Wasef S, Fateen M, Amer H, Gostner P, Selim A, Zink A, Pusch CM. Ancestry and pathology in King Tutankhamun's family. ***JAMA*** 2010; 303:638-47.

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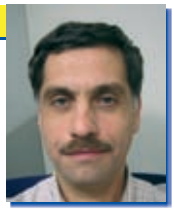
ZSEMBERY, Ákos

GASTROENTEROLOGY



AFFILIATION

Institute of Human Physiology and Clinical Experimental Research Semmelweis University – **Budapest, Hungary**

RESEARCH INTERESTS

Iontransport across the airway and intestinal epithelial cells.
Alternative chloride secretory pathways in cystic fibrosis epithelial cells

MOST IMPORTANT DISCOVERIES

Human CF cholangiocytes and pancreatic duct cells lack both cAMP-stimulated chloride and bicarbonate secretion, however in these cells calcium-activated chloride channels are able to support bicarbonate secretion.
The P2X purinergic receptors are not only ATP-gated ion channels but they are sensors for zinc and other cations as well.

PRIZES

Zoltán Magyary postdoctoral award
János Bolyai research fellowship
László Hársing award

MOST IMPORTANT PUBLICATIONS

1. Zsembery A, Strazzabosco M, Graf J. Ca2+-activated Cl- channels can substitute for CFTR in stimulation of pancreatic duct bicarbonate secretion. ***FASEB J.*** 2000; 14:2345-56.
2. Zsembery A, Jessner W, Sitter G, Spirlí C, Strazzabosco M, Graf J. Correction of CFTR malfuction and stimulation of Ca2+-activated Cl- channels restore HCO_3^- secretion in cystic fibrosis bile ductular cells. ***Hepatology*** 2002; 35:95-104.
3. Zsembery A, Boyce AT, Liang L, Peti-Peterdi J, Bell PD, Schwiebert EM. Sustained calcium entry through P2X nucleotide receptor channels in human airway epithelial cells. ***J. Biol. Chem.*** 2003; 278:13398-408.
4. Zsembery A, Fortenberry JA, Liang L, Bebok Z, Tucker TA, Boyce AT, Braunstein GM, Welty E, Bell PD, Sorscher EJ, Clancy JP, Schwiebert EM.. Extracellular zinc and ATP restore chloride secretion across cystic fibrosis airway epithelia by triggering calcium entry. ***J. Biol. Chem.*** 2004; 279:10720-29.

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