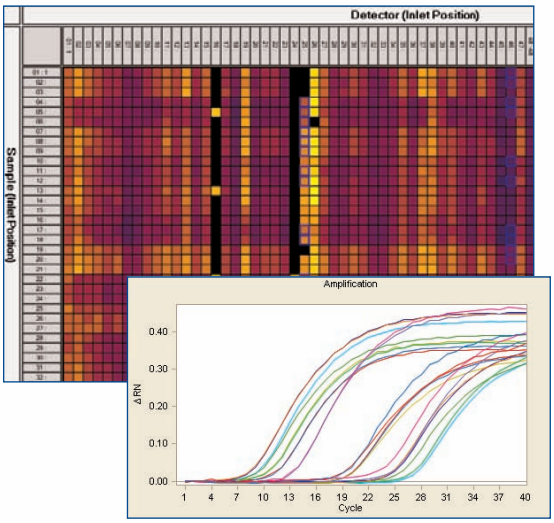
Fluidigm®

48.48 Dynamic Array
– *Gene Expression*

HIGH-THROUGHPUT MULTIPLEX PCR



Real-Time PCR Analysis Software generates data as a heat map or amplification plots based on threshold cycles.

The Fluidigm 48.48 Dynamic Array – Gene Expression is the ideal solution to validate up to 48 genes against a large number of samples. With a dynamic array, high-throughput multiplexing is easy because the integrated fluidic circuit (IFC) does the work of combining samples and primer-probe sets into 2,304 PCR assays — 48 real-time curves for each of 48 samples. That's six-fold more data than is produced by a 384-well plate.

Key Benefits –

- ***Easy multiplexing of 48 primer-probe sets against 48 samples***
- ***2,304 real-time curves per run***
- ***96 liquid-transfer steps per setup***

Efficient by Design

The IFC controller is used to pressure-load 48 samples and 48 primer-probe sets into dynamic array reaction chambers. After setup, the dynamic array is placed on the BioMark™ Real-Time PCR System for thermal cycling and real-time fluorescence detection. The scientist uses BioMark Real-time PCR Analysis Software to examine, annotate, and archive the data.

The New Standard in High-Throughput Gene Expression

Fluidigm dynamic arrays radically raise the bar for large studies of gene expression. See below to compare 384-well plates versus dynamic arrays in a study of 2,000 samples against 48 genes:

	384-WELL MICROPLATES	48.48 DYNAMIC ARRAYS
TOTAL RUNS	250	42
PCRs PER RUN	384	2,304
TOTAL LIQUID-TRANSFER STEPS	192,000	4,032
TOTAL MASTER MIX	480 ml	5.1 ml

BioMark™

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Specifications

PARAMETER	
Quantitative resolution	2-fold difference in starting copy with 99.7 % confidence and 6 log of dynamic range
Chip footprint	128 mm x 85 mm x 14 mm
Inlet spacing on input frame	4.5 mm pitch
Liquid transfer steps	96
Primer-probe inlets	48
Sample inlets	48
Reaction chambers	2,304
Reaction volume	9 nanoliters
Instrument compatibility	BioMark Real-Time PCR System, IFC Controller MX

Fluidigm System for Genetic Analysis

Dynamic Arrays
Consumable IFCs for high-throughput gene expression analysis and SNP genotyping.

Digital Arrays
Consumable IFCs for digital PCR.

IFC Controller
Integrated hardware/software for loading IFCs.

Stand-Alone Thermal Cycler
Integrated hardware/software for thermal cycling of IFCs.

EP1 Reader | Real-Time PCR System
Integrated hardware/software for detection of fluorescent signal within IFCs.

Software Suite
Analysis software for gene expression analysis, SNP genotyping, and digital PCR.

Service Plans
Hardware service and software maintenance plans.

Work Flow

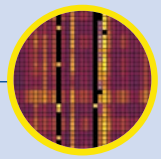
1 Prime
Prime the dynamic array to close the interface valves, preventing premature mixing of samples and assays.

2 Transfer
Pipette samples, premixed with master mix, into separate sample inlets and the primer-probe sets into separate primer-probe inlets on the frame of the chip.

3 Load
Place the dynamic array on the IFC controller, and use the software interface to pressure load the assay components into reaction chambers. Assay components are automatically combined on-chip.

4 Run
Place the dynamic array on the BioMark Real-Time PCR System for thermal cycling and fluorescence detection.

5 Analyze
Use real-time qPCR Analysis software to view and to interact with amplification curves, color-coded heat maps, and C_t data for the run.



For Use with Gold-Standard PCR Assays

The BioMark system runs licensed 5′ nuclease assays, so it integrates easily into established workflow. The footprint of the dynamic array and spacing of fluid inlets comply with SBS* standards, so the laboratory may continue to use existing liquid-handling equipment. Fluidigm has adopted SBS standards for all of its systems, ensuring compatibility of BioMark instrumentation with higher density arrays in future releases.

* The Society for Biomolecular Sciences

Corporate Headquarters
Fluidigm Corporation
7000 Shoreline Court, Suite 100
South San Francisco, CA 94080 USA
Toll-free: 1.866.FLUIDLINE
Fax: 650.871.7152
www.fluidigm.com

Sales
North America
650.266.6170 | biomark@fluidigm.com
Europe/EMEA
+31 20 578 8853 | biomarkeurope@fluidigm.com
Japan/Korea
+81 3 3555 2351 | biomarkasia@fluidigm.com
Asia
+65 9431 3790 | biomarkasia@fluidigm.com

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