



ThermoFisher
SCIENTIFIC

Livestock

Agrigenomics solutions for livestock

Your partner for smarter agrigenomics and solving challenges together

We provide a broad range of innovative technologies to suit your specific needs for genomic analysis of livestock. From predesigned and validated content to custom solutions, our flexible technologies are designed to help accelerate your unique breeding and testing programs.

Microarrays

Microarrays provide a powerful yet cost-effective approach to trait selection and breed characterization. The Applied Biosystems™ Axiom™ Bovine version 3 Genotyping Array in 384HT format enables breeders to obtain genotyping information, select for traits, and verify parentage using a single platform. The 64,000 single-nucleotide polymorphisms (SNPs) on the array were selected based on their position on the bovine genome, ensuring even spacing. The SNPs include VIP trait-associated SNPs that are publicly available, and International Society for Animal Genetics (ISAG) core parentage markers. With more than 500 markers on the Y chromosome, traits associated with fertility can be studied.

The high-quality markers of the Applied Biosystems™ Axiom™ Ovine Genotyping Array (51K) were selected to be compatible with arrays developed in collaboration with the [International Sheep Genomics Consortium](#) and to maximize imputation accuracy across multiple breeds. The 384HT format array offers the power and resolution for a wide range of applications, including breed assignment, parentage discovery and verification, traceability, and monitoring of important polymorphisms for estimating breeding value. The array also contains five scrapie markers that are salient to the sheep community.

The Applied Biosystems™ Axiom™ Caprine Genotyping version 2 Array was designed in collaboration with the International Goat Genome Consortium and the VarGoats Consortium. Both the 384HT and mini-96 formats can be used for genome-wide association studies and molecular breeding.

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Ordering information

Product	No. of markers	Quantity	Cat. No.
Bovine			
Axiom Genome-Wide BOS 1 Bovine Array	648,855	1 plate containing 96 arrays	901791
Axiom Bovine Genotyping Array (384HT format)	63,988	1 plate containing 384 arrays	551089
Axiom Bovine Genotyping Array (mini-96 format)	63,988	1 plate containing 96 arrays	551090
Axiom Bovine Genotyping 100K Array (384HT format)	100,000	1 plate containing 384 arrays	551325
Axiom Bovine Genotyping 100K Array	100,000	1 plate containing 384 arrays	551326
Ovine			
Axiom Ovine Genotyping Array (mini-96 format)	51,000	1 plate containing 96 arrays	550947
Axiom Ovine Genotyping Array (384HT format)	51,000	1 plate containing 384 arrays	550898
Porcine			
Axiom Porcine Genotyping Array	658,692	1 plate containing 96 arrays	550588
Axiom Porcine Breeders Array (mini-96 format)	55,150	1 plate containing 96 arrays	550855
Axiom Porcine Breeders Array (384HT format)	55,150	1 plate containing 384 arrays	550833
Avian			
Axiom Genome-Wide Chicken Array Kit	580,961	1 plate containing 96 arrays	902148
Axiom Turkey Genotyping Array	643,845	1 plate containing 96 arrays	550538
Caprine			
Axiom Caprine Genotyping v2 Array (384HT format)	59,795	1 plate containing 384 arrays	551343
Axiom Caprine Genotyping v2 Array (mini-96 format)	59,795	1 plate containing 96 arrays	551344

Targeted genotyping-by-sequencing (GBS) solutions

AgriSeq GBS parentage panels and kits

Applied Biosystems™ AgriSeq™ GBS solutions enable flexible and cost-effective parentage determination, which has important applications in herd management and breed registration programs. The ISAG has standardized a set of 100 core SNPs and 100 additional SNPs with sufficient minor-allele frequency and genomic spacing for accurate bovine parentage determination across a wide range of breeds. The Applied Biosystems™ Bovine ISAG SNP Parentage Panel has been designed to deliver highly reproducible call rates of the 200 ISAG markers across breeds in a simple workflow, and the panel was also qualified with the 2015 ISAG/International Committee for Animal Recording (ICAR) 3rd SNP typing bovine comparison samples.

- >98% genotyping call rate across breeds
- Highly reproducible data
- Simple, high-throughput workflow
- Customizable panel with other trait or defect markers

Eureka targeted GBS solutions

The Applied Biosystems™ Eureka™ Bovine Parentage Panel was developed in collaboration with the Agricultural Research Service–US Meat Animal Research Center (ARS-USMARC) and uniformly covers all 100 ISAG core markers for parentage, unlike previous microsatellite methods. It performs well using dried blood spots and crude lysates as starting material, and offers a total call rate and relative concordance of >95%.

The Applied Biosystems™ Eureka™ Ovine Parentage Panel covers 163 SNPs for higher accuracy with minimally overlapping and highly informative SNP markers. It contains a subset of 109 SNPs for use with North American breeds. The availability of more than 4,224 barcodes enables processing of more than 4,000 samples in a single sequencing run for fast turnaround time.

Ordering information

Product	Quantity	Cat. No.
Library kits		
AgriSeq HTS Library Kit	9,600 reactions	A34143
AgriSeq HTS Library Kit	960 reactions	A34144
Eureka Bovine Parentage Panel (122-plex)	384 reactions	19602
Bovine panels		
Bovine ISAG SNP Parentage Panel (2013)	960 reactions	A35297
Ovine panel		
Eureka Ovine Parentage Panel (163-plex)	384 reactions	19618
Ion Torrent™ barcode adapters		
IonCode Barcode Adapters 1-384 Kit (for Agrigenomics)	3,840 reactions	A31173
IonCode Barcode Adapters, 385-768	3,840 reactions	A36546
IonCode Barcode Adapters, 0501-0596	3,840 reactions	A36524
IonCode Barcode Adapters, 0601-0696	3,840 reactions	A36525
IonCode Barcode Adapters, 0701-0796	3,840 reactions	A36526
IonCode Barcode Adapters, 0801-0896	3,840 reactions	A36527
IonCode Barcode Adapters, 0897-1152	3,840 reactions	A44599
IonCode Barcode Adapters, 1153-1536	3,840 reactions	A44603

Short tandem repeat (STR) parentage kits

Applied Biosystems™ bovine STR genotyping kits offer a complete solution for animal parentage typing and genotyping. STRs, also referred to as microsatellites, are highly polymorphic markers evenly distributed across a genome.

This multiplex PCR-based system is based on the ISAG-recommended microsatellite markers and is compatible with a wide range of sample types, including blood, semen, and hair. Our genotyping kits are compatible with Applied Biosystems™ genetic analyzers, and they incorporate a proprietary PCR process to amplify microsatellite markers.

Ordering information

Product	No. of markers	Quantity	Cat. No.
Bovine/cattle			
Bovine Genotypes Panel 3.1 Kit	18	500 reactions	F900L
		100 reactions	F900S
Bovine Genotypes Panel 2.2 Kit	6	500 reactions	F847L
		100 reactions	F847S
Bovine Genotypes Panel 1.2 Kit	12	500 reactions	F904L
		100 reactions	F904S
StockMarks for Cattle Genotyping Kit	11	1 kit	4307480

Custom TaqMan SNP Genotyping Assays

Applied Biosystems™ TaqMan® Assays provide a highly flexible technology for detection of polymorphisms within any genome. Create your own assays by submitting target sequences to our secure assay design pipeline using the Applied Biosystems™ Custom TaqMan® Assay Design Tool. Our design pipeline has successfully generated millions of assay designs, utilizing

heuristic rules deduced from both manufacturing and assay performance data. These assays can be run on any of our real-time PCR instruments using our highly robust chemistry, including Applied Biosystems™ TaqPath™ ProAmp™ Master Mix, and simple five-minute sample prep with the Applied Biosystems™ DNA Extract All Reagents Kit.

Ordering information

Product	Quantity	Cat. No.
Custom TaqMan SNP Genotyping Assay, non-human, large	2,400 (5 µL) reactions	4332076
Custom TaqMan SNP Genotyping Assay, non-human, medium	1,000 (5 µL) reactions	4332075
Custom TaqMan SNP Genotyping Assay, non-human, small	300 (5 µL) reactions	4332077
TaqPath ProAmp Master Mix	1 x 50 mL	A30867
	2 x 50 mL	A30872
	2 x 10 mL	A30871
	1 x 10 mL	A30866
	1 x 1 mL	A30865
DNA Extract All Reagents Kit	200 mL	4402599
	1 mL	4403311
TaqMan GTXpress Master Mix	10 mL	4401892
	50 mL	4401890
	2 x 50 mL	4401857

Find out more at thermofisher.com/agrigenomics

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