



Agrigenomics solutions for livestock

Your partner for smarter agrigenomics—
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 for trait selection and breed characterization. The Applied Biosystems™ Axiom™ Bovine Genotyping Array in 384 format enables breeders to obtain genotyping information, select for traits, and verify parentage using a single platform. The 51,000 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 ISAG core parentage markers. With over 1,000 markers on the Y chromosome, traits associated with fertility can be studied.

The high-quality markers of the Applied Biosystems™ Axiom™ Ovine Genotyping Array (11K) were selected to be compatible with arrays developed in collaboration with the International Sheep Genome Consortium, and to maximize imputation accuracy across multiple breeds. The 384 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.

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 (384 format)	51,987	1 plate containing 384 arrays	550857
Axiom Bovine Genotyping Array (mini 96 format)	51,987	1 plate containing 96 arrays	550853
Ovine			
Axiom Ovine Genotyping Array (384 format)	11,000	1 plate containing 384 arrays	550838
Porcine			
Axiom Porcine Genotyping Array	658,692	1 plate containing 96 arrays	550588
Axiom Porcine Breeders Array (384 format)	55,150	1 plate containing 384 arrays	550833
Avian			
Axiom Genome-Wide Chicken Array Kit	580,961	1 plate containing 96 arrays	902148

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 International Society for Animal Genetics (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 AgriSeq™ 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, in comparison to 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, highly informative SNP markers. It contains a subset of 109 SNPs for use with North American breeds. The availability of over 3,000 barcodes enables processing of over 3,000 samples in a single sequencing run for fast turnaround time.

Ordering information

Product	Quantity	Cat. No.
Bovine		
Bovine ISAG SNP Parentage Panel (2013)	960 reactions	A35297
AgriSeq HTS Library Kit	9,600 reactions	A34143
AgriSeq HTS Library Kit	960 reactions	A34144
Eureka Bovine Parentage Panel (122-plex)	384 reactions	19602
Ovine		
Eureka Ovine Parentage Panel (163-plex)	384 reactions	19618

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
Bovine Genotypes Panel 3.1 Kit	18	100 reactions	F900S
Bovine Genotypes Panel 2.2 Kit	6	500 reactions	F847L
Bovine Genotypes Panel 2.2 Kit	6	100 reactions	F847S
Bovine Genotypes Panel 1.2 Kit	12	500 reactions	F904L
Bovine Genotypes Panel 1.2 Kit	12	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 5-minute sample prep with the Applied Biosystems™ DNA Extract All Reagents Kit.

Ordering information

Product	Quantity	Cat. No.
Custom TaqMan SNP Genotyping Assays, large-scale	12,000 (5 µL) reactions	4332076
Custom TaqMan SNP Genotyping Assays, medium-scale	5,000 (5 µL) reactions	4332075
Custom TaqMan SNP Genotyping Assays, small-scale	1,500 (5 µL) reactions	4332077
TaqPath ProAmp Master Mix	1 x 50 mL	A30867
TaqPath ProAmp Master Mix	2 x 10 mL	A30871
TaqPath ProAmp Master Mix	1 x 10 mL	A30866
TaqPath ProAmp Master Mix	1 x 1 mL	A30865
DNA Extract All Reagents Kit	200 mL	4402599

Find out more at thermofisher.com/agrigenomics