

StockMarks® Animal Genotyping System

- PCR process provides greater accuracy than serological methods
- ISAG-recommended loci provide standardized results
- Certain specific PCR service rights for animal genotyping testing are conveyed when used in conjunction with an Authorized Thermal Cycler
- Rigorous proprietary primer purification process ensures optimal data quality
- Applied Biosystems offers a complete solution including sample preparation, instruments, reagents, analysis software, technical support, instrument service, and animal genotyping expertise

Improved Breeding Through Molecular Genotyping

People have used selective breeding for centuries. Animals with superior traits are used as breeding stock for subsequent generations. This classical method is based on physical observation of specific traits in adult animals and the careful maintenance of lineage records by breeding organizations. Historically, an offspring's parentage has been confirmed by serological typing. Recently, breeders have turned to molecular biology and the use of DNA markers for parentage verification, which provide greater accuracy and allow for exclusion as well as inclusion (i.e., an animal can be identified as the parent rather than simply being excluded as the parent).

Bovine	Canine I	Equine 17-plex
TGLA227	PEZ 1	VHL20
BM2113	FHC 2054	HTG4
TGLA53	FHC 2010	AHT4
ETH10	PEZ 5	HMS7
SPS115	PEZ 20	HTG6
TGLA126	PEZ 12	HMS6
TGLA122	PEZ 3	HTG7
INRA23	PEZ 6	HMS3
ETH3	PEZ 8	AHT5
ETH225	FHC 2079	ASB2
BM1824		HTG10
		HMS2
		ASB17
		LEX3
		HMS1
		CA425
		ASB23

Table 1. Animal-specific microsatellite markers amplified in each of the StockMarks kits.

Microsatellite Markers Provide Key Benefits

The StockMarks for Cattle® Bovine Genotyping Kit, the StockMarks® for Dogs Canine Genotyping Kit, and the StockMarks® for Horses Equine Genotyping Kit are part of a complete solution for animal genotyping and genotyping employing short tandem repeats (STRs), also referred to as microsatellites. Microsatellite markers offer numerous benefits, including that these markers are evenly distributed across the genome, are highly polymorphic, and therefore, highly informative.

Standardized Microsatellite Markers

Our StockMarks for Cattle and StockMarks for Horses kits amplify the microsatellite markers recommended by the International Society of Animal Genetics (ISAG) as illustrated in Table 1. The ISAG markers were chosen for their informativeness, and serve as a set of standard markers for comparison of bovine and equine genotypes, independent of the breeding society or laboratory performing the analysis. The StockMarks for Dogs Kit amplifies the microsatellite markers widely used by major dog breeding registries for comparison of canine genotypes, and provide similar benefits.

State-of-the-Art PCR Technology

The StockMarks kits employ the patented PCR (polymerase chain reaction) process for amplification of the microsatellite markers using fluorescent dye-labeled primers. Unlike traditional serological assays, PCR amplification requires very little sample for a positive result. PCR-based tests are easy to standardize and automate, ensuring reproducible results, and PCR-based tests can be run on a variety of samples, including blood, semen, and hair. Samples obtained from hair eliminate the expense of having a veterinarian draw blood and are easier to transport than blood.

Multiplex PCR Amplification Provides High-Throughput Analysis

Our StockMarks kits are based on the ABI PRISM® system, a multiple fluorescent dye-based technology for multiplex PCR analysis. By using PCR primers labeled with different fluorescent dyes, all of the microsatellite markers can be amplified simultaneously in a single reaction using the GeneAmp® PCR System 9700, and analyzed simultaneously using the ABI PRISM® 310 or 3100 Genetic Analyzer. The single-capillary 310 system can process 48 samples per day running completely unattended, while the 16-capillary 3100 system can process 384 samples per day. The GeneScan® -500 ROX™ -500 LIZ internal size standard ensures accurate molecular sizing of the amplified fragments by the GeneScan sizing software, and the Genotyper® software provides automated allele assignment of the amplified markers.

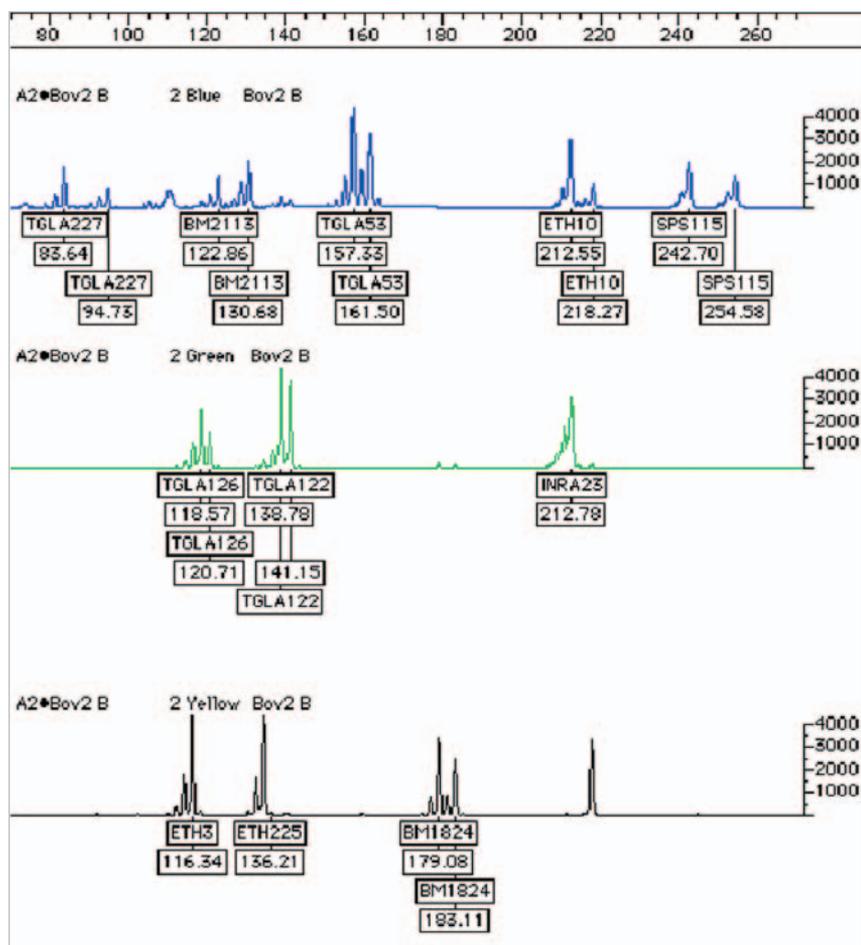


Figure 1. Genotyper software analysis of microsatellite markers amplified from the bovine control DNA and separated on an ABI PRISM 377 Genetic Analyzer.

PCR Service Rights

Only the Applied Biosystems StockMarks kits convey certain specific rights to use the PCR method for animal genotyping as a commercial service.* No additional license or royalty payments with respect to PCR service rights are required.**

* When used in conjunction with an Authorized Thermal Cycler

** Other licenses may be required for your specific application

Product Specifications

Each StockMarks kit is produced under ISO 9001 guidelines in a controlled manufacturing environment. Each kit contains animal-specific premixed amplification primer sets (see Table 1), StockMarks amplification buffer, AmpliTaq Gold® DNA

Polymerase, and kit-specific control DNA obtained from an archived source. The oligonucleotide primers are purified by orthogonal preparative HPLC purifications. Purity is determined by analytical testing with high-resolution ion exchange HPLC following synthesis to ensure the highest possible purity. The outcome is optimal signal intensity and peak fidelity, which yields clear, easy-to-interpret results compared to oligonucleotide primers obtained from other sources. All StockMarks kits are performance-tested using the control DNA prior to release, and this same control DNA can also be used to confirm kit performance.

The Whole Product Solution

Applied Biosystems has combined state-of-the-art instruments, reagents, software, and animal-genotyping expertise to provide your laboratory with the most advanced, comprehensive system available. This easy-to-use system includes DNA sample preparation from blood, semen, or hair using PrepMan™ Ultra reagents, PCR amplification of the microsatellites, automated signal detection, data analysis and allele assignment software. This eliminates the need for personnel trained in molecular techniques.

Applied Biosystems offers a complete product line for animal genotyping of cattle, horses, and dogs. Our products undergo rigorous quality testing to ensure that they meet our performance specifications. The system is supported by our extensive worldwide technical support, service, and training organization. For more information, please contact your Applied Biosystems sales representative or your local sales office.

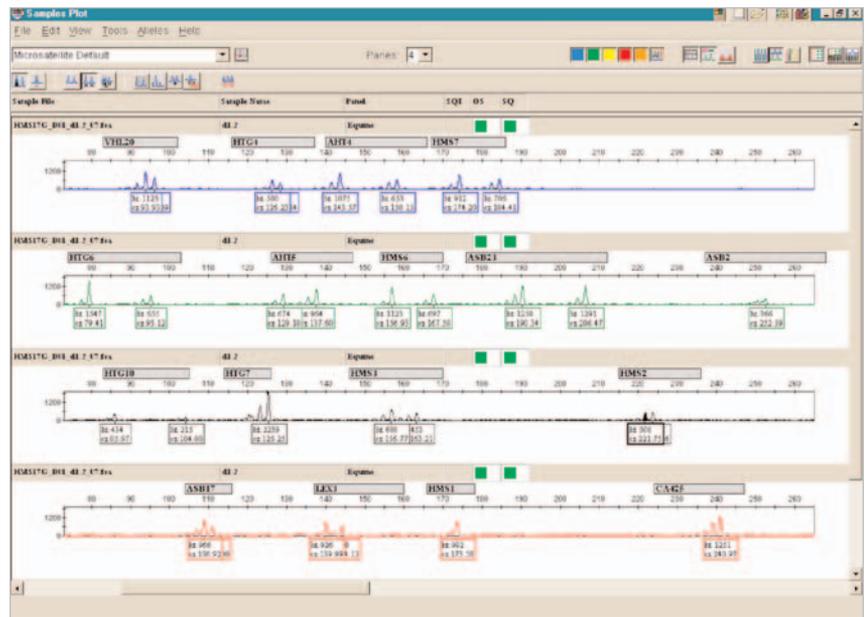


Figure 2. GeneMapper® software analysis of microsatellite markers amplified from the equine control DNA and separated on an ABI PRISM® 3100 Genetic Analyzer.

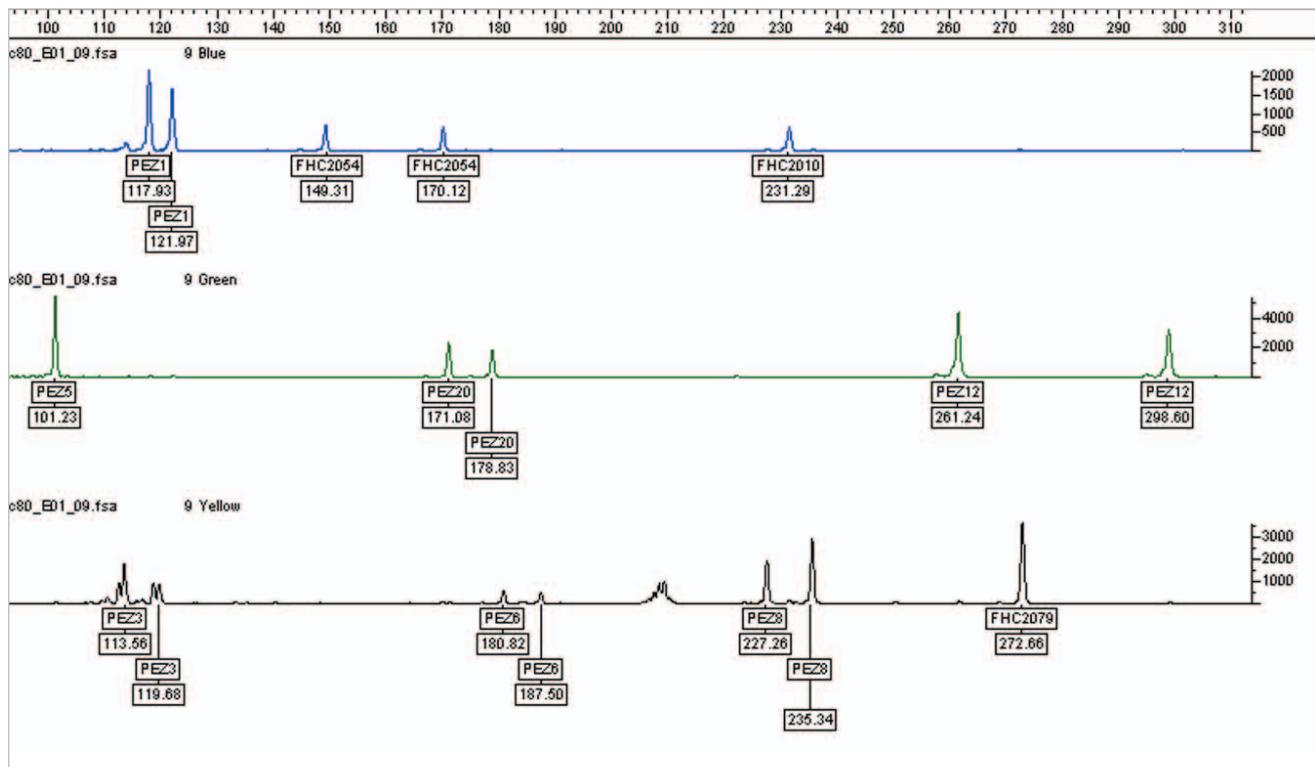


Figure 3. Genotyper® software analysis of microsatellite markers amplified from the canine control DNA and separated on an ABI PRISM® 3100 Genetic Analyzer.

Ordering Information

Description	P/N
StockMarks for Cattle® Bovine Genotyping System (One PCR reaction, 11 markers) Includes dye-labeled primer mix, dNTP solution, 10x StockMarks reaction buffer, bovine control DNA, AmpliTaq Gold® polymerase, User Protocol Sufficient for 100 identifications	4330663
StockMarks® for Dogs Canine Genotyping System (One PCR reaction, 10 markers) Includes dye-labeled primer mix, dNTP solution, 10x StockMarks reaction buffer, canine control DNA, and AmpliTaq Gold® polymerase Sufficient for 100 identifications	4307481
StockMarks® for Horses Equine Genotyping System (One PCR reaction, 17 markers) Includes dye-labeled primer mix, dNTP solution, 10x StockMarks reaction buffer, equine control DNA, AmpliTaq Gold® polymerase, User Protocol Sufficient for 100 identifications	4336405
StockMarks User Protocol for Horse, Cattle, and Dog Genotyping Kits 1 Protocol	4346135B
PrepMan™ Ultra Sample Preparation Reagent Includes Quick Start Card and Protocol Sufficient for 100 preparations	4322547
PrepMan™ Ultra Sample Preparation Reagent Sufficient for 100 preparations	4318930



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Applera is committed to providing the world's leading technology and information for life scientists. Applera Corporation consists of the Applied Biosystems and Celera Genomics businesses.

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Printed in the USA, 03/04
P+s Publication 128PB01-04