EP1

Efficient, economical end-point PCR results in hours with just minutes of hands-on time

FLUIDIGM

- Cost savings - dramatically lower costs for high-throughput
- SNP genotyping multiplexing - capacity for up to five reporter dyes (three standard)
- Flexibility - modular system design that is easily scalable

The EP1 System offers efficient high-throughput SNP genotyping, digital PCR, and copy number variation analysis. It allows for extremely low running costs and provides the easiest workflow for low- to mid-multiplex SNP genotyping. The EP1 System, along with our integrated fluidic circuits (IFCs), streamlines the entire workflow from the setup of Dynamic Array IFCs and Digital Array IFCs to PCR thermal cycling, endpoint detection, and data analysis. Designed for licensed 5' nuclease assays as well as allele-specific PCR, the EP1 System allows you to easily convert from plate-based PCR to PCR with Dynamic Array IFCs without the inconvenience of switching reagents. The instrumentation consists of an endpoint reader, thermal cycler, and controllers customized for your throughput requirements. As your EP1 System research grows, the throughput of your EP1 System can be expanded. Simply add IFC Controllers and FC1 Cyclers to scale up the number of experiments per day on a single EP1 Reader. The system's economy and flexibility make it a mainstay in any research lab.

ASSAYS

The EP1 System offers an open and flexible platform to accommodate reagents and chemistries of your choice. Also, the entire system, from the footprint of the IFCs to the architecture of analysis and database software, adheres to industry standards and ensures integration with established workflows.

ANALYSIS SOFTWARE

Bundled with data collection and analysis software for SNP genotyping and digital PCR, the EP1 System SNP Genotyping Analysis Software displays results in multiple formats, including scatter plots, heat maps, and tabular reports. Digital PCR Analysis Software allows automated analysis to easily determine copy number variations among samples.

GENOTYPING ASSAYS

SNPtype Assays provide a highthroughput, low-cost, single nucleotide polymorphism (SNP) genotyping solution that enables rapid assay design and polymorphism screening. The assays are based on allele-specific PCR and combine the advantages of minimum experimental setup time and flexible assay choice with the reliability of Dynamic Array IFCs.
See Figure 1.

- Designed to target species with available sequence information
- Three- to four-week design and turnaround time with customerprovided sequences (minimum of 24 assays per order)
- Access to loci-specific primer sequences assures reproducibility
- Compatible with Specific Target Amplification (STA) protocol for improving results from samples of low quality and/or concentration, or from species with large genome sizes (>human); necessary STA primers provided

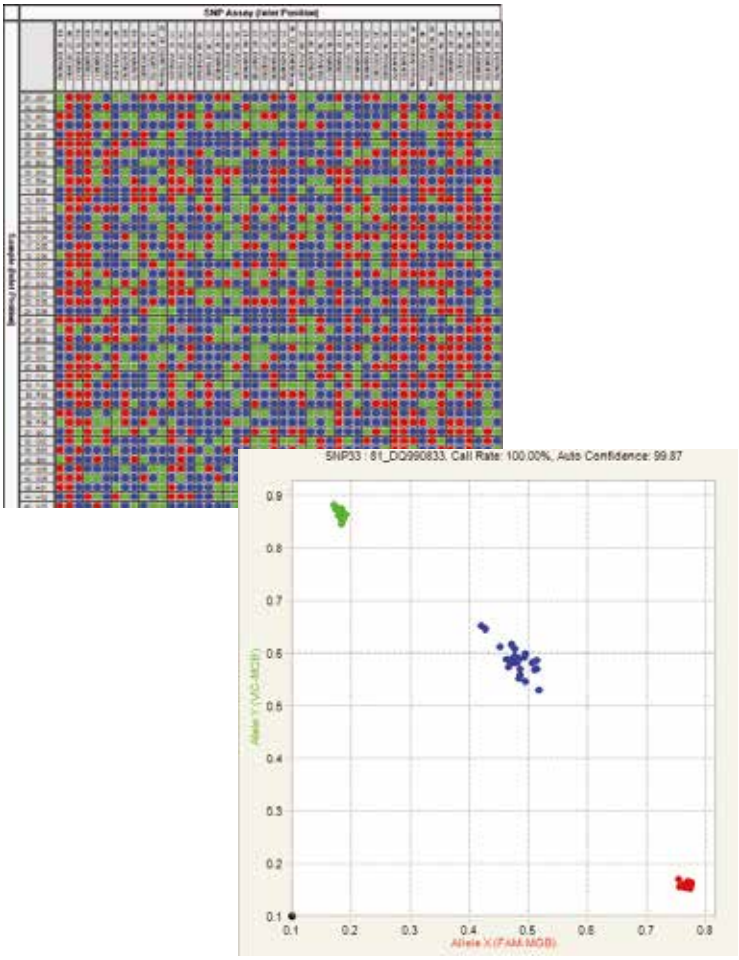


Figure 1: Call map view for 48 cattle samples and 48 SNPtype Assays (left); cluster plot for a typical SNPtype Assay (right).

IFC CONTROLLER COMPATIBILITY

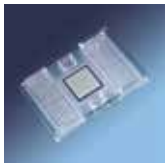
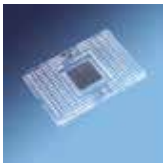
PARAMETER	IFC Controller MX 	IFC Controller HX 	IFC Controller RX 	IFC Controller WX 
SNP Genotyping	48.48 Dynamic Array IFC	96.96 Dynamic Array IFC	192.24 Dynamic Array IFC	FR48.48 Dynamic Array IFC
Digital PCR	12.765 Digital Array IFC 48.770 Digital Array IFC	—	—	—
Experiment tracking	Barcode			
Gas pressure	Internal compressor			
Interface	USB and Ethernet			
IFC Controller MX, HX, RX, or WX software	Touchscreen interface for operating and tracking			
Dimensions (approx.)	19 x 9.5 x 13 inches; 48.5 x 24 x 33 cm			

ACCELA

FC1 CYCLER

PARAMETER	
Dimensions (approx.)	9 x 8 x 19 inches (23 x 20 x 48 cm)
Software	Touchscreen interface for operation and protocol editing
Vacuum source	Internal vacuum pump
Voltage	100-230 V, 50-60 Hz
THERMAL CONTROL	
Temperature range	4 °C to 99 °C
Max heating rate	>5 °C/sec
Max cooling rate	>5 °C/sec

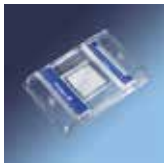
IFCs FOR GENOTYPING


PARAMETER	48.48 Dynamic Array IFC	96.96 Dynamic Array IFC	192.24 Dynamic Array IFC	FR48.48 Dynamic Array IFC*
Call rate	99.00%	99.00%	99.00% or greater	99.00% or greater
Call accuracy	99.75%	99.75%	99.75% or greater	99.75% or greater
Dimensions	SBS compatible (128 mm x 85 mm x 14 mm)			
Inlet spacing on input frame	4.5 mm pitch			
Liquid transfer steps	96	192	216	96
Assay inlets	48	96	24	48
Sample inlets	48	96	192	48
Reaction chambers	2,304	9,216	4,608	2,304
Instrument compatibility	EP1 Reader, IFC Controller MX, FC1 Cycler	EP1 Reader, IFC Controller HX, FC1 Cycler	EP1 Reader, IFC Controller RX, FC1 Cycler	EP1 Reader, IFC Controller WX, FC1 Cycler

* Reusable for up to five times

IFCS FOR DIGITAL PCR




PARAMETER	12.765 Digital Array IFC	48.770 Digital Array IFC
Detection sensitivity	Single copy (if copy is present in the reaction chamber)	
Dimensions	SBS compatible (128 mm x 85 mm x 14 mm)	
Inlet spacing on input frame	4.5 mm pitch	
Minimum input volume/sample	8 µL (12 samples per array)	4 µL (48 samples per array)
Liquid transfer steps	12	48
Sample inlets	12	48
Reactions per sample	765	770
Total reaction chambers	9,180	36,960
Individual reaction volume	6 nL	0.85 nL
Total reaction volume/sample	4.6 µL (per sample)	0.65 µL (per sample)
Instrument compatibility	EP1 Reader, IFC Controller MX	

Accelerate your biomedical research

SYSTEM COMPONENTS

Excitation filters (center-width, in nm)	485-20, 530-20, 580-25
Emission filters (center-width, in nm)	525-25, 570-30, 630-30
Illumination	175-watt Xenon arc lamp
Software	Fluidigm SNP Genotyping Analysis Software Fluidigm Digital PCR Analysis Software Fluidigm Data Collection Software

SOFTWARE SPECIFICATIONS

Fluidigm analysis software was designed to offer a simple and intuitive user interface while continuing to offer all key data analysis features for SNP genotyping and digital PCR. To simplify and expedite data analysis, the software includes these key features:

SNP Genotyping Analysis Software

Automatic Cluster Calling
A highly accurate cluster calling algorithm automatically increases accuracy as it processes more samples.

Multiple Chip Scoring
Scoring combines multiple experiments to decrease analysis time and improve accuracy for rare genotypes.

Confidence Score
Confidence scoring automatically determines the confidence level of cluster calls.

Digital PCR Analysis Software

Multiplex Capability
With multiplex capability, up to four reporter dyes can be used per reaction, allowing you to quantitate up to four targets per sample in each reaction.

Copy Number Variation (CNV)
CNV analysis automatically applies statistical correction and determines the ratio of your targets of interest.

End-Point Analysis
The software uses end-point image for analysis, greatly increasing the throughput of the system.

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