

TaqMan® OpenArray® Genotyping System

High-Throughput, Low-Cost Genotyping Using TaqMan® Genotyping Assays

- More samples for more genetic power—process 32 TaqMan® OpenArray® Genotyping Plates per day with minimal hands-on time
- Simple workflow—each TaqMan® OpenArray® Plate comes pre-loaded with the TaqMan® Genotyping Assays of your choice—just add sample and master mix, cycle, and image
- Best experimental flexibility—choose any combination of pre-designed and custom TaqMan® SNP Genotyping and DME Assays and the sample/SNP format that best meets your project needs
- Reliable—uses proven TaqMan® Genotyping Assay chemistry
- Easy to understand pricing—no oligo set-up fee or hidden costs



The TaqMan® OpenArray® Genotyping System provides PCR-based SNP analysis of thousands of samples. One person can use this high-throughput system to generate >90,000 genotypes in a single day.

A Complete System

The TaqMan® OpenArray® Genotyping System consists of two world-class technologies: TaqMan® Genotyping Assays and OpenArray® technology. TaqMan Genotyping Assays use two allele-specific MGB probes and two PCR primers to provide highly robust and accurate genotyping calls. OpenArray technology uses nanoliter fluidics for massively parallel analyses for higher sample throughput and lower costs per data point (see *OpenArray® Technology* sidebar). The main components of the TaqMan OpenArray Genotyping System are the TaqMan® OpenArray® Genotyping Plates (pre-loaded with pre-designed or custom TaqMan® SNP Genotyping or Drug Metabolism [DME] Assays) and the TaqMan® OpenArray® Genotyping Instrument Platform. All products are

now available from, and supported by, Applied Biosystems.

Simple Workflow

TaqMan OpenArray Genotyping Plates are shipped and delivered containing your selected TaqMan Assays pre-loaded and dried down in the through-holes you specify. Simply mix your sample and TaqMan® OpenArray® Master Mix, load onto the Genotyping Plate, seal, cycle, and image. The TaqMan OpenArray Genotyping System's simple workflow enables one person to process 32 TaqMan OpenArray Plates in one day without the use of robotics. Therefore, one person can generate over 90,000 genotypes per day. For more details, see Figure 1.

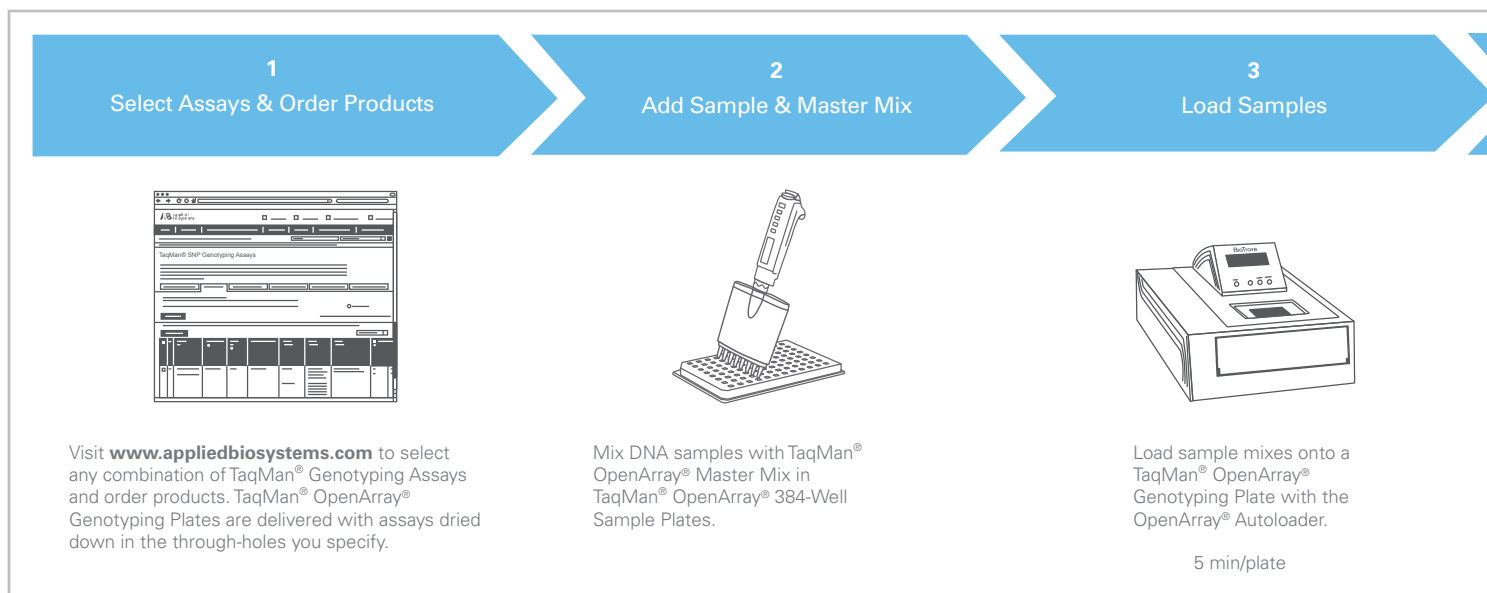


Figure 1. The TaqMan® OpenArray® Genotyping System workflow.

Flexible Formats

Each TaqMan OpenArray Genotyping Plate contains 3,072 through-holes arranged in 48 subarrays of 64 through-holes each (Figure 2). The OpenArray® Autoloader can precisely load one, two, or three samples onto each subarray. This results in a choice of six plate format options as described in Table 1.

High Throughput & High Performance

The TaqMan OpenArray Genotyping System provides the highest sample throughput for mid-density genotyping. In a single day, 32 TaqMan OpenArray Genotyping Plates providing 98,304 genotypes can be run, screening up to 4,600 DNA samples without the use of robotics. This system is ideal for validating complex disease associations, marker-assisted breeding, or other studies requiring large sample sizes. The system also benefits from the high performance and reproducibility that you can expect from TaqMan Assay products (see Table 2 and Figures 3 and 4).

TaqMan® OpenArray® Genotyping Plate Format	Number of Samples/Plate	Minimum Order	Total Number of Samples/ Minimum Order
16 assays	144 samples	10	1,440
32 assays	96 samples	10	960
64 assays	48 samples	20	960
128 assays	24 samples	40	960
192 assays	16 samples	60	960
256 assays	12 samples	80	960

Table 1. TaqMan® OpenArray® Genotyping Plate format options.

Concordance with assays run on an Applied Biosystems 7900HT System	99.7%
Passing assays with 95% call rate	95%
Overall call rate	99%
Genomic DNA input amount/subarray	125 ng
TaqMan® OpenArray® Plates processed/day by a single person	32
Time from purified DNA to genotyping results	~8 hours
Oligonucleotide synthesis set-up fee	\$0

Table 2. Observed performance of the TaqMan® OpenArray® Genotyping System.

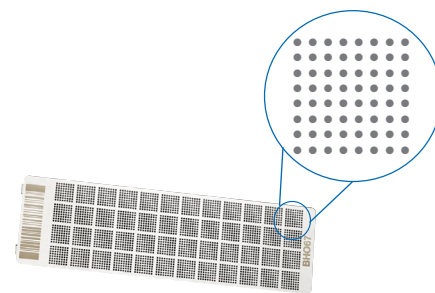


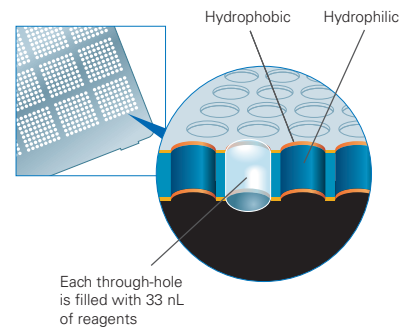
Figure 2. Each TaqMan® OpenArray® Plate contains 48 subarrays with 64 through-holes each.

OpenArray® Technology

OpenArray® technology is a broadly applicable nanoliter fluidics technology platform for massively parallel and low-volume solution-phase reactions. Researchers using this technology benefit from the parallelism of microarrays and the data quality of solution-phase reactions, such as PCR.

OpenArray technology utilizes a microscope slide-sized plate with 3,072 through-holes. Each plate is 300 µm in diameter with a depth of 300 µm. The plates are arranged in 48 subarrays of 64 through-holes. TaqMan® Genotyping Assays (for up to 256 SNPs) are pre-loaded and dried down in the plate, and are delivered ready for processing.

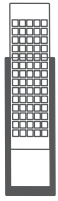
Proprietary processes are used to coat the surfaces of the plates so that they are hydrophobic, while rendering the interiors hydrophilic and biocompatible. When processed, each of the 3,072 through-holes contains 33 nL of fluid held in place by means of surface tension.



OpenArray® Anatomy: Cross-section of several through-holes in a TaqMan® OpenArray® Genotyping Plate. Each through-hole is coated with hydrophilic and hydrophobic coatings. Reagents are retained in through-holes via capillary action.

OpenArray anatomy cross-section and Figure 2 images courtesy of BioTrove.

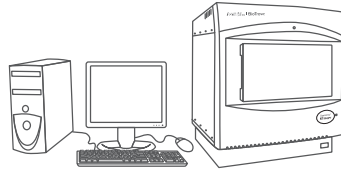
4
Insert into Case & Seal



Insert the TaqMan® OpenArray® Genotyping Plate into the TaqMan® OpenArray® case filled with immersion fluid and seal with glue.

5 min/plate

5
Cycle, Image & Analyze Data



Cycle on a qualified thermal cycler, image on the OpenArray® NT Imager and analyze data.

4.5 hrs. for thermal cycling;
15 min/3 plates for imaging

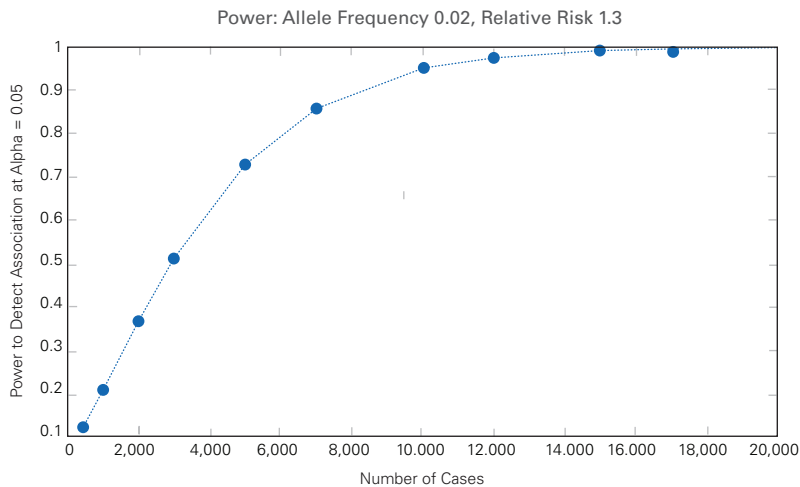


Figure 3. More samples means more power: the larger the sample size, the more confidence you have in detecting a real effect. The TaqMan® OpenArray® Genotyping System provides the high throughput and low costs needed for highly-powered validation or screening studies.

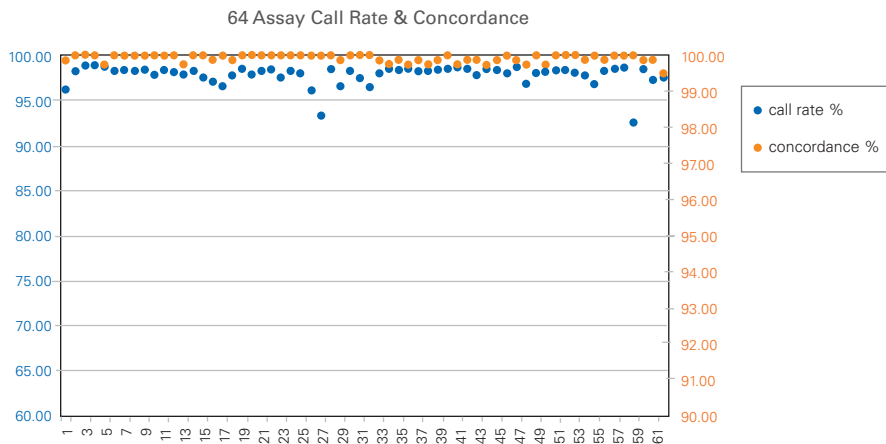


Figure 4. Get the same gold standard data quality with TaqMan® OpenArray® Plates. Greater than 95% of TaqMan® SNP Assays on the TaqMan OpenArray Plate have a call rate of >95%. All assays have a concordance of >99% with data generated on an Applied Biosystems 7900HT Fast Real-Time PCR System. The data was generated by three operators running six TaqMan OpenArray Plates each (64 SNPs, 44 different DNA, and 4 NTCs).

A Genotyping Solution With No Hidden Costs

The TaqMan OpenArray Genotyping System is an affordable, whole-system solution for high-throughput genotyping applications. The decrease in reagent use afforded by this unique combination of technologies, greatly decreases the price per genotype, allowing more samples to be run on the same budget. Additionally, the products are priced in a straightforward manner; there are no set up charges or other hidden fees.

TaqMan OpenArray Plates (as designed by you) are provided in packs of ten and include the necessary accessories

to seal the plates after your sample is loaded. The TaqMan® OpenArray® Genotyping Instrument Platform includes the OpenArray® NT Imager, OpenArray Autoloader, OpenArray® Case Sealing Station, computer, monitor and software needed to perform imaging and data analysis. The PCR thermal cycler is not included with the platform. For a list of qualified thermal cyclers for use with the TaqMan OpenArray Genotyping System, contact your local Applied Biosystems representative or technical support staff.

Gold Standard TaqMan Genotyping Assays

Applied Biosystems' TaqMan SNP Genotyping Assay collection includes over 4.5 million genotyping assays. Of these, there are 3.5 million HapMap SNPs and 2,600 drug metabolizing enzyme (DME) genotyping assays. Additionally, researchers can create Custom TaqMan SNP Genotyping Assays for any genome by submitting their target SNP sequences. To learn more, visit info.appliedbiosystems.com/taqmanopenarray.

ORDERING INFORMATION

Description	Size	P/N
TaqMan® OpenArray® Genotyping Plate, Custom Format 16	10 TaqMan® OpenArray® Plates + 1 TaqMan® OpenArray® Accessories Kit	4404605
TaqMan® OpenArray® Genotyping Plate, Custom Format 32	10 TaqMan OpenArray Plates + 1 TaqMan OpenArray Accessories Kit	4404606
TaqMan® OpenArray® Genotyping Plate, Custom Format 64	10 TaqMan OpenArray Plates + 1 TaqMan OpenArray Accessories Kit	4404607
TaqMan® OpenArray® Genotyping Plate, Custom Format 128	10 TaqMan OpenArray Plates + 1 TaqMan OpenArray Accessories Kit	4404608
TaqMan® OpenArray® Genotyping Plate, Custom Format 192	10 TaqMan OpenArray Plates + 1 TaqMan OpenArray Accessories Kit	4404609
TaqMan® OpenArray® Genotyping Plate, Custom Format 256	10 TaqMan OpenArray Plates + 1 TaqMan OpenArray Accessories Kit	4404610
TaqMan® OpenArray® Master Mix	1 x 5.0 mL	4404846
TaqMan® OpenArray® Accessories Reorder Kit	For 10 plates	4410731
TaqMan® OpenArray® Loader Tips	1 box	4404571
TaqMan® OpenArray® 384-Well Sample Plates	10 plates	4406947
TaqMan® OpenArray® Genotyping Instrument Platform <i>(includes the OpenArray® NT Imager, Autoloader, Case Sealing Station, computer, and additional components to run the system).</i>		4408510

Register Online for Product News

For more information, and to register to receive product updates and announcements, visit info.appliedbiosystems.com/taqmanopenarray

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