ETALON DIAGNOSTICS

REPORT DATE: SEPTEMBER 16, 2023

HORSE: RNG KATE'S BACK IN BLACK JETT

OWNER: KATHRYN DOLAN

Genetic profile test results

HORSE ID: 091123_011

PACKAGES: ETALON DNA MINIPANEL

Horse and owner information

Horse
RNG Kate's Back In Black Jett

Breed
Gypsy Vanner

Color
Black

Discipline
All Around, Breeding Stallion, Driving, Pleasure Driving, English Pleasure, Western Riding, Team Driving

Registry

Sire
SD Hercules

Sire Reg & No.
Gypsy Vanner Horse Society

Owner
Kathryn Dolan

Phone
6127020932

Email
katieskennelsmn@gmail.com

Date of birth
03-16-2019

Age
4 y.o.

Sex
Stallion

Height
14 Hands

Reg number

Dam
GG Kiss Me Kate

Dam Reg & No.
Gypsy Vanner Horse Society

Address
10945 200th St SE

City, State
Red Lake Falls, MN

Postal code
56750

Results Summary

Variant summaries:

Color: **a/a, E/E, nd2/nd2, W20/n**

Health: **PSSM1/n, WNVR/WNVR**

Speed: **Endurance Type**

Temperament: **Curious**

Gait: **Neg for DMRT3**

Gypsy: **FIS n/n, PSSM1 PSSM1/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 myostatin; horse may accel at longer distance travel versus short distance sprint type activity.

Health Variants:

West Nile Virus Symptom Susceptibility Risk (WNVR) - WNVR/WNVR
WNVR/WNVR - Two West Nile Virus Symptom Susceptibility Risk (WNVR) variants detected. Horse may have higher severity of West Nile Virus symptoms if contracted. Horse has a 100% chance of passing on to any offspring. (*NOT a test for the presence of WNV).

Polysaccharide Storage Myopathy type 1 (PSSM1) - PSSM1/n
PSSM1/n - One Polysaccharide Storage Myopathy type 1 (PSSM1) variant detected, resulting in "Carrier" and “Possibly Affected” status. Caution is recommended when breeding to avoid another carrier and thus a 25% chance of "Likely Affected" offspring.

Coat color:

Black Homozygous (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. For a horse to be "homozygous black", it must have TWO copies of the Black variant (EE) and horse has 100% chance of passing Black to any offspring.

Dominant White 20 (W20) - W20/n
W20/n - One Dominant White 20 (W20) variant detected; may result in White markings. Horse has 50% chance of passing to any offspring.

Coat color

Base

Agouti (A) - a/a	ASIP		Negative

Gene or region: **ASIP**

a/a - No Dominant Agouti 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 - Two Black variants detected and no Red.

Modifiers

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

Gene or region: **TBX3**

nd2/nd2 - No non-Dun Primitive Markings variants detected. Non-Dun Primitive Markings can appear as a dorsal stripe, leg barring, shadows on the face and shoulders even in the absence of the Dun variant.

Grey (G) - n/n	STX17A		Negative

Gene or region: **STX17A**

No Grey (G) variants detected.

Brindle (BR1) - n/n	MBTPS2BR1	Negative

Gene or region: **MBTPS2BR1**

n/n - No Brindle (BR1) variants detected. Horse with Brindle (BR1) may display overall haircoat showing streaks of darker and lighter hair, similar to the brindle coat color in other species.

Tiger Eye (TE1) - Not Ordered	SLC24A5TE1	Not ordered

Tiger Eye (TE2) - Not Ordered	SLC24A5TE2MUT	Not ordered

Dilutes

Champagne (CH) - n/n	SLC36A1	Negative

Gene or region: **SLC36A1**

No Champagne (CH) 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".

Cream (CR) - n/n	SLC45A2	Negative

Gene or region: **SLC45A2**

No Cream (CR) variants detected.

Pearl (PRL) - n/n	SLC45A2		Negative

Gene or region: **SLC45A2**

No Pearl (prl) variants detected.

Dun (D) - n/n	TBX3		Negative

Gene or region: **TBX3**

No Dun (D) variants detected. Dun is a modifier that dilutes the base coat color often revealing Primitive Markings such as a dorsal stripe, leg barring, shadows on the face and shoulders.

Sunshine (SUN) - not tested	SLC45ASUN	Not ordered

Mushroom (MU) - Not Ordered	MFSD12	Not ordered

Snowdrop (SNO) - Not Ordered	SLC45ASNO	Not ordered

Whites

Dominant White 20 (W20) - W20/n	KIT		Possibly Affected

Gene or region: **KIT**

W20/n - One Dominant White 20 variant detected. Likely white markings.

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

Gene or region: **EDNRB**

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

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 White 22 (W22) - Not Ordered	KIT	Not ordered
Dominant White 30/Aghilasse (W30) - Not Ordered	KIT	Not ordered
Dominant White 31/Merada (W31) - Not Ordered	KIT	Not ordered
Dominant White 32/Scandalous (W32) - Not Ordered	KIT	Not ordered
Dominant White 34/Flamboyant (W34) - 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

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**

n/n - 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 (FIS) variants detected.

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

Gene or region: **DNAPK**

No Severe Combined Immunodeficiency (SCID) variants detected.

Immune-Mediated Myositis (IMM)	MYH1		Not ordered

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

Gene or region: **OAS1**

WNVR/WNVR - Two West Nile Virus Symptom Susceptibility Risk (WNVR) variants detected. Horse may have higher severity of West Nile Virus symptoms if contracted. Horse has a 100% 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) - PSSM1/n	GYS1		Possibly Affected

Gene or region: **GYS1**

PSSM1/n - One Polysaccharide Storage Myopathy type 1 (PSSM1) variant detected, resulting in "Carrier" and “Possibly Affected” status. Caution is recommended when breeding to avoid another carrier and thus a 25% chance of "Likely Affected" offspring.

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 (RLN)	ECA3	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) - iar/iar, n/n	FKBP6IAR1...		Not Affected

Gene or region: **FKBP6IAR1, FKBP6IAR2**

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)	st14nfs	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

Skeletal Disorders

Dwarfism (D)	ACAND1...	Not ordered
Friesian Dwarfism (FD)	B4GALT7Dfriesian	Not ordered
Kissing Spines Susceptibility (KSS)	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 (EMS)	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 myostatin; 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.