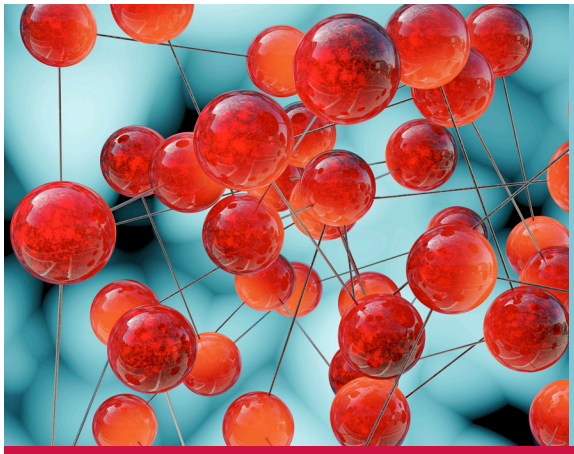

Automated, High Performance Electrophoresis for Genomics

Figure 1. LabChip GX Touch

LabChip® GX Touch microfluidics technology streamlines the multiple, manual steps of slab gel electrophoresis and provides sample integrity checks essential for pre-and post-PCR workflows.

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.

The LabChip GX Touch offers:

- Rapid, touch screen sample analysis – in as little time as 30 sec/sample
- Quantitative metric of RNA and DNA sample integrity to ensure only the best samples go downstream
- Efficient up to 24 sample platform-saves time and reagent expense; up to 384-well for high throughput workflow
- Choice of data output: electropherogram, virtual gel or data table format

Continued advances have rendered DNA sequencing technologies tractable towards a variety of applications. The ease of use, low cost, and throughput of these systems have shifted the burden of technology development towards processes aimed at recovery and tailored processing of samples upfront to sequence analysis. The need for a suite of tools capable of handling large numbers of samples in application-specific processes is a bottleneck in realizing opportunities for advancement of medical diagnostics, personalized medicine, and novel therapeutics. The LabChip GX Touch RNA and Genomic DNA assays support generation of sample quality scores to allow you to feel confident that only samples which meet your integrity criteria get passed downstream.

PerkinElmer®
For the Better

LabChip GX 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 30 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 TIPCO 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 GX and LabChip GX Touch data sets

LabChip GX Touch Software is designed to run assays with a minimal number of manual selections. Assay setup parameters can be downloaded to the instrument by file and will execute at the touch of a button. Parameters from the last assay run persist to make running multiple plates with the same assay parameters very convenient.

The data review software module enables scientists to review completed samples from a workspace remote from the lab. The software is supported by an unlimited license such that data sets can be shared with colleagues to make project collaborations simple and straightforward. The data review software supports filetypes generated on both the LabChip GX Touch and LabChip GX platforms.

LabChip GX Touch data files are TIBCO SpotFire® compatible (as an optional feature).

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

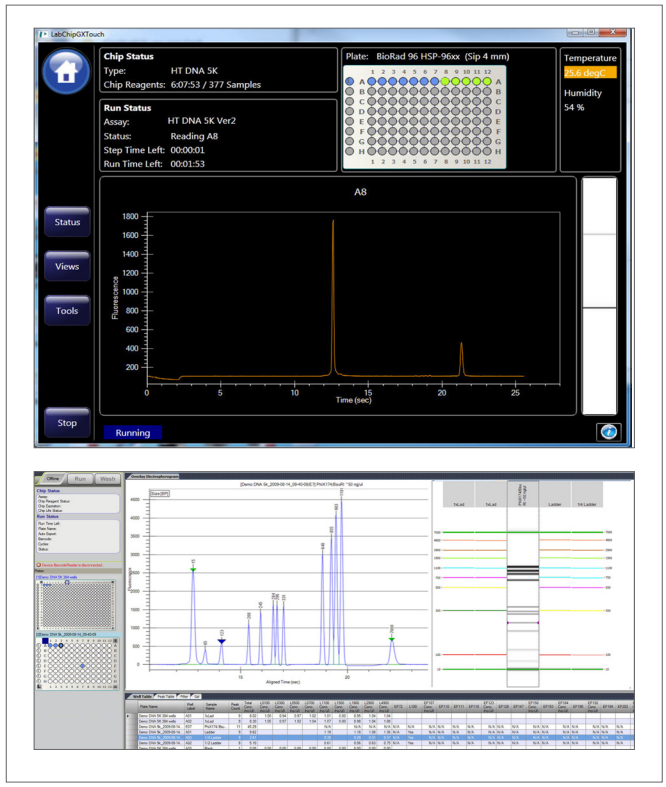

Figure 3. Flexible data options allow real time or export in multiple formats

Send Only Quality Nucleic Acid Samples Downstream

The LabChip GX Touch automates DNA and RNA sample analysis and QC prior to sequencing. Electrophoretic separation provides nucleic acid size and concentration data, with nearly instant qualitative analysis of sample quality during preparation for next generation sequencing.

Rapid RNA Analysis

Analyze RNA samples ranging in size from 100 to 6,000 nucleotides. The LabChip Touch platform provides easy to understand RNA concentration and ribosomal ratios as an indicator of integrity as an RNA Quality Score (Figure 4).

The RNA Quality Score (RQS) quantifying quality and integrity of a sample is predictive of the likelihood of success for downstream gene expression experiments such as microarray analysis or real-time PCR.

Data metrics such as peak heights, peak areas, concentration, and so on, are calculated and stored as digitized data as text files and tables. Combinations of these parameters are used to determine an RQS number. The RQS has been validated to correlate well with the Agilent® RIN (RNA Integrity Number) and follows the same 0-10 scale rating.

DNA Sample Degradation Scoring

While quantitative measurements for nucleic acid quantity and purity are widely adopted and scalable to high sample numbers, assays used to measure nucleic acid size and degradation still involve the manual and highly technical process of separating DNA using agarose gel electrophoresis, and visualizing through the use of ethidium bromide or other intercalating dyes.

An alternative to traditional gel electrophoresis is a genomic DNA assay developed for the LabChip GX Touch system which utilizes a Genomic DNA Quality Score (GQS). Data are provided in digital format, allowing for laboratory information management system compatibility, archiving, and distribution.

The reproducibility, compatibility with automation, and throughput of the LabChip GX gDNA assay overcomes the limitations of gel-based methods for qualitative sizing and assessment of degradation of DNA samples.

Quickly characterize DNA samples from 25—12,000 base pairs in 30-60 seconds (gDNA integrity checking up to 40,000 base pairs) saving time and valuable resources for quantification and sizing analysis (Figures 5, 6)

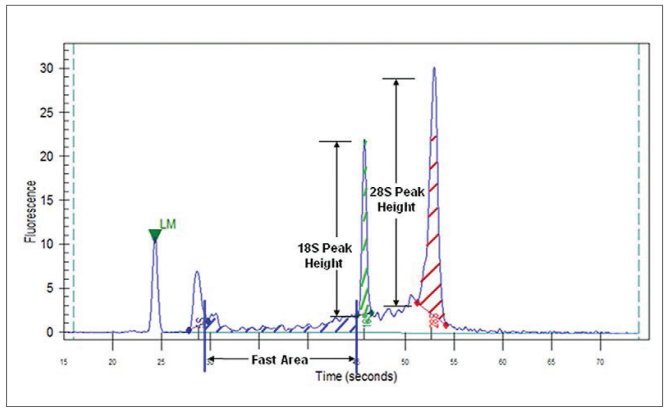

Figure 4. RNA electropherogram showing 18S and 28S peaks

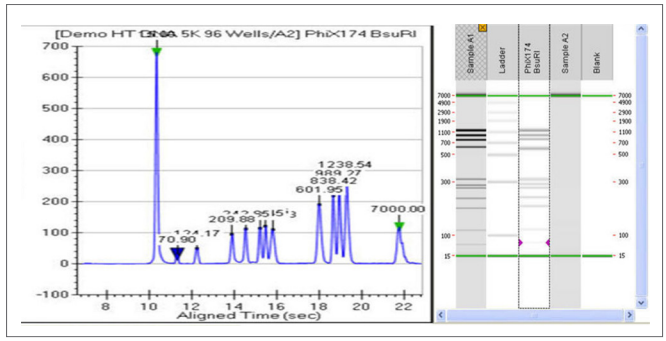

Figure 5. DNA electropherogram with a corresponding virtual gel

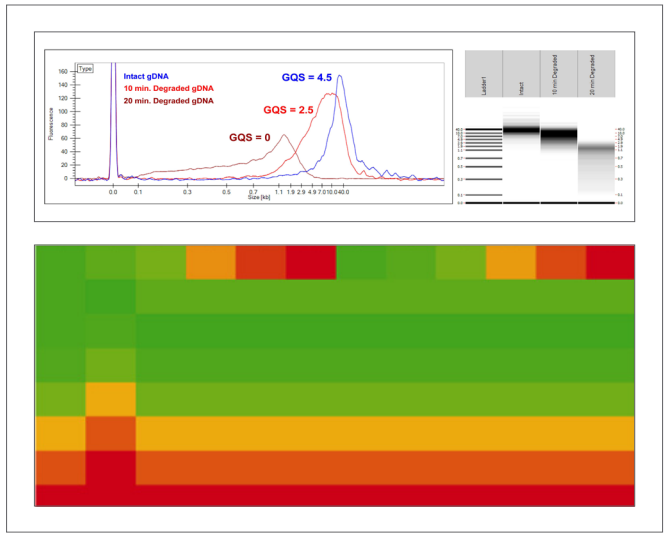

Figure 6. (Above) Genomic DNA quality assessment shown as an electropherogram and (below) DNA quality/degradation using TIBCO Spotfire® data visualization of 96 samples

LabChip Electrophoresis

How Does it Work?

LabChip electrophoresis is performed on a small, microfluidic chip (Figure 7). 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.

When the chip is loaded into the LabChip GX 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.

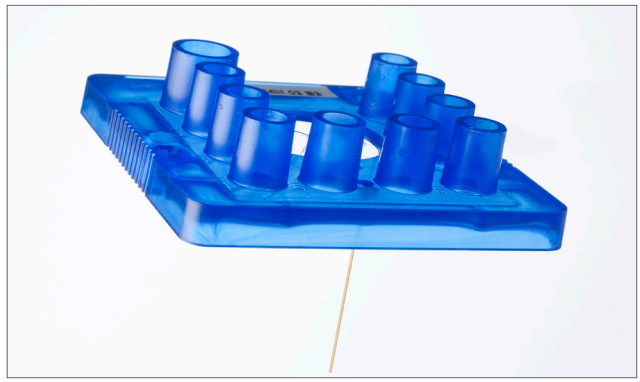

Figure 7. LabChip for genomics applications

Ordering Information

	LabChip GX	LabChip GX Touch HT	LabChip GX Touch 24
LabChip DNA Extended Range	760517	760517	CLS 138948
DNA 1K Reagent Kit	CLS760673	CLS760673	CLS760673
DNA 12K Reagent Kit	760569	760569	760569
DNA High Sensitivity Reagent Kit	CLS760672	CSL760672	CLS760672
Genomic DNA Reagent Kit	CLS760685	CLS760685	CLS760685
DNA 5K/RNA/CZE LabChip	760435	760435	CLS138949
DNA 5K/ RNA LabChip Economy 4-pack	760527	760527	N/A
DNA 5K Reagent Kit	CLS760675	CLS760675	CLS760675
Standard RNA Reagent Kit	760410	760410	760410
Pico RNA Reagent Kit	760635	760635	760635

LabChip GX 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- and 384-welll
Weight	54 lbs (24.5 kg)	**Excitation/Emission**	635 and 700 nm
Temperature Range	18-26 deg C	**Humidity Range**	20% - 80% RH

For more information, please visit www.perkinelmer.com/labchip

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