

Automated Electrophoresis for Protein Characterization



Figure 1. LabChip GXII Touch

The LabChip® GXII Touch System offers researchers an automated alternative to traditional methods by streamlining the multiple, manual steps of slab gel electrophoresis, while also providing the throughput and data quality essential in the biotherapeutics workflow (Figure 1).

The platform supports multiple assays for characterizing proteins in reduced and non-reduced samples including :

- Purity
- Titre
- Glycan screening
- mAb charge heterogeneity
- Fragmentation

Analysis can be performed in as few as forty seconds per sample delivering comparable data to traditional capillary electrophoresis with as much as a 70X increase in throughput. Choose 96-well or up to 384-well platforms depending upon throughput needs. Using an easy to use touch screen interface, even occasional users get up and running samples quickly. TIBCO SpotFire® data visualization further enhances data output.

PerkinElmer offers solutions to ensure the consistent, reproducible results your biotherapeutics research and patient safety considerations demand. GLP-compliant processes in the world's leading pharmaceutical, biotechnology and contract research organizations include our portfolio of assays and reagents, plate readers, liquid handling and technical expertise across the biotherapeutics workflow.

LabChip GXII Touch Screen Simplifies Sample Analysis

Touch – User friendly operation

- Load sample plate and chip
- Select samples (up to 384 in a run)
- Select assay type
- Touch 'Run' to start
- You can even have the system automatically export data directly to your network or LIMS system (Figure 2)

Run – Observe runs in real time

- Sample analysis in as few as 40 seconds
- View electropherogram in real time during data collection
- Overlay collected data in runtime environment to compare sample profiles
- Select from various run time analytical feature annotations

Review –See data in real time or export for later analysis

- Choose display in E-gram, virtual gel or data table format (Figure 3)
- Enhance results with TIBCO SpotFire® Data Visualization
- Pull multiple archived plates into data review collection for analytical comparisons
- Apply data mining filter functions on key attributes
- Highlight expected peaks
- Compatible with both LabChip GXII and LabChip GXII Touch data sets

The LabChip GXII Touch Operator controls are designed to allow users to easily setup and execute a run with as few as three easy steps. Part of the operator environment are features to allow run templates to be imported. Run templates can include such things as well selections, sample names, expected peak tables, and more, which facilitate operator ease of use. Data can be automatically exported to network or LIMS directories for subsequent analysis. Every instrument also comes with a full software package for Data Review. There is no license limitation for data review. Use this Data Reviewer software in the convenience of your office to collaborate to analyze data sets, compare data with archived data sets or to collaborate with remote colleagues.



Figure 2. Data analysis begins with an easy to use touch screen interface

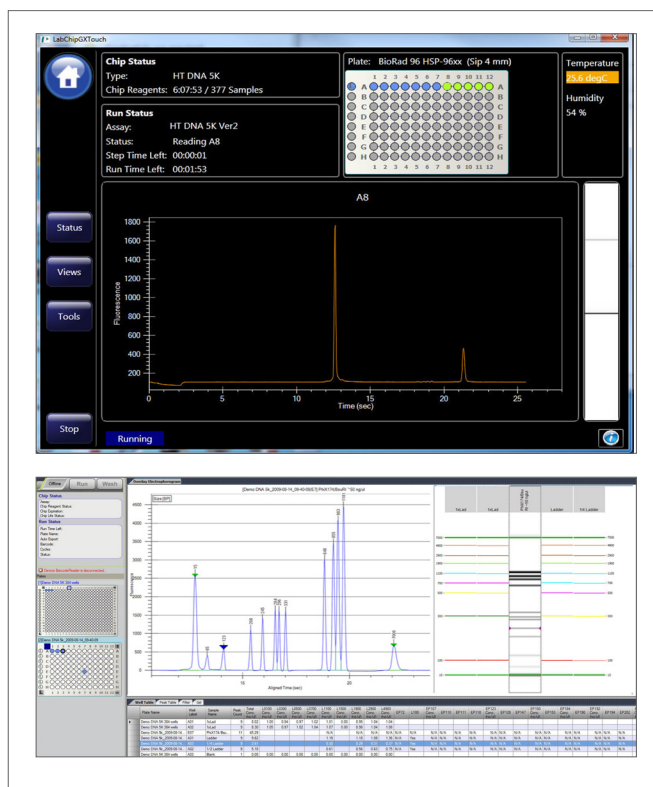
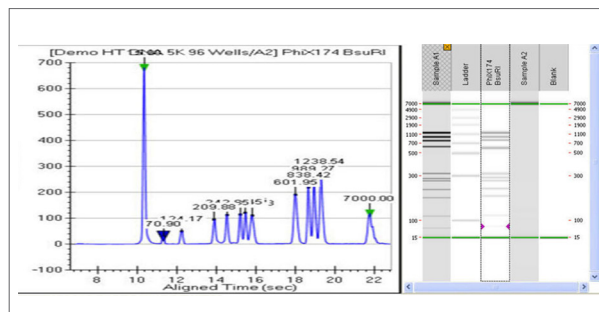


Figure 3. Flexible data options allow real time or export in multiple formats

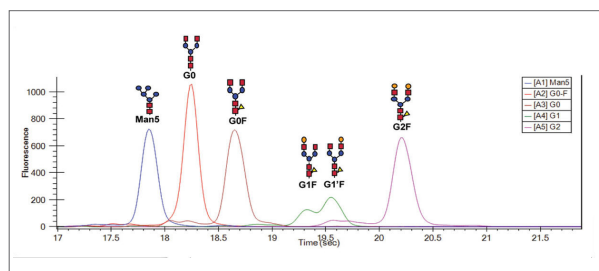
Rapid Analysis Throughout the Protein Workflow



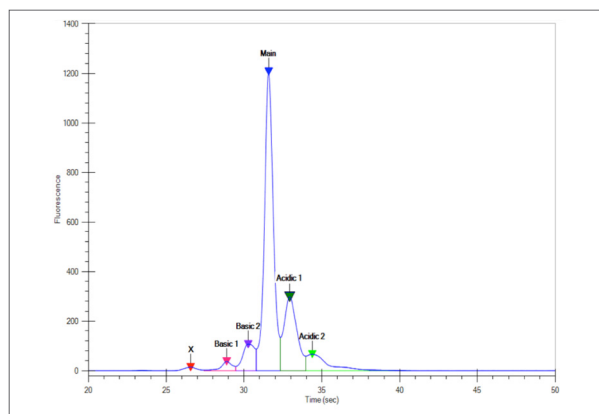
The LaChip GXII Touch offers rapid quantification and quality control throughout the biotherapeutics workflow. For example, automating the characterization process allows multiple, critical quality attributes to be obtained significantly faster. Biotherapeutics researchers can now screen for optimal protein characteristics earlier in the process, and integrate Quality by Design initiatives into their biotherapeutics development workflow (Figure 4).



Standard and Pico Sensitivity Protein



Glycan Screening



Charge Heterogeneity

Small-Scale High Throughput Process Development

Process Parameters

Purification & Sample Prep



JANUS BioTx Pro Workstation

Determination of Critical Quality Attributes



LabChip GXII Touch

- ✓ Purity & Fragmentation
- ✓ N-Glycan profiling
- ✓ Change Variant



LabChip DS

- ✓ Recovery & Yield

Informatics

Process Outcomes

Figure 4. With LabChip microfluidics technology and the JANUS® BioTx Workstation, you can purify and analyze in one day what typically takes weeks with alternative methods. Explore a broader range of experimental conditions and save in both the development time and cost of your biotherapeutics research (above). LabChip Touch reagents are available for multiple protein attribute analysis including standard and pico protein, glycan screening and charge heterogeneity (right).

LabChip Electrophoresis

How Does it Work?

LabChip electrophoresis is performed on a small, microfluidic chip. Prior to analysis, reagents are loaded into the individual wells of the chip. These wells are connected to small plates of quartz etched with tiny microchannels about the size of a human hair (Figure 6).

When the chip is loaded into the LabChip GXII Touch system, the chip's wells interface with platinum electrodes that provide voltage and current control. The system robot moves the microtiter plate wells directly under the chip's capillary 'sipper', and approximately 150 nL of sample is aspirated onto the chip. Sample staining and destaining are performed automatically on the instrument platform.

Individual sample analytes are separated electrophoretically and the bands are detected via laser induced fluorescence. Sizing and concentration for each band are determined using ladder and internal markers. Because the sipper is rinsed between samples, cross-contamination or carryover is eliminated.

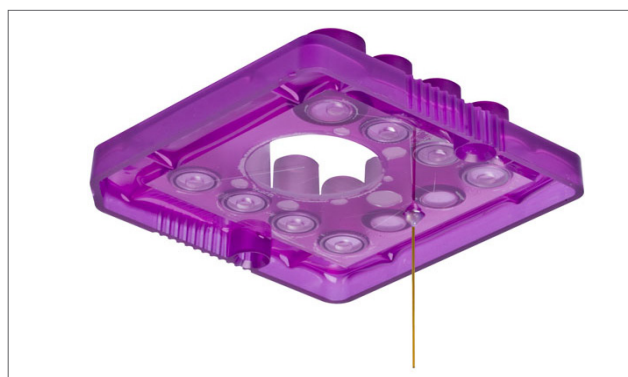


Figure 6. LabChip for protein research

Ordering Information

	LabChip GXII	LabChip GXII Touch HT	LabChip GXII Touch 24
Protein Express LabChip	760499	760499	CLS138950
Protein Express LabChip (Economy 4 pack)	760528	760528	N/A
Protein Express Reagent Kit	CLS960008	CLS960008	CLS960008
Bulk Protein Express Sample Buffer	760518	760518	N/A
Pico Protein Reagent Kit	760498	760498	760498
Bulk Pico Protein Sample Buffer	760414	760414	N/A
High Resolution Protein LabChip	760524	760524	CLS138951
Low Molecular Weight Reagent Kit	760573	760573	760573
Glycan Screening Reagent Kit	760525	760525	760525
Glycan Release & Labeling Kit	760523	760523	760523
DNA 5K/RNA/CZE LabChip	760435	760435	CLS138949
Charge Variant Reagent Kit	CLS760670	CLS760670	CLS760670

LabChip GXII Touch Specifications			
Height	25.75 in	Power Requirements	100-240 Vac
Width	19.25 in	Power Consumption	N/A
Depth	18.25 in	Plate Formats	96- or 384-well
Weight	54 lbs (24.5 kg)	Excitation/Emission	635 and 700 nm
Temperature Range	18-26 deg C	Humidity Range	20% - 80% RH

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