

Fluidigm Access Array System and GS Junior System

Automate sample prep for high-throughput amplicon sequencing

Streamline your targeted resequencing workflow by using the **Fluidigm Access Array System** to automate preparation of 48 samples with up to 48 amplicons in one run — then sequence all 2,304 unique amplicons in a single Roche **GS Junior System** run.

Save time and increase sequencing throughput for diverse applications:

- **Detect SNPs, insertions, and deletions.**
- **Identify rare alleles associated with diseases.**
- **Refine your metagenomic studies through 16S rRNA resequencing.**
- **And more...**



454
SEQUENCING

Access Array System: Sample Prep

- **4 hours total workflow with less than 20 minutes of hands-on time**
- **Complete content flexibility**
- **Simple protocol — only six manual steps are required to produce 2,304 amplicons**
- **High-throughput amplicon prep — enriches target from 48 samples per chip**



GS Junior System: Sequencing

- **35 million high-quality filtered bases per run**
- **Q20 read length of 400 bp (99% accuracy at 400 bp)**
- **10-hour sequencing run time with 2-hour data analysis**
- **High-performance computer capable of all run processing and data analysis**
- **Easy-to-use analysis software for amplicon variant analysis**



Access Array System Throughput	48 samples x 48 primer pairs = 2,304 unique amplicons
GS Junior System Throughput	70,000 amplicon reads
Average Coverage per Sample	1,458 reads
Average Coverage per Amplicon	30 reads

**Benefit from a complete sequencing solution —
From sample preparation
through digital data analysis.**

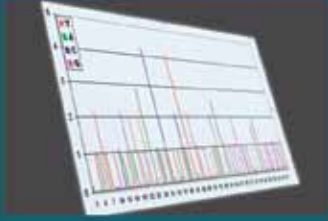
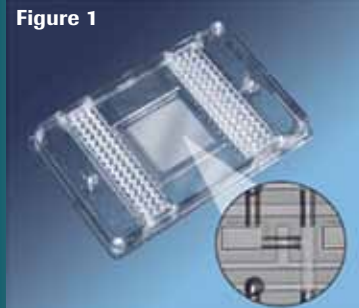


Figure 1



Amplicon Sample Prep

Start with 50-100 ng of sample gDNA. Load up to 48 samples and primers into the Fluidigm Access Array IFC (Integrated Fluidic Circuit), a unique microfluidic chip that creates 48 independent PCR reactions from each sample, and amplifies each uniquely. (Figure 1).

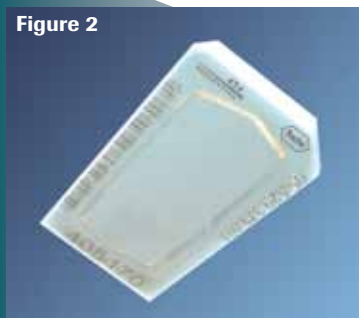
emPCR Amplification

Anneal pooled amplicon library to 454 DNA Capture Beads and create water-in-oil emulsion to trap individual beads in amplification microreactors. Amplify the entire emulsion in parallel, creating millions of clonal copies of each library fragment on each bead.

Sequencing

Load the beads onto the 454 PicoTiterPlate Device (Figure 2) — which allows only one bead per well — and place it into the GS Junior Instrument along with sequencing reagents. Start the sequencing run — individual nucleotides are flowed in sequence across the wells. Each incorporation of a nucleotide complementary to the template strand on any given bead results in a chemiluminescent light signal recorded by the GS Junior camera.

Figure 2



Data Processing & Analysis

Process the raw data automatically on the accompanying desktop computer — the software uses the signal intensity at each well position to determine the sequence of 70,000 amplicon reads simultaneously. Analyze results in depth with powerful and user-friendly bioinformatics software for amplicon variant analysis.

Learn more about the Fluidigm Access Array System at www.fluidigm.com

Learn more about the GS Junior System at www.gsjunior.com

For life science research only. Not for use in diagnostic procedures.

RESTRICTION ON USE: Purchaser is only authorized to use 454 Sequencing System Instruments with PicoTiterPlate devices supplied by 454 Life Sciences Corporation and in conformity with the operating procedures contained in the 454 Sequencing System manuals and guides.

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