



Genetic Profile Test Results

Horse: Doctor Frost

Owner: Jackie Whitecalfe

Horse and Owner Information

| | | | |
|---------------------------|----------------|--------------------------|---------------------|
| Horse | Doctor Frost | DOB | 1998-06-28 |
| Breed | Paint | Age | 18 years, 10 months |
| Color | Palomino Paint | Sex | Stallion |
| Discipline | Breeding | Height | 15 hands |
| Registry | APHA | Reg Number | 490815 |
| Sire | PC Bronsin | Dam | Drs Excuse |
| Sire Reg & No. | AQHA 2394641 | Dam Reg & No. | AQHA 285110 |
| Comments | | | |

| | | | |
|--------------|------------------------|--------------------|------------------|
| Owner | Jackie Whitecalfe | Address | 1132 57th Ave NW |
| Phone | 701.898.7210 | City, State | Garrison, ND |
| Email | whitecalfe@hotmail.com | Postal Code | 58540 |



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Results Summary

Coat Color: Doctor Frost has two Red alleles and no Black, indicating his base coat color appears Red. Two copies of the Dominant Agouti allele were also detected; invisible on a Red base (it pushes/restricts Black out to points; legs, ear tips, etc. appearing Bay). One Cream allele was detected which may dilute base color coat (Palomino). One Tobiano allele was also detected which may result in White markings. As a result of the allele count in each of the following, he has a minimum 100% chance of passing Red and Dominant Agouti, and 50% Cream and/or Tobiano to any offspring.

Allele Summary: AA, ee, CR/n, TO/n, CC (Sprint Type)

Traits: Doctor Frost has not tested positive for any recessive disease alleles on this panel.

Please note: Your analysis is ongoing and may include some regions marked with an asterisk denoting the following.
* Discovery - This gene detection is in the early stages of discovery and will have varying reliability results.
** Inconclusive - Not a bad omen! Simply put, the gene of interest did not reveal itself (neither a positive nor a negative; no result, therefore unknown).



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Coat Color Results

Base

| | | | | |
|-----------|-----|-------------|--|------------------------------|
| Agouti | +/+ | <i>ASIP</i> | AA - Two dominant Agouti alleles detected; restricts any Black base to appear Bay. | More about A |
| Black/Red | -/- | <i>MC1R</i> | ee - No Black alleles detected and two Red. | More about E |

Modifier

| | | | | |
|------------|-----|---------------|---------------------------------|-------------------------------|
| Brindle/IP | -/- | <i>IKBKG</i> | No Brindle/IP alleles detected. | More about IP |
| Grey | -/- | <i>STX17A</i> | No Grey alleles detected. | More about G |

Dilution

| | | | | |
|-----------|-------------|----------------|---|--------------------------------|
| Champagne | -/- | <i>SLC36A1</i> | No Champagne alleles detected. | More about CH |
| Cream | +/- | <i>SLC45A2</i> | CR/n - One Cream allele detected. | More about CR |
| Dun | -/-,-/-,-/- | <i>TBX3</i> | nd2/nd2 (non-dun). Two non-dun2 alleles detected. No Dun or non-Dun Primitive Marking alleles detected. | More about Dun |
| Pearl | -/- | <i>SLC45A2</i> | No Pearl alleles detected. | More about prl |
| Silver | -/- | <i>PMEL17</i> | No Silver alleles detected. | More about Z |



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Coat Color Results, continued

White Patterns Results

| | | | | |
|-------------------------------|---------|--------------|--|--------------------------------------|
| Dominant White | -/- | <i>KIT</i> | No Dominant White alleles detected (DW1-21). | More about DW |
| Frame Overo (LWO) | -/- | <i>EDNRB</i> | No Frame Overo (LWO) alleles detected. | More about LWO |
| Leopard Complex Spotting (LP) | -/- | <i>TRPM1</i> | No Leopard Complex Spotting (LP) alleles detected. | More about LP |
| Pattern 1 (LP modification) | -/- | <i>RFWD3</i> | No Pattern 1 (LP modification) alleles detected. | More about PATN1 |
| Splashed White (MITF) | -/-,-/- | <i>MITF</i> | No Splashed White 1 nor Splashed White 3 alleles detected. | More about SW (MITF) |
| Splashed White (PAX3) | -/-,-/- | <i>PAX3</i> | No Splashed White 2 nor Splashed White 4 alleles detected. | More about SW (PAX3) |
| Sabino 1 | -/- | <i>KIT</i> | No Sabino 1 alleles detected. | More about SB1 |
| Tobiano | +/- | <i>ECA3</i> | TO/n - One Tobiano allele detected. | More about TO |



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Health Genetics 1

Immune System

| | | | | |
|----------------------------------|-----|---------------|---|----------------------------------|
| Foal Immunodeficiency Syndrome | -/- | SLC5A3 | No Foal Immunodeficiency Syndrome alleles detected. | More about fis |
| Severe Combined Immunodeficiency | -/- | DNAPK | No Severe Combined Immunodeficiency alleles detected. | More about scid |
| West Nile* | -/- | OAS1 | Normal susceptibility to West Nile Virus. | More about WNVR* |

Muscle Disorders

| | | | | |
|--|-----|--------------|---|----------------------------------|
| Glycogen Branching Enzyme Deficiency | -/- | GBE1 | No Glycogen Branching Enzyme Deficiency alleles detected. | More about gbed |
| Hyperkalemic Periodic Paralysis | -/- | SCN4A | No Hyperkalemic Periodic Paralysis alleles detected. | More about HYPP |
| Malignant Hyperthermia | -/- | RYR1 | No Malignant Hyperthermia alleles detected. | More about MH |
| Myotonia | -/- | CLCN4 | No Myotonia alleles detected. | More about myt |
| Polysaccharide Storage Myopathy (type 1) | -/- | GYS1 | No Polysaccharide Storage Myopathy (type 1) alleles detected. | More about PSSM1 |



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Health Genetics 2

Neurologic Disorders

| | | | | |
|------------------------|-----|--------------|---|--------------------------------|
| Cerebellar Abiotrophy | -/- | <i>MUTYH</i> | No Cerebellar Abiotrophy alleles detected. | More about ca |
| Lavender Foal Syndrome | -/- | <i>MYO5A</i> | No Lavender Foal Syndrome alleles detected. | More about lfs |

Reproductive Disorders

| | | | | |
|------------------------|----------|--------------|--|---------------------------------|
| Androgen Insensitivity | -/- | <i>AR</i> | No Androgen Insensitivity alleles detected. | More about as |
| IAR - Subfertility* | -/-, +/- | <i>FKBP6</i> | One IAR Subfertility* allele detected; likely no effect. | More about iar* |

Skin Disorders

| | | | | |
|--|-----|--------------|---|----------------------------------|
| Hereditary Equine Regional Dermal Asthenia | -/- | <i>PPIB</i> | No Hereditary Equine Regional Dermal Asthenia alleles detected. | More about herda |
| Junctional Epidermolysa Bullosis (type 1) | -/- | <i>LAMC2</i> | No Junctional Epidermolysa Bullosis (type 1) alleles detected. | More about jeb1 |
| Junctional Epidermolysa Bullosis (type 2*) | -/- | <i>LAMA3</i> | No Junctional Epidermolysa Bullosis (type 2*) alleles detected. | More about jeb2* |
| Warmblood Fragile Foal Syndrome | -/- | <i>PLOD1</i> | No Warmblood Fragile Foal Syndrome alleles detected. | More about WFFS |



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Other Genetics

Trait Genetics

| | | | | |
|----------------------|-----------------|--------------|---|--------------------|
| Lordosis* | +/-,-/-,-/-,+/- | <i>ECA20</i> | No pattern of Lordosis* alleles detected. | More about L* |
| Curiosity/Vigilance* | -/- | <i>DRD4</i> | Vig - AA - Two Vigilance alleles detected; likely more vigilant than curious. | More about Cur/Vig |
| Myostatin/Speed | +/+ | <i>MSTN</i> | CC (Sprint Type) - Two Sprint alleles detected; likely Sprint ability over Endurance. | More about MSTN |
| Gait | -/- | <i>DMRT3</i> | No Gait alleles detected. | More about Gaited |

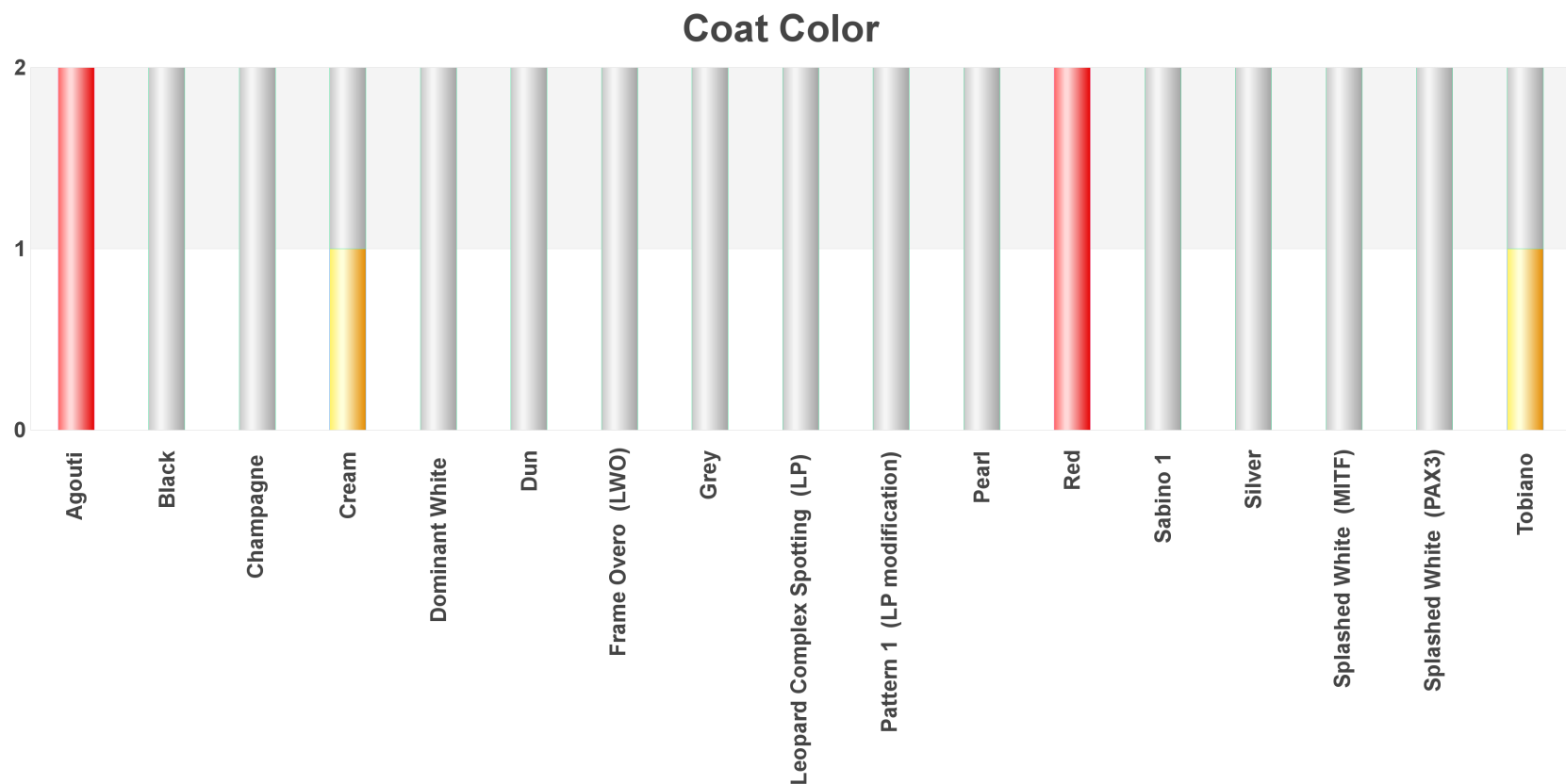


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Inheritance Probabilities



Coat Color Inheritance Probabilities: The bar graph above depicts the number of alleles for specific coat color phenotypes based upon your horse's genetic testing results. Completely filled red bar represents two such alleles (homozygous) and a half-filled yellow bar represents one such allele (heterozygous).



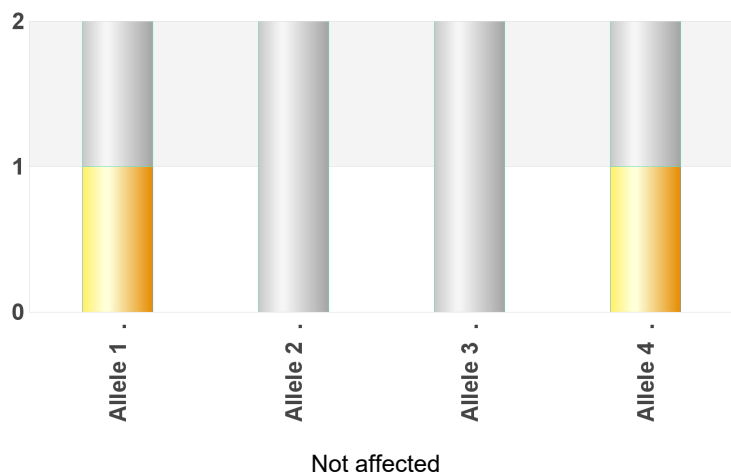
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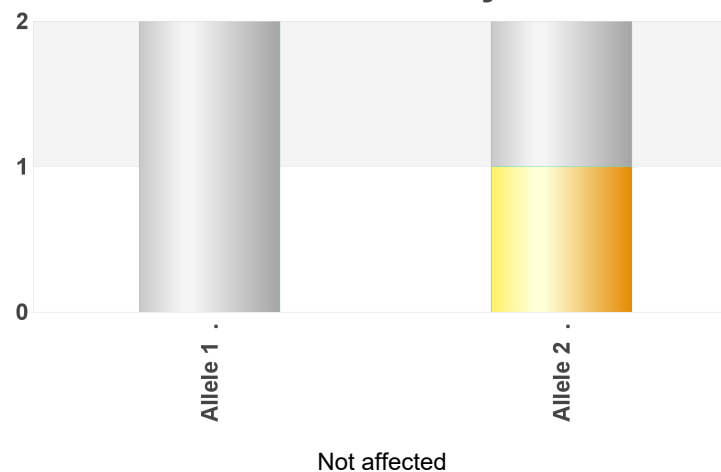
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Inheritance Probabilities

Lordosis



IAR Subfertility*



Multi-allele Risk Charts: Each chart represents a trait, and each bar indicates a distinct risk or allele presence. These act in combination to produce the trait. A red bar indicates the horse carries 2 risk alleles at the site; a partly-yellow bar indicates 1 risk allele; and a fully-grey bar indicates 0 risk alleles. If all bars are red, then the horse carries two risk alleles at each risk site and is likely affected. If all bars contain yellow or red, but are not all red, then the horse is likely a carrier. Otherwise, the horse is not a likely a carrier of the tested trait.



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Defining Genetics & More Info

| | |
|--|---|
| Allele: | One of two or more alternative forms of a gene that arise by mutation and are found at the same place on a chromosome. |
| Alleles: Heterozygous vs. Homozygous? | Allele calls are written in a way that denotes their origin and whether they are DOMINANT (uppercase) or recessive (lowercase). For example, at MC1R (also known as extension), Black is dominant and thus written as "E" whereas Red is recessive and thus denoted as "e". Therefore, an EE horse is homozygous for Black (and thus appears black), an ee horse is homozygous for Red (appears Red), and an Ee horse is heterozygous (shows the dominant allele, thus is Black). |
| Gene: | A unit of heredity that is transferred from a parent to offspring and is thought to determine some characteristic of the offspring. |
| Genotype: | The genetic constitution or make up of an individual organism. |
| Heterozygous: | A pair of genes which are different (not the same). One is typically dominant and one recessive. |
| Homozygous: | A pair of genes that are identical (of one type). |
| Phenotype: | The observable or visible characteristics of an individual resulting from their genotype or the interaction of their various genes and environment. |

The results depicted in this report do not constitute veterinary or medical advice. Any medical or veterinary advice should be sought from your veterinarian regarding these results or any health issues or questions you may have about your animal. Breed, sex, gene interaction, unknown genes and individual variances may impact the results, phenotypes, and behaviors in any animal in unknown and unpredictable ways. Please be advised that your animals' health is important to us and you should feel free to contact us should you have any further questions or feedback on our diagnostic platform, results reporting, or general questions. We value your input and thank you!