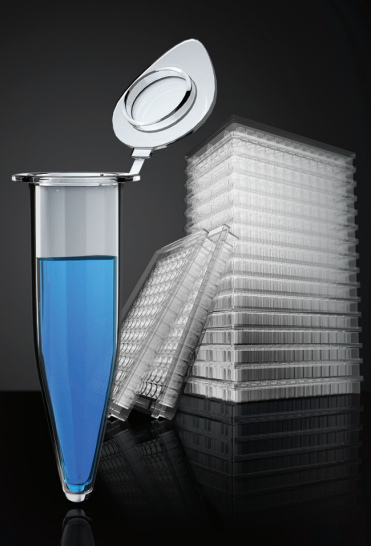
ion torrent
by life technologies™

Ion AmpliSeq™ Sample ID Panel

Simple and accurate sample identification for downstream verification



The **Ion AmpliSeq™ Sample ID Panel** is a cost-effective and easy-to-use human SNP genotyping panel comprising nine specially designed primer pairs that can be added prior to template amplification to generate a unique ID for each research sample during post-sequencing analysis. Designed specifically for researchers performing routine assays, the Ion AmpliSeq™ Sample ID Panel helps reveal sample misidentification, allowing increased confidence in sample management. The Ion AmpliSeq™ Sample ID Panel can be used in conjunction with any Ion AmpliSeq™ Ready-to-Use Panel or custom panel designed via the Ion AmpliSeq™ Designer (www.ampliseq.com). Ion AmpliSeq™ Ready-to-Use and custom panels help deliver simple and fast library construction for affordable targeted sequencing of specific human genes or genomic regions. Based on ultrahigh-multiplex PCR, Ion AmpliSeq™ panels require as little as 10 ng of input DNA to target regions of interest, making sequencing of FFPE samples routine on Ion PGM™ Systems.

The Ion AmpliSeq™ Sample ID Panel includes eight primer pairs targeting eight validated SNPs that were selected based on published results [1]. The selected SNPs are unlinked, non-exonic markers that exhibit exceptional robustness and show consistently high minor-allele frequency across a very diverse group of human populations. An additional primer pair targets the amelogenin gene, allowing simple and quick sample gender determination. The discrimination power of the Ion AmpliSeq™ Sample ID Panel is optimized at approximately 1:5,000, for the researcher who is advancing clinical research.*

Simple to incorporate into your existing workflow

The streamlined workflow of the Ion AmpliSeq™ Sample ID Panel consists of just one additional pipetting step during the library construction, where 1 µL of the panel is added directly into any Ion AmpliSeq™ multiplex PCR reaction for co-amplification and downstream sequencing and data analysis (Figure 1). The Ion AmpliSeq™ Sample ID Panel requires the use of the Ion AmpliSeq™ Library Kit 2.0 and is compatible with all Ion Xpress™ Barcodes.

* 1: 4,641 discrimination power calculation assumes complete independence between SNPs, full conformance with Hardy-Weinberg assumptions, and no missing, undercalled, or incorrect genotypes. Your actual probabilities may be lower.

1. Pakstis AJ et al. (2010) SNPs for a universal individual identification panel. *Hum Genet* 127(3):315-324.

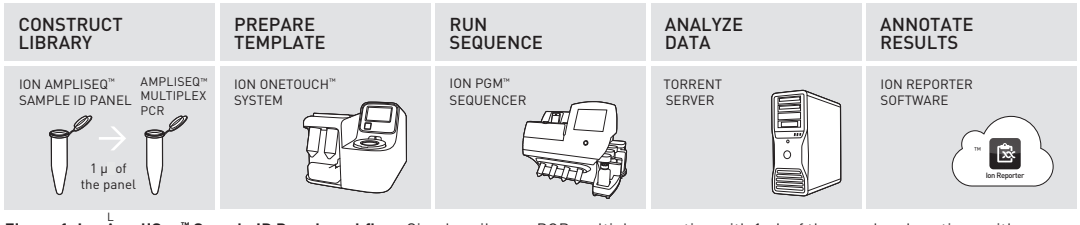


Figure 1. Ion AmpliSeq™ Sample ID Panel workflow. Simply spike any PCR multiplex reaction with 1 µL of the panel and continue with the standard Ion AmpliSeq™ protocol.

Genotypic fingerprinting for sample tracking:

- Paired tumor/normal samples
- Multi-tissue or multi-tumor samples from the same individual
- Longitudinal studies using samples from the same individual

Simple workflow; just one additional pipetting step

Power of discrimination at 1:5,000; optimized for sample tracking

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Automated analysis with the Sample ID Panel Plugin

Ion AmpliSeq™ Sample ID Panel data can be analyzed with the Torrent Sample ID Panel Plugin 2.3.1 included in Torrent Suite Software 3.0. Additionally, runs can be analyzed using Ion Reporter™ Software—a cloud-hosted software tool for automated variant analysis and annotation. Raw sequence reads are analyzed, and then a unique series of letters, the Sample ID code, is automatically generated. The first letter of the Sample ID code is either F or M, giving instant gender determination. The remaining letters of the Sample ID code reflect the genotype of the sample at each SNP, represented as IUPAC nucleotide codes. Users compare samples within a run or between runs based on the Sample ID code to increase confidence in the reporting of results.

Researchers can view the Sample ID Report (Figure 2) produced by the Sample ID Panel Plugin. For sequencing samples that incorporate Ion Xpress™ Barcodes, researchers simply click the hyperlink for a specific barcode (Figure 3) to pull up that barcode's Sample Identifier Report.

Barcode Summary Report

Barcode ID	Sample ID	Reads On-Target	Read Depth	20x Coverage	100x Coverage
IonXpress_001	F-YGACRCRW	72,621	7,563.2	100.0%	100.0%
IonXpress_002	F-TGRTRCRW	10,454	1,108.8	100.0%	100.0%
IonXpress_003	M-TGACASRW	248,865	25,649.1	100.0%	100.0%
IonXpress_004	M-TGACASRW	133,201	14,096.1	100.0%	100.0%

Figure 2. Ion AmpliSeq™ Sample ID run with Ion Xpress™ Barcodes—samples 1, 2, and 3 are different samples; 3 and 4 are matched.

Sample ID Report

IonXpress_001_R_2012_03_13_10_55_20_user_C02-426-R141050_E209_2-kr

F-YGACRCRW

Allele Coverage for Sample Identification SNPs

Chrom	Position	Target ID	TaqMan Assay ID	Call	Ref	AF	Cov	A Reads	C Reads	G Reads	T Reads	Deletions	+Cov	-Cov
chr3	193207380	SNP#1	C_25749280_10	Y	T	51.67%	3833	10	1833	3	1960	27	2036	1770
chr4	169663615	SNP#2	C_11245682_10	G	T	97.94%	5828	3	0	5694	11	120	2134	3574
chr5	178690725	SNP#3	C_3153696_10	A	G	97.37%	12236	11788	319	56	44	29	5784	6423
chr7	137029838	SNP#4	C_3004178_10	C	T	98.16%	5219	2	5078	22	22	95	2463	2661
chr10	17193346	SNP#5	C_2822618	R	A	50.72%	5771	2831	1	2914	7	18	2737	3016
chr12	6945914	SNP#6	C_2184724_1	C	C	99.68%	12669	4	12613	1	11	40	6988	5641
chr18	9749879	SNP#7	C_1371205_10	R	G	50.42%	9580	4735	14	4815	13	3	4707	4870
chr22	33559508	SNP#8	C_11887110_1	W	T	51.4%	5747	2762	8	11	2921	45	2474	3228

Figure 3. Sample Identifier Report. Sample ID codes are displayed in red letters, and below each code is the list of the eight SNPs identified. TaqMan® Genotyping Assays are also available for confirmation of SNP calls with quantitative PCR.

Ordering information

Product	Cat. No.
Ion AmpliSeq™ Sample ID Panel (primer pool)	4479790
Ion AmpliSeq™ Cancer Hotspot Panel v.2 (primer pool)	4475346
Ion AmpliSeq™ Comprehensive Cancer Panel (primer pool)	4477685
Ion AmpliSeq™ Inherited Disease Panel (primer pool)	4477686
Ion AmpliSeq™ Library Kit 2.0 (8, 96, 384 reactions for both PCR amplification and library construction)	4475345, 4480441, 4480442
Ion Xpress™ Barcode Adapters Kits	4474517, 4471250, 4474009, 4474518, 4474519, 4474520, 4474521
Ion AmpliSeq™ Custom Panels can be ordered via Ion AmpliSeq™ Designer. Learn more at lifetechnologies.com/ampliseqcustom	

Find out how to transform your research at lifetechnologies.com/ampliseq

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