GGP

GeneSeek® Genomic Profiler™ Equine

The most comprehensive and cost-effective tool for equine genotyping

The GGP Equine Chip (GeneSeek® Genomic Profiler) supports a broad range of applications, including research and discovery of new traits, parentage analysis and hereditary disease and trait screening. Designed using the most informative and useful SNPs from higher density arrays, GGP Equine is a comprehensive and cost-effective tool that provides you with informative, consistent and high quality data.

History & Design

Originally based on Illumina's Equine SNP50 platform, the GGP Equine was created with data generated by the Equine Genome Mapping Workshop and Broad Institute's Equine Genome Sequencing Project using SNPs from Arabian, Andalusian, Akhal-teke, Icelandic, Standardbred, Thoroughbred, and Quarter Horse breeds. Our GGP Equine has undergone multiple iterations to improve coverage and minor allele frequency across many major horse breeds. Developed using the Multiple Objective Local Optimization (MOLO) algorithm[1], GGP Equine includes over 70,000 evenly distributed SNPs with an average minor allele frequency of 0.26.

Content & Application

In addition to 70,000+ evenly distributed SNP markers available for research and discovery, GGP Equine also includes specific published markers associated with relevant health conditions, physical traits, Y chromosome markers, and over 1000 mitochondrial markers useful for research and breeding organisations.

- Genome-wide association studies
- Identification of genes and polymorphisms that contribute to traits of interest
- Development of genomic predictions and enhanced breeding values
- Foundation for validation, translation, delivery of health and trait markers for users such as horse owners, breeders and veterinarians*

*Patent restrictions may apply to markers depending on region and application — contact us for more details.

[1] Wu XL, Xu J, Feng G, Wiggans GR, Taylor JF, et al. (2016) Optimal Design of Low-Density SNP Arrays for Genomic Prediction: Algorithm and Applications.PLOS ONE 11(9): e0161719. https://doi.org/10.1371/journal.pone.0161719

Published Health and Trait Markers Included with GGP Equine

Health
Cerebellar abiotrophy
Epidermolysis bullosa, junctionalis
Hyperkalemic periodic paralysis II (HYPP)
Dwarfism with joint laxity
HERDA — hereditary equine regional dermal asthenia
Hoof wall separation syndrome
Hydrocephalus
Incontinentia pigmenti
Malignant hyperthermia
Myotonia
Naked foal syndrome
SCID — severe combined immunodeficiency
Glanzmann thrombasthenia
Multiple ocular defects
Lavender foal syndrome*
Warmblood fragile foal syndrome*
Polysaccharide storage myopathy / exertional rhabdomyolysis*
Congenital stationary night blindness*
Ocular squamous cell carcinoma
Dwarfism, ACAN-related
Androgen insensitivity syndrome (AIS)
Gilbert-meulengracht syndrome
Congenital hepatic fibrosis 1
Foal immunodeficiency syndrome

Risk Variants
Immune-mediated myositis
Lordosis (swayback)
Curiosity and vigilance
Equine recurrent uveitis

Coat Colors
Extension (red/black factor)
Modifying mutation to extension
Recessive black (agouti)
Cream dilution
Pearl
Non-dun 1
Non-dun 2
Silver
Champagne
Frame overo (lethal white overo)
Tobiano
Leopard complex spotting*
Curly hair variant 1
Curly hair variant 2
Dominant white (W1-W23)
Macchiato
Brindle / incongenitia pigmenti
Brindle (BR1)
Sabino
Splashed white 1
Splashed white 2
Splashed white 3
Splashed white 4
Pattern 1 (PATN1)

Size Variation
Body size
Pony Size

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