ETALON DIAGNOSTICS

REPORT DATE: FEBRUARY 8, 2025

HORSE: HAAP HAZARD

OWNER: STEVE HUGUS

Genetic profile test results

HORSE ID: 112120_014

PACKAGES: ETALON DNA MINIPANEL, SINGLE TEST - DOMINANT WHITE 34/FLAMBOYANT (W34)

Horse and owner information

Horse	HAAP HAZARD
Date of birth	08-13-2020
Breed	Arabian
Age	4 y.o.
Color	Black
Sex	Stallion
Discipline	-
Height	-
Registry	Arabian Horse Association
Reg number	682337
Sire	EA PUTTIN THE RITZ
Dam	EA ALIYAH MAIS
Sire Reg & No.	Arabian Horse Association 653110
Dam Reg & No.	Arabian Horse Association 655188
Owner	Steve Hugus
Address	323 Sheep Camp
Phone	307-856-0212
City, State	Pavillion, WY
Email	shugus@wyoming.com
Postal code	82523

Results Summary

Variant summaries:

Genetic note: **Dominant White 34/Flamboyant (W34): Two Dominant White 34 variants detected.**

Color: **a/a, E/e, W34/W34, nd2/nd2, W19/n, G/n**

Health: **WNVR/n**

Speed: **Endurance Type**

Temperament: **Curious**

Gait: **Neg for DMRT3**

Arabian: **CA n/n, LFS n/n, SCID n/n**

Performance and Abilities:

Curious
Two Curiosity variants; horse may be more curious than vigilant.

Non-"Gaited" DMRT3
No DMRT3 variants; likely non-gaited (*variants for novel "gait" abilities are currently in research).

Endurance
Endurance type; horse may accel at longer distance travel versus short distance sprint type activity.

Health Variants:

West Nile Virus Risk Symptom Susceptibility (WNVR) - WNVR/n
WNVR/n - One West Nile Virus Symptom Susceptibility Risk (WNVR) variant detected. Horse may have moderate severity of West Nile Virus symptoms if contracted. Horse has a 50% chance of passing on to any offspring. (*NOT a test for the presence of WNV)

Coat color:

Black (base)
Black (E) is the base coat color for this horse and is a relatively uncommon coat color on its own (usually it is found in combination with other colors or modifiers such as in Bay horses). A visible difference between a true black (Ee or EE), a dark chestnut (ee) or a bay (Aa or AA + E) can sometimes be seen in the fine hairs around the eyes and muzzle. On a true black these hairs typically remain black even if the horse is sun-bleached, while on other colors they will be lighter. Horse with one copy of the black variant (Ee) is "heterozygous black" and has a 50% chance of passing on black or red to any offspring.

Grey
Grey (G): Grey may cause progressive greying of entire coat (possibly appearing white at maturity). Grey will causing "greying" of any base coat color and modifiers. Horse has an increased risk of melanoma.

Grey (G) - G/n
G/n - One Grey (G) variant detected; may cause progressive greying of entire coat (possibly appearing white at maturity). Horse has an increased risk of melanoma. Horse has a 50% chance of passing to any offspring.

Dominant White 19 (W19) - W19/n
W19/n - One Dominant White 19 (W19) variant detected; may result in white face markings and often high white socks with occasional body spots. Horse has a 50% chance of passing on to any offspring.

Dominant White 34/Flamboyant (W34) - W34/W34
W34/W34 -Two Dominant White 34/Flamboyant variants detected. Possibly white markings on legs, body and face. Horse has a 100% chance of passing on to any offspring.

Coat color

Base

Agouti (A) - a/a	ASIP		Negative

Gene or region: **ASIP**

a/a - No Agouti (A) variants detected. Agouti (A) restricts black pigment to the outer regions of the body, the legs, mane & tail, nose, ear tips causing the otherwise black horse to appear Bay. Agouti is invisible on the red based coat.

Black (E) - E/e	MC1R		Black Based

Gene or region: **MC1R**

E/e - One Black variant (E) and one Red (e) variant detected.

Modifiers

non-Dun Primitive Markings (nd) - nd2/nd2	TBX3		Negative

Gene or region: **TBX3**

nd2/nd2 - No non-Dun Primitive Markings (ND) variants detected.

Tiger Eye (TE1) - Not Ordered	SLC24A5TE1	Not ordered

Tiger Eye (TE2) - Not Ordered	SLC24A5TE2MUT	Not ordered

Grey (G) - G/n	STX17A		Likely Affected

Gene or region: **STX17A**

G/n - One Grey (G) variant detected. Coat color may "grey out" as horse matures possibly resulting in an entirely white coat. Increased risk for Melanomas.

Brindle (BR1) - Not Ordered	MBTPS2BR1	Not ordered

Dilutes

Dun (D) - n/n

TBX3

Negative

Gene or region: **TBX3**

No Dun (D) variants detected.

Cream (CR) - n/n

SLC45A2

Negative

Gene or region: **SLC45A2**

No Cream (CR) variants detected.

Champagne (CH) - n/n

SLC36A1

Negative

Gene or region: **SLC36A1**

No Champagne (CH) variants detected.

Pearl (PRL) - n/n

SLC45A2

Negative

Gene or region: **SLC45A2**

No Pearl (prl) variants detected.

Silver (Z) - n/n

PMEL17

Negative

Gene or region: **PMEL17**

No Silver (Z) variants detected. Silver affects only black base (E) coat colors and is invisible on a red-based coat. On black or bay, It has a disproportionate diluting effect on the mane and tail, and is sometimes called, "Chocolate Flaxen".

Sunshine (SUN) - n/n

SLC45A

Negative

Gene or region: **SLC45A**

No Sunshine (SUN) variants detected.

Snowdrop (SNO) - Not Ordered

SLC45A

Not ordered

Mushroom (MU) - Not Ordered	MFSD12	Not ordered

Whites

Dominant White 34 (W34) - W34/W34

KIT — Likely Affected

Gene or region: **KIT**

W34/W34 - Two Dominant White 34/Flamboyant variants detected. Possibly white markings on legs, body and face.

Dominant White 19 (W19) - W19/n

KIT — Likely Affected

Gene or region: **KIT**

W19/n - One Dominant White 19 variant detected. Likely white markings on face, body, and/or legs.

Leopard Complex Spotting (LP) - n/n

TRPM1 — Negative

Gene or region: **TRPM1**

No Leopard Complex Spotting variants detected.

Pattern 1 (PATN1) - n/n

RFWD3 — Negative

Gene or region: **RFWD3**

No Pattern (PATN1/n) 1 variants detected.

Sabino1 (SB1) - n/n

KIT — Negative

Gene or region: **KIT**

No Sabino (SB1) variants detected.

Tobiano (TO) - n/n

ECA3 — Negative

Gene or region: **ECA3**

No Tobiano variants detected.

Splashed White (SW1) - n/n	MITF		Negative

Gene or region: **MITF**

No Splashed White 1 (SW1) variants detected.

Splashed White (SW2) - n/n	PAX3		Negative

Gene or region: **PAX3**

No Splashed White 2 (SW2/n) variants detected.

Splashed White (SW3) - n/n	MITF		Negative

Gene or region: **MITF**

No Splashed White 3 (SW3) variants detected.

Splashed White (SW4) - n/n	PAX3		Negative

Gene or region: **PAX3**

No Splashed White 4 (SW4) variants detected.

Dominant Whites (W) - n/n	KIT		Negative

Gene or region: **KIT**

No Dominant White (1-21) variants detected.

Dominant White 30/Aghilasse (W30) - Not Ordered	KIT	Not ordered

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Dominant White 31/Merada (W31) - Not Ordered	KIT	Not ordered

Dominant White 32/Scandalous (W32) - Not Ordered	KIT		Not ordered
Dominant White 35/Holiday (W35) - Not Ordered	KIT		Not ordered
Splashed White 5 (SW5) - Not Ordered	MITF		Not ordered
Splashed White 7 (SW7) - Not Ordered	MITF		Not ordered
Splashed White 8 (SW8) - Not Tested	MITF		Not ordered
Dominant White 33 (W33) - Not Ordered	KIT		Not ordered
Eden White 3 (EDXW3) "Irish" - Not Ordered	HSP5		Not ordered
Eden White 2 (EDXW2) "Dream" - Not Ordered	HSP5		Not ordered
Eden White 1 (EDXW1) "Cruz" - Not Ordered	HSP5		Not ordered
Frame/Lethal White Overo (LWO) - n/n	EDNRB		Negative

Gene or region: **EDNRB**

No Frame/Lethal White Overo (LWO) variants detected.

Coat Type

Curly Coat 1 (CU1) - Not Ordered	KRT25	Not ordered
Curly Coat 2 (CU2) - Not Ordered	SP6	Not ordered

Health Variants

Color Related Risk

Lethal White Overo (LWO) - n/n	EDNRB		Negative

Gene or region: **EDNRB**

n/n - No Lethal White Overo (LWO) variants detected.

Congenital Stationary Night Blindness (CSNB) - n/n	TRPM1		Negative

Gene or region: **TRPM1**

n/n - No Leopard Complex Spotting (LP) variants detected, which is related to the presence of Congenital Stationary Night Blindness (CSNB) if horse is LP/LP. Horses with one copy of the Leopard Complex Spotting (LP) variant are not currently known to suffer any ill effects as a result. Horses with Congenital Stationary Night Blindness (CSNB) which may experience the inability to see in low to no-light conditions.

Multiple Congenital Ocular Anomalies (MCOA) - n/n	PMEL17		Negative

Gene or region: **PMEL17**

No Silver variants detected which is related to the presence of Multiple Congenital Ocular Anomalies (MCOA).

Immune System

Foal Immunodeficiency Syndrome (FIS) - n/n	SLC5A3		Negative

Gene or region: **SLC5A3**

No Foal Immunodeficiency Syndrome variants detected.

Severe Combined Immunodeficiency (SCID) - n/n	DNAPK		Negative

Gene or region: **DNAPK**

No Severe Combined Immunodeficiency (SCID) variants detected.

Myosin-Heavy Chain Myopathy (MYHM)	MYH1		Not ordered

West Nile Virus Risk Symptom Susceptibility (WNVR) - WNVR/n	OAS1		Possibly Affected

Gene or region: **OAS1**

WNVR/n - One West Nile Virus Symptom Susceptibility Risk (WNVR) variant detected. Horse may have moderate severity of West Nile Virus symptoms if contracted. Horse has a 50% chance of passing on to any offspring. (*NOT a test for the presence of WNV)

Equine Herpes Myeloencephalopathy Risk (EHMR) - after contracting Equine Herpes Virus type 1 (EHV1)	TSPAN9		Not ordered

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Muscle Disorders

Glycogen Branching Enzyme Deficiency (GBED) - n/n	GBE1		Negative

Gene or region: **GBE1**

No Glycogen Branching Enzyme Deficiency (GBED) variants detected.

Hyperkalemic Partial Paralysis (HYPP) - n/n	SCN4A		Negative

Gene or region: **SCN4A**

No Hyperkalemic Partial Paralysis (HYPP) variants detected.

Malignant Hyperthermia (MH) - n/n	RYR1		Negative

Gene or region: **RYR1**

No Malignant Hyperthermia (MH) variants detected.

Myotonia (MYT) - n/n	CLCN4	Negative

Gene or region: **CLCN4**

No Myotonia (MYT) variants detected.

Polysaccharide Storage Myopathy type 1 (PSSM1) - n/n	GYS1	Negative

Gene or region: **GYS1**

No Polysaccharide Storage Myopathy type 1 (PSSM1) variants detected.

Neurologic Disorders

Cerebellar Abiotrophy (CA) - n/n	MUTYH	Negative

Gene or region: **MUTYH**

No Cerebellar Abiotrophy (CA) variants detected.

Lavender Foal Syndrome (LFS) - n/n	MYO5A	Negative

Gene or region: **MYO5A**

No Lavender Foal Syndrome (LFS) variants detected.

Hydrocephalus (HDC)	B3GALNT2	Not ordered
Recurrent Laryngeal Neuropathy Risk (RLNR)	ECA3	Not ordered
Occipitoatlantoaxial Malformation Type 1 (OAAM1)	HOX	Not ordered

Reproductive Disorders

Androgen Insensitivity Syndrome (AIS) - n/n	AR		Negative

Gene or region: **AR**

No pattern of Androgen Insensitivity Syndrome (AIS) variants detected.

Impaired Acrosomal Reaction - Subfertility Risk (IAR) - n/n, iar/n	FKBP6...		Not Affected

Gene or region: **FKBP6, FKBP6**

No pattern for Impaired Acrosomal Reaction (IAR) - Subfertility Risk variants detected.

Skin, Hoof and Connective Tissue Disorders

Hereditary Equine Regional Dermal Asthenia (HERDA) - n/n	PPIB		Negative

Gene or region: **PPIB**

No Hereditary Equine Regional Dermal Asthenia (HERDA) variants detected.

Junctional Epidermolysis Bullosa type 1 (JEB1) - n/n	LAMC2		Negative

Gene or region: **LAMC2**

No Junctional Epidermolysis Bullosa type 1 (JEB1) variants detected.

Junctional Epidermolysis Bullosa type 2 (JEB2) - n/n	LAMA3		Negative

Gene or region: **LAMA3**

No Junctional Epidermolysis Bullosa type 2 (JEB2) variants detected.

"Warmblood" Fragile Foal Syndrome (FFS)	PLOD1	Not ordered

Hoof Wall Separation Disease (HWSD)	SERPINB11	Not ordered
Naked Foal Syndrome (NFS)	st14	Not ordered
Incontinentia Pigmenti (IP)/Brindle IP - n/n	IKBKG	Negative

Gene or region: **IKBKG**

No Incontinentia Pigmenti (IP)/Brindle IP variants detected.

Chronic Idiopathic Anhidrosis Risk (CIAR)	KCNE4	Not ordered

Occular Disorders

Equine Recurrent Uveitis Susceptibility Risk (ERUR)	BIEC2536712WB	Not ordered
Equine Recurrent Uveitis Symptom Severity (ERUS)	BIEC2421990WB	Not ordered
Squamous Cell Carcinoma Susceptibility Risk (SCC)	DDB2	Not ordered
Multiple Congenital Ocular Anomalies (MCOA)	PMEL17	Not ordered
Congenital Stationary Night Blindness (CSNB)	TRPM1	Not ordered

Congenital Stationary Night Blindness 2 (CSNB2)	GRM6	Not ordered

Skeletal Disorders

Dwarfism (DWF)	ACAND1...	Not ordered
Friesian Dwarfism (FDWF)	B4GALT7	Not ordered
Kissing Spines Susceptibility Risk (KSSR)	ECA25	Not ordered
Lordosis	ECA20...	Not detected

Gene or region: **ECA20, ECA20, ECA20, ECA20**

Horses with one copy in each of the four Lordosis regions are not currently known to suffer any ill effects as a result. Horses with two copies in each of the four Lordosis regions exhibit signs of swayback. Currently studies are only proven in the N. Am. Saddlebred breed.

Endocrine Disorders

Equine Metabolic Syndrome Susceptibility Risk (EMSR)	BIEC2263524EMS	Not ordered
Laminitis Susceptibility Risk - Equine Metabolic Syndrome related (LAM)	BIEC2263524_LAM	Not ordered

Blood and Vascular Disorders

Glanzmann Thrombasthenia (GT)	ITGA2BG...	Not ordered

Height

Height (H1)	LCORL	Not ordered
Height (H2)	HMGA2	Not ordered

Performance and Abilities

Gait Type

Non-"Gaited" DMRT3	DMRT3		Negative

Gene or region: **DMRT3**

No DMRT3 variants; likely non-gaited (*variants for novel "gait" abilities are currently in research).

Performance

Endurance	MSTN		Likely Affected

Gene or region: **MSTN**

Endurance type; horse may accel at longer distance travel versus short distance sprint type activity.

Temperament

Curious	DRD4		Likely Affected

Gene or region: **DRD4**

Two Curiosity variants; horse may be more curious than vigilant.