

Jodie & Warren Woroniecki 7075 28<sup>th</sup> St. Hebron, ND 58638 701-878-4088 

#### 7 Identified Diseases Information as it Pertains to Woroniecki Ranch Quarter Horses

At Woroniecki Ranch Quarter Horses we take an ethical response to any genetic diseases as they are identified. AQHA previously had a 5-panel test requirement for breeding stallions since 2015. Two more diseases have been identified and AQHA has now required a 6-panel test. A 7<sup>th</sup> disease has been identified and could soon be added to the panel. We, as well as many other breeders, have decided to test for that (EJSCA). We also know that there could be many more diseases yet to be discovered. We order our tests through the VGL laboratory of the School of Veterinary Medicine at the University of California, Davis and provide those results to AQHA and buyers. VGL is internationally recognized as a pioneer and expert in DNA-based animal testing. The effects of these equine diseases are wide-ranging, from mild and manageable to severe and terminal. We have compiled a short description of each disorder tested. In many instances we only test the necessary specific test based upon the parents' test results. If both parents are N/N on all or some diseases then the offspring is also N/N on those diseases by default. Please see ALL PAGES of this document link.

Glycogen Branching Enzyme Deficiency (GBED) is a fatal genetic disorder that results from the inability to correctly store glycogen in several organs of the body. Most die within couple weeks of age, but none have been known to survive more than 2 months of age. These foals are often still born. GBED is a recessive trait and only horses that inherit both recessive genes from each parent (G/G) will be afflicted. Carriers (N/G) and non-carriers (N/N) will have no problems in their lives as they will NOT be afflicted at all, and they will be able to perform all performance activities. If you decide to breed a carrier (N/G) it is highly advised to not breed to another carrier to avoid producing afflicted offspring.

Hereditary Equine Regional Dermal Asthenia (HERDA) is an inherited skin condition primarily found in Quarter Horses that is characterized by hyperextensible skin, scarring, and severe lesions along the back of affected horses. HERDA is a recessive trait and only horses that inherit both recessive genes from each parent (HRD/HRD) will be afflicted. Carriers (N/HRD) and non-carries (N/N) will have no problems in their lives as they will NOT be afflicted at all, and they will be able to perform all performance activities. If you decide to breed a carrier (N/HRD) it is highly advised to not breed to another carrier to avoid producing afflicted offspring.

Hyperkalemic Periodic Paralysis (HYPP) is an inherited disease of the muscles primarily found in Quarter Horses which is characterized by sporadic episodes of muscle tremors or paralysis. HYPP is a dominant trait and carriers (N/H) will be afflicted but can be managed with careful nutritional care. It is highly recommended NOT to breed a carrier.

Formerly known as IMM, Myosin-heavy chain myopathy (MYHM) is a muscle disease in Quarter Horses and related breeds that results in two distinct clinical disease presentations. The first presentation is called immune-mediated myositis or IMM and it is characterized by episodes of severe muscle atrophy following an autoimmune event. The second is severe muscle pain and damage termed non-exertional rhabdomyolysis or "tying-up" that is not associated with exercise and may or may not have muscle atrophy. MYHM is a codominant trait and carriers (N/My) may develop a myosin-heavy chain myopathy. Horses with (My/My) may develop a more severe form of a myosin-heavy chain myopathy. It is highly recommended NOT to breed a carrier. After consulting with veterinarians and experts in breeding who deem this disorder to not be as severe or common as HYPP or PSSM1, we have decided at this time to continue to breed certain individuals identified at WRQH. We will not breed carriers to carriers to minimize the potential. We have several aged horses that carry MYHM and have had no problems with them. If things prove differently, we will adjust at that time.

Malignant Hyperthermia (MH) is an inherited disease in which affected horses can be triggered by halogenated anesthetics, succinylcholine, stress, or excitement, which can induce a hyper-metabolic state characterized by symptoms including muscle contracture, elevated temperature, and an irregular heart rhythm. MH is a dominant trait, and carriers (N/MH) will be afflicted if undergoing surgery or extreme stress. It is highly recommended NOT to breed a carrier.

Polysaccharide Storage Myopathy (PSSM1) is a glycogen storage disease that results in the accumulation of abnormal complex sugars in muscle cells, which can lead to muscle pain, weakness, and reluctance to move. PSSM1 is a dominant trait but carriers (N/PSSM1) can be managed with proper diet and exercise. It is highly recommended NOT to breed a carrier.

Equine Juvenile Spinocerebellar Ataxia (EJSCA) is an inherited neurologic disease that causes ataxia. Affected foals develop ataxia, or incoordination, between 1 and 4 weeks of age. The disorder progresses within a few days until affected foals are unable to stand without assistance. EJSCA is a recessive trait and only horses that inherit both recessive genes from each parent (JSA/JSA) will be afflicted. Carriers (N/JSA) and non-carries (N/N) will have no problems in their lives as they will NOT be afflicted at all and they will be able to perform all performance activities. If deciding to breed a carrier (N/JSA) it is highly advised to not breed to another carrier to avoid producing afflicted offspring.

## Top Gun Maverick JW (AQHA)

N/N

### 2025 Bay Roan Stallion

GBED Status N/N
HERDA Status N/N
HYPP Status N/N
MYHM Status N/My
MH Status N/N
PSSM1 Status N/N

**EJSCA Status** 

Carries one copy of the MYHM gene. If breeding stallion, breed to N/N mares.



## MYOSIN-HEAVY CHAIN MYOPATHY (MYHM) **TEST REPORT**

Case: NQ127166 Provided Information:

Date Received: 23-Jul-2025 **TOP GUN MAVERICK JW** Name: Report Issue Date: 28-Jul-2025

Report ID: 6921-8927-9244-1184 **AQHA PENDING** Registration:

Verify report at vgl.ucdavis.edu/verify

DOB: 05/08/2025 Sex: Stallion Breed: Quarter Horse

TOP GUN WHISKEY Dam: ANYWARE LUCKY BET

5493617 5939938 Reg: Reg: Microchip: Microchip:

> RESULT INTERPRETATION

**Myosin-Heavy Chain** Affected. One copy of the MYHM allele detected. Horse is susceptible to immune mediated myositis or N/My

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TELEPHONE: (530) 752-2211 FAX: (530) 752-3556

# AQHA GENETIC DISEASE PANEL TEST RESULTS

AMERICAN QUARTER HORSE ASSOCIATION P.O. BOX 200 AMARILLO, TX 79168-0001

Case:

QHA192966

Date Received:

11-May-2015

Print Date:

15-May-2015

Report ID:

3204-8302-2597-1037

Verify report at www.vgl.ucdavis.edu/myvgl/verify.html

Horse: TOP GUN WHISKEY

Reg: 5493617

YOB: 2012 Sex: Stallion Breed: Quarter Horse Alt. ID: 6435445

Sire: PADDYS IRISH WHISKEY Dam: COWGUN

Reg: 2983308 Reg: 4930711

GBED	N/N
HERDA	N/N
НҮРР	N/N
МН	N/N
PSSM1	N/N

N/N - Normal - Does not possess the disease-causing GBED gene

N/N - Normal - horse does not have the HERDA gene

N/N - Normal - Does not possess the disease-causing HYPP gene

N/N - Normal - horse does not have the MH gene

N/N - Normal - horse does not have the PSSM1 gene

GBED - Glycogen Branching Enzyme Deficiency. Fatal disease of newborn foals caused by defect in glycogen storage. Affects heart and skeletal muscles and brain. Inherited as recessive disease.

HERDA - Hereditary Equine Regional Dermal Asthenia. Skin disease characterized by hyperextensible skin, scarring, and severe lesions along the back of affected horses. Typical onset is around 2 years of age. Inherited as a recessive disease.

HYPP - Hyperkalemic Periodic Paralysis. Muscle disease caused by defect in sodium channel gene that causes involuntary muscle contraction and increased level of potassium in blood. Inherited as dominant disease. Two copies of defective gene produce more severe signs than one copy.

MH - Malignant Hyperthermia. Rare but life-threatening skeletal muscle disease triggered by exposure to volatile anesthetics (halothane), depolarizing muscle relaxants (succinylcholine), and stress. Presumed inheritance as dominant disease.

PSSM1 - Polysaccharide Storage Myopathy Type 1. Muscle disease characterized by accumulation of abnormal complex sugars in skeletal muscles. Signs include muscle pain, stiffness, skin twitching, sweating, weakness and reluctance to move. Inherited as a dominant disease.

GBED testing performed under a license agreement with the University of Minnesota.

HERDA testing performed under a license agreement with the University of California, Davis.

PSSM1 testing performed under a license agreement with the American Quarter Horse Association.



# MYOSIN-HEAVY CHAIN MYOPATHY (MYHM) TEST REPORT

NQ122778

Provided Information: Case:

 Name:
 TOP GUN WHISKEY
 Date Received:
 17-Apr-2025

 Report Issue Date:
 24-Apr-2025

Registration: 5493617 Report ID: 7970-5627-5643-1153

Verify report at vgl.ucdavis.edu/verify

DOB: 05/26/2012 Sex: Stallion Breed: Quarter Horse

Sire:PADDYS IRISH WHISKEYDam:COWGUNReg:2983308Reg:4930711Microchip:Microchip:

RESULT INTERPRETATION

Myosin-Heavy Chain
Myopathy (MYHM)

N/My

Affected. One copy of the MYHM allele detected. Horse is susceptible to immune mediated myositis or nonexertional rhabdomyolysis.



# EQUINE JUVENILE SPINOCEREBELLAR ATAXIA TEST REPORT

Provided Information: Case: NQ122778

 Name:
 TOP GUN WHISKEY
 Date Received:
 17-Apr-2025

 Report Issue Date:
 24-Apr-2025

Registration: 5493617 Report ID: 2127-4645-2200-7000

Verify report at vgl.ucdavis.edu/verify

DOB: 05/26/2012 Sex: Stallion Breed: Quarter Horse

Sire:PADDYS IRISH WHISKEYDam:COWGUNReg:2983308Reg:4930711Microchip:Microchip:

RESULT INTERPRETATION

Equine Juvenile
Spinocerebellar Ataxia
N/N
Normal. No copies of the allele associated with equine juvenile spinocerebellar ataxia (EJSCA) detected.

Malignant Hyperthermia (MH) is an inherited disease in which affected horses can be triggered by halogenated anesthetics, succinylcholine, stress, or excitement, which can induce a hyper-metabolic state characterized by symptoms including muscle contracture, elevated temperature, and an irregular heart rhythm. MH is a dominant trait, and carriers (N/MH) will be afflicted if undergoing surgery or extreme stress. It is highly recommended NOT to breed a carrier.

Polysaccharide Storage Myopathy (PSSM1) is a glycogen storage disease that results in the accumulation of abnormal complex sugars in muscle cells, which can lead to muscle pain, weakness, and reluctance to move. PSSM1 is a dominant trait but carriers (N/PSSM1) can be managed with proper diet and exercise. It is highly recommended NOT to breed a carrier.

Equine Juvenile Spinocerebellar Ataxia (EJSCA) is an inherited neurologic disease that causes ataxia. Affected foals develop ataxia, or incoordination, between 1 and 4 weeks of age. The disorder progresses within a few days until affected foals are unable to stand without assistance. EJSCA is a recessive trait and only horses that inherit both recessive genes from each parent (JSA/JSA) will be afflicted. Carriers (N/JSA) and non-carries (N/N) will have no problems in their lives as they will NOT be afflicted at all and they will be able to perform all performance activities. If deciding to breed a carrier (N/JSA) it is highly advised to not breed to another carrier to avoid producing afflicted offspring.

## Anyware Lucky Bet JW (AQHA # 5939938)

#### 2018 Red Roan Mare

GBED Status N/N
HERDA Status N/N
HYPP Status N/N
MYHM Status N/N
MH Status N/N
PSSM1 Status N/N
EJSCA Status N/N

All NN by parentage. Parents' tests included.

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#### AQHA GENETIC DISEASE PANEL TEST RESULTS

AMERICAN QUARTER HORSE ASSOCIATION P.O. BOX 200

AMARILLO, TX 79168-0001

Case:

**QHA47414** 

Date Received:

28-Feb-2012

Report Date:

01-Mar-2012

Report ID:

7122-9552-8051-9095

Reg: 4809494

Verify report at https://www.vgf.ucdavis.edu/myvgt/verify.html

Horse: BET HESA CAT

YOR: 06

Sire: HIGH BROW CAT

Breed: QH

Sex: S

Alt. ID: 5631458

Reg: 2706274

Dam: BET YER BLUE BOONS

Reg: 2976811

GBED	N/N
HERDA	N/N
НҮРР	N/N
МН	N/N
PSSM1	N/N

N/N - Normal - Does not possess the disease-causing GBED gene

N/N - Normal - horse does not have the HERDA gene

N/N - Normal - Does not possess the disease-causing HYPP gene

N/N - Normal - horse does not have the MH gene

N/N - Normal - horse does not have the PSSM1 gene

GBED - Glycogen Branching Enzyme Deficiency. Fatal disease of newborn foals caused by defect in glycogen storage. Affects heart and skeletal muscles and brain, Inherited as recessive disease

HERDA - Hereditary Equine Regional Dermal Asthenia. Skin disease characterized by hyperextensible skin, scarring, and severe lesions along the back of affected horses. Typical onset is around 2 years of age. Inherited as a recessive disease.

HYPP - Hyperkalemic Periodic Paralysis. Muscle disease caused by defect in sodium channel gene that causes involuntary muscle contraction and increased level of potassium in blood. Inherited as dominant disease. Two copies of defective gene produce more severe signs than one copy.

MH - Malignant Hyperthermia. Rare but life-threatening skeletal muscle disease triggered by exposure to volatile anesthetics (halothane), depolarizing muscle relaxants (succinylcholine), and stress. Presumed inheritance as dominant disease.

PSSMI - Polysaccharide Storage Myopathy Type 1. Muscle disease characterized by accumulation of abnormal complex sugars in skeletal muscles. Signs include muscle pain, stiffness, skin twitching, sweating, weakness and reluctance to move. Inherited as a dominant disease.

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HERDA testing performed under a license agreement with the University of California, Davis.

PSSM1 testing performed under a license agreement with the American Quarter Horse Association.

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## IMM AND MYH1 MYOPATHY (MYHM) GENETIC TEST REPORT

GLENN BLODGETT P.O. BOX 130 GUTHRIE, TX 79236 *Case:* NQ51863

Date Received: 25-Jul-2019

Print Date: 29-Jul-2019

*Report ID:* 3478-8221-3516-2091

Verify report at www.vgl.ucdavis.edu/myvgl/verify.htm

Name: BET HESA CAT Reg: 4809494

DOB: 01/01/2006 Sex: Stallion Breed: Quarter Horse

IMM and MYH1 Myopathy N/N

No copies of the MYHM mutation. Horse does not have increased susceptibility for IMM or nonexertional rhabdomyolysis.

For more detailed information on MYHM test results, please go to: www.vgl.ucdavis.edu/services/horse/IMM.php



## EQUINE JUVENILE SPINOCEREBELLAR ATAXIA TEST REPORT

Provided Information: Case: NQ51863

 Name:
 BET HESA CAT
 Date Received:
 25-Jul-2019

 Report Issue Date:
 18-Sep-2024

Registration: 4809494 Report ID: 1532-6637-9741-4175

Verify report at vgl.ucdavis.edu/verify

DOB: 01/01/2006 Sex: Stallion Breed: Quarter Horse

#### RESULT

#### INTERPRETATION

Equine Juvenile
Spinocerebellar Ataxia

N/N

Normal. No copies of the allele associated with equine juvenile spinocerebellar ataxia (EJSCA) detected.

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## AQHA GENETIC DISEASE PANEL TEST RESULTS

AMERICAN QUARTER HORSE ASSOCIATION P.O. BOX 200 AMARILLO, TX 79168-0001

Case: QHA53836

Date Received: Report Date:

19-Apr-2012

Report 1D:

25-Apr-2012

6975-5757-7332-0004 Verify report at https://www.vgl.ucdavis.edu/myvgt/verify.html

Horse: ANYWARE

Reg: 4921132

YOB: 07

Breed: QH

Sex: M

Alt. ID: 5787360

Reg: 3178989 Reg: 3812813

Sire: PLAYGUN Dam: READYTOWARE

**GBED** N/N N/N **HERDA** HYPP N/N MH N/N PSSM1 N/N

N/N - Normal - Does not possess the disease-causing GBED gene

N/N - Normal - horse does not have the HERDA gene

N/N - Normal - Does not possess the disease-causing HYPP gene

N/N - Normal - horse does not have the MH gene

N/N - Normal - horse does not have the PSSM1 gene

GBED - Glycogen Branching Enzyme Deficiency. Fatal disease of newborn foals caused by defect in glycogen storage. Affects heart and skeletal muscles and brain. Inherited as recessive disease.

HERDA - Hereditary Equine Regional Dermal Asthenia. Skin disease characterized by hyperextensible skin, scarring, and severe lesions along the back of affected horses. Typical onset is around 2 years of age. Inherited as a recessive disease.

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HERDA testing performed under a license agreement with the University of California, Davis

PSSM1 testing performed under a license agreement with the American Quarter Horse Association.



# MYOSIN-HEAVY CHAIN MYOPATHY (MYHM) TEST REPORT

Provided Information: Case: NQ122901

 Name:
 ANYWARE
 Date Received:
 21-Apr-2025

 Report Issue Date:
 25-Apr-2025

Registration: 4921132 Report ID: 0329-2855-2035-6100

Verify report at vgl.ucdavis.edu/verify

DOB: 01/24/2007 Sex: Mare Breed: Quarter Horse

Sire: PLAYGUN Dam: READYTOWARE

Reg:3178989Reg:3812813Microchip:Microchip:

RESULT INTERPRETATION

Myosin-Heavy Chain
Myopathy (MYHM)

Normal. No copies of the MYHM allele detected. Horse does not have increased susceptibility for immune mediated myositis or nonexertional rhabdomyolysis caused by the MYHM allele.



# EQUINE JUVENILE SPINOCEREBELLAR ATAXIA TEST REPORT

Provided Information: Case: NQ122901

 Name:
 ANYWARE
 Date Received:
 21-Apr-2025

 Report Issue Date:
 25-Apr-2025

Registration: 4921132 Report ID: 4836-3509-1415-5106

Verify report at vgl.ucdavis.edu/verify

DOB: 01/24/2007 Sex: Mare Breed: Quarter Horse

Sire: PLAYGUN Dam: READYTOWARE

Reg: 3178989 Reg: 3812813
Microchip: Microchip:

RESULT INTERPRETATION

Equine Juvenile
Spinocerebellar Ataxia
N/N
Normal. No copies of the allele associated with equine juvenile spinocerebellar ataxia (EJSCA) detected.