

## **Demographic Information**

Call Name

Izzie

DOB

March 22, 2019

Registered Name

Toy Australian Shepherd

**Tattoo** 

Sex

**Female** 

Microchip

Owner

Breed

Jennifer Hoyt

Laboratory #

Registration Number

367684 (AN-20-001270)

Report Date

April 10, 2020

These tests were developed and performed by Paw Print Genetics®, Spokane WA.

### **Explanation of Results**

Normal

A 'Normal' result means that your dog does not have the mutation that causes the associated genetic disease.

Carrier

A 'Carrier' result indicates that your dog has inherited one copy of the mutation that has been reported to cause this genetic disease. Your dog may not be clinically affected by this mutation because two copies of the mutation are usually required to cause disease.

Carrier / At-Risk

A 'Carrier / At-Risk' result indicates that your dog inherited one copy of the mutation that has been reported to cause this genetic disease. Based on the mode of genetic inheritance for this particular disease, inheriting one mutant copy of the gene may result in the disease. Dogs with one copy of the mutation may have a milder phenotype as compared to dogs with two copies of this mutation.

At-Risk / Affected

An 'At-Risk / Affected' result indicates that your dog inherited one or two copies of the mutation that has been reported to cause this genetic disease. Based on the mode of genetic inheritance for this particular disease, inheriting one or two mutant copies of the gene may result in the disease.

No Result

'No Result' indicates that we were unable to obtain a genotype for your dog for this specific disease or trait and does not mean that your dog is a carrier or at-risk for this disease. There are a variety of reasons why a specific test may not provide a reportable result. Unique variations in the genetic code of some individuals may exist and cause certain regions of the genome to not perform properly with a specific test. In addition, suboptimal sampling of the dog's cheek cells could also result in poor sample performance due to inadequate cell counts, bacterial and fungal growth, or the presence of other test inhibitors. An acceptable level of tests with no results has been determined by Paw Print Genetics. Dogs with at least 90% of the test results are determined to be acceptable and reportable. If your dog has an

unacceptable level of tests with no results, you will be contacted for a new sample to repeat the testing.

Please review our <u>testing terms and disclaimers</u> regarding your results.

WT: wild type (normal)

M: mutant

Y: Y chromosome (male)

#### **Breed Profile**

Disease Name	Geno.	Interpretation
Coagulation Factor VII Deficiency	WT/WT	(Normal (clear)
Collie Eye Anomaly	WT/WT	Normal (clear)
Cone Degeneration	WT/WT	Normal (clear)
<u>Craniomandibular Osteopathy</u>	WT/WT	Normal (clear)
<u>Degenerative Myelopathy</u>	WT/WT	Normal (Clear)
Degenerative Myelopathy (Bernese Mountain Dog Variant) Degenerative Myelopathy (Common Variant)	0	
Exercise-Induced Collapse	WT/WT	Normal (clear)
<u>Hereditary Cataracts (Australian Shepherd Type)</u>	WT/WT	Normal (clear)
<u>Hyperuricosuria</u>	WT/WT	Normal (clear)
Intervertebral Disc Disease Risk Factor and Chondrodystrophy (CDDY with IVDD)	WT/WT	Normal (clear)
Multidrug Resistance 1	WT/WT	Normal (clear)
Multifocal Retinopathy 1	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 6	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 8 (Australian Shepherd Type)	WT/WT	Normal (clear)
<u>Progressive Retinal Atrophy, Progressive Rod-Cone</u> <u>Degeneration (prcd)</u>	WT/WT	Normal (clear)

WT: wild type (normal)

M: mutant

Y: Y chromosome (male)

# Coat Colors & Traits

Trait Name	Geno.	Interpretation
A Locus (Agouti)	a <sup>t</sup> /a <sup>t</sup>	Tricolor, black and tan
As Locus (Saddle Tan)	N/N	No saddle tan/creeping tan

B Locus (Brown)	B/b or b/b	Carries brown and may have brown or black coat, nose and foot pads
B Locus (Brown) - b <sup>a</sup> B Locus (Brown) - b <sup>c</sup> B Locus (Brown) - b <sup>d</sup> B Locus (Brown) - b <sup>s</sup>	0 1 1 0	
<u>Brachycephaly</u>	BR/BR	Likely medium to long muzzle
<u>Chondrodysplasia (CDPA)</u>	cd/cd	Likely typical leg length
<u>Cu Locus (Curly Hair)</u>	Cu/Cu	Straight coat
<u>D Locus (Dilute)</u>	D/D	Non dilute
D Locus (Dilute) - d <sup>1</sup> D Locus (Dilute) - d <sup>2</sup>	0	
E Locus (Yellow/Red)	E/E	Black
Eg Locus (Grizzle, Afghan Hound Type)	N/N	No grizzle
Eh Locus (Sable, Cocker Spaniel Type)	N/N	No sable
E <sup>m</sup> Locus (Melanistic Mask)	N/N	No melanistic mask
H Locus (Harlequin, Great Dane Type)	h/h	No harlequin
<u>Hr Locus (FOXI3 Hairless Gene Test, Mexican Hairless, Peruvian Hairless and Chinese Crested Type)</u>	hr/hr	Coated
<u>  Locus (Intensity)</u>	I/i	Normal intensity (carrier)
IC Locus (Improper Coat/Furnishings)	IC/IC	No furnishings, improper coat
K Locus (Dominant Black)	k <sup>y</sup> /k <sup>y</sup>	Agouti expression allowed
<u>L Locus (Long Hair/Fluffy) - Lh<sup>1</sup>, Lh<sup>2</sup></u>	Lh/Lh	Longhaired
L Locus (Long Hair/Fluffy) - Lh <sup>1</sup> L Locus (Long Hair/Fluffy) - Lh <sup>2</sup>	2	
M Locus (Merle)	m/M220	Single copy merle carrier
<u>Polydactyly</u>	PD/pd	Likely polydactylous with hind dewclaws (typical toes carrier)
S Locus (White Spotting, Parti, or Piebald)	S/S	No white spotting, flash, parti, or piebald
SD Locus (Shedding)	SD/SD	High shedding

Sex Determination	X/X	Female
T Locus (Natural Bobtail)	t/t	Normal tail

WT: wild type (normal)

M: mutant

Y: Y chromosome (male)

Determinants of coat colors and traits are complex. Many of these variants are known and many of the genes screened in the Canine HealthCheck interact. In addition, not all the genetic factors that contribute to a dog's coat color and traits are known. Because of the complexities in gene-gene interactions, the coat colors and traits reported in your Canine HealthCheck results may vary from your dog's actual appearance. Individual differences in genes throughout the canine genome, not tested in this genetic screen, may also affect the final coat color or traits seen in your dog.

#### Diseases

Disease Name	Geno.	Interpretation
Acral Mutilation Syndrome	WT/WT	Normal (clear)
Acute Respiratory Distress Syndrome	WT/WT	Normal (clear)
Adult Paroxysmal Dyskinesia	WT/WT	Normal (clear)
<u>Alaskan Husky Encephalopathy</u>	WT/WT	Normal (clear)
Alaskan Malamute Polyneuropathy	WT/WT	Normal (clear)
Amelogenesis Imperfecta	WT/WT	Normal (clear)
Benign Familial Juvenile Epilepsy	WT/WT	Normal (clear)
<u>Canine Multiple System Degeneration (Chinese Crested Type)</u>	WT/WT	Normal (clear)
<u>Canine Multiple System Degeneration (Kerry Blue Terrier Type)</u>	WT/WT	Normal (clear)
Canine Scott Syndrome	WT/WT	Normal (clear)
Catalase Deficiency	WT/WT	Normal (clear)
Centronuclear Myopathy	WT/WT	Normal (clear)
Cerebellar Ataxia (Finnish Hound Type)	WT/WT	Normal (clear)
Cerebellar Cortical Degeneration	No Result	No Result
Cerebellar Degeneration	WT/WT	Normal (clear)
<u>Chondrodysplasia (Karelian Bear Dog and Norwegian Elkhound Type)</u>	WT/WT	Normal (clear)
<u>Cleft Palate and Syndactyly (Nova Scotia Duck Tolling Retriever Type)</u>	WT/WT	Normal (clear)
Coagulation Factor VII Deficiency	WT/WT	Normal (clear)
Collie Eye Anomaly	WT/WT	Normal (clear)
Complement 3 Deficiency	WT/WT	Normal (clear)

Cone Degeneration	WT/WT	Normal (clear)
Cone Degeneration (German Shepherd Dog Type)	WT/WT	Normal (clear)
Cone Degeneration (German Shorthaired Pointer  Type)	WT/WT	Normal (clear)
Cone Degeneration (Labrador Retriever Type)	WT/WT	Normal (clear)
Congenital Hypothyroidism with Goiter (Terrier Type)	WT/WT	Normal (clear)
Congenital Methemoglobinemia	WT/WT	Normal (clear)
Congenital Myasthenic Syndrome (Jack Russell Terrier Type)	WT/WT	Normal (clear)
Congenital Myasthenic Syndrome (Labrador Retriever Type)	WT/WT	Normal (clear)
<u> Congenital Myasthenic Syndrome (Old Danish</u> <u>Pointer Type)</u>	WT/WT	Normal (clear)
Congenital Stationary Night Blindness	WT/WT	Normal (clear)
<u>Craniomandibular Osteopathy</u>	WT/WT	Normal (clear)
Cyclic Neutropenia	WT/WT	Normal (clear)
<u>Cystinuria (Australian Cattle Dog Type)</u>	WT/WT	Normal (clear)
<u>Cystinuria (Labrador Retriever Type)</u>	WT/WT	Normal (clear)
<u>Cystinuria (Miniature Pinscher Type)</u>	WT/WT	Normal (clear)
<u>Cystinuria (Newfoundland Type)</u>	No Result	No Result
<u>Cystinuria Type 3 (Bulldog Type Risk Factor, Variant 3)</u>	WT/WT	Normal (clear)
<u>Cystinuria Type 3 (Bulldog Type Risk Factor, Variants 1 and 2)</u>	WT/WT	Normal (Clear)
Cystinuria Type 3 (Bulldog Type Risk Factor, Variant 1) Cystinuria Type 3 (Bulldog Type Risk Factor, Variant 2)	0	
Dandy-Walker-Like Malformation	WT/WT	Normal (clear)
<u>Degenerative Myelopathy</u>	WT/WT	Normal (Clear)
Degenerative Myelopathy (Bernese Mountain Dog Variant) Degenerative Myelopathy (Common Variant)	0 0	
<u>Degenerative Myelopathy Early-Onset Risk Modifier</u> ( <u>Pembroke Welsh Corgi Type</u> )	WT/M	One Copy Carrier - Not associated with disease
<u>Dental Hypomineralization</u>	WT/WT	Normal (clear)
Diffuse Cystic Renal Dysplasia and Hepatic Fibrosis	WT/WT	Normal (clear)

Dilated Cardiomyopathy. (Doberman Pinscher Type Risk Factor. Variant 2.)         WT/WT         Normal (clear)           Dilated Cardiomyopathy. (Schnauzer Type)         WT/WT         Normal (clear)           Dry. Eye Curly. Coat Syndrome         WT/WT         Normal (clear)           Dystrophic Epidermolysis Bullosa         WT/WT         Normal (clear)           Early. Retinal Degeneration         WT/WT         Normal (clear)           Ectodermal Dysplasia (Chesapeake Bay Retriever Jype)         WT/WT         Normal (clear)           Ectodermal Dysplasia, X-Linked (Dachshund Type)         WT/WT         X-Linked Female Normal           Ectodermal Dysplasia, X-Linked (Shepherd Type)         WT/WT         Normal (clear)           Ehlers-Danlos Syndrome         WT/WT         Normal (Clear)           Ehlers-Danlos Syndrome (Variant 1)         0         0           Enlers-Danlos Syndrome (Variant 2)         WT/WT         Normal (clear)           Epidermolytic Hyperkeratosis         WT/WT         Normal (clear)           Episodic Falling Syndrome         WT/WT         Normal (clear)           Exercise-Induced Collapse         WT/WT         Normal (clear)           Exercise-Induced Collapse         WT/WT         Normal (clear)           Familial Nephropathy. (English Springer Spaniel Type)         WT/WT         Normal (clear)	<u>Dilated Cardiomyopathy (Doberman Pinscher Type</u> <u>Risk Factor, Variant 1)</u>	WT/WT	Normal (clear)
Dry. Eye. Curly. Coat Syndrome  Dystrophic Epidermolysis Bullosa  WT/WT  Normal (clear)  MT/WT  Normal (clear)  Sallbladder Mucoceles  WT/WT  Normal (clear)  Sallbladder Mucoceles  WT/WT  Normal (clear)  Sallbladder Mucoceles  Glanzmann's Thrombasthenia (Great Pyrenees Type)  WT/WT  Normal (clear)  Sallbladder Mucoceles  Glanzmann's Thrombasthenia (Great Pyrenees Type)  WT/WT  Normal (clear)  Sallbladder Mucoceles  Glanzmann's Thrombasthenia (Great Pyrenees Type)  WT/WT  Normal (clear)  Sallbladder Mucoceles  WT/WT  Normal (clear)  Sallbladder Mucoceles  WT/WT  Normal (clear)  Sallbladder Mucoceles  WT/WT  Normal (clear)  Normal (clear)  Sallbladder Mucoceles  WT/WT  Normal (clear)  Normal (clear)  Normal (clear)  Normal (clear)  Sallbladder Mucoceles  WT/WT  Normal (clear)  Normal (clear)		WT/WT	Normal (clear)
Dystrophic Epidermolysis Bullosa  WT/WT  Normal (clear)  Ectodermal Dysplasia (Chesapeake Bay Retriever Jyre)  Ectodermal Dysplasia (Chesapeake Bay Retriever Jyre)  Ectodermal Dysplasia, X-Linked (Dachshund Type)  Ectodermal Dysplasia, X-Linked (Shepherd Type)  WT/WT  X-Linked Female Normal  Ehlers-Danlos Syndrome  WT/WT  Normal (Clear)  Ehlers-Danlos Syndrome (Variant 1) Eblers-Danlos Syndrome (Variant 2)  Elliptocytosis  WT/WT  Normal (clear)  Epidermolytic Hyperkeratosis  WT/WT  Normal (clear)  Exercise-Induced Collapse  WT/WT  Normal (clear)  Factor XI Deficiency  Familial Nephropathy (English Springer Spaniel Type)  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  WT/WT  Normal (clear)  Gallbladder Mucoceles  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type)  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type)  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type)  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type)  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type)  WT/WT  Normal (clear)  Glycogen Storage Disease Illa  WT/WT  Normal (clear)  Normal (clear)	<u>Dilated Cardiomyopathy (Schnauzer Type)</u>	WT/WT	Normal (clear)
Early, Retinal Degeneration  Ectodermal Dysplasia, Chesapeake Bay, Retriever Type)  Ectodermal Dysplasia, X-Linked (Dachshund Type)  Ectodermal Dysplasia, X-Linked (Shepherd Type)  Ectodermal Dysplasia, X-Linked (Shepherd Type)  Ectodermal Dysplasia, X-Linked (Shepherd Type)  Ethers-Danlos Syndrome  WT/WT  Ehlers-Danlos Syndrome (Variant 1) Eblers-Danlos Syndrome (Variant 2)  Elliptocytosis  WT/WT  Normal (Clear)  Epidermolytic Hyperkeratosis  WT/WT  Normal (clear)  Epidermolytic Hyperkeratosis  WT/WT  Normal (clear)  Exercise-Induced Collapse  WT/WT  Normal (clear)  Factor XI Deficiency.  Familial Nephropathy. (Cocker Spaniel Type)  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  Fucosidosis  Gallbladder Mucoceles  Glanzmann's Thrombasthenia (Great Pyrenees Type)  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type)  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type)  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy. (Irrish Setter Type)  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy. (Irrish Setter Type)  WT/WT  Normal (clear)  Glycogen Storage Disease Illa  WT/WT  Normal (clear)  Normal (clear)	<u>Dry Eye Curly Coat Syndrome</u>	WT/WT	Normal (clear)
Ectodermal Dysplasia (Chesapeake Bay Retriever Type)  Ectodermal Dysplasia, X-Linked (Dachshund Type)  Ectodermal Dysplasia, X-Linked (Shepherd Type)  Ectodermal Dysplasia, X-Linked (Shepherd Type)  Ehlers-Danlos Syndrome  WT/WT  Normal (Clear)  Ehlers-Danlos Syndrome (Variant 1)  Ehlers-Danlos Syndrome (Variant 2)  Elliptocytosis  WT/WT  Normal (clear)  Episodic Falling Syndrome (Variant 2)  Eliptocytosis  WT/WT  Normal (clear)  Episodic Falling Syndrome  WT/WT  Normal (clear)  Exercise-induced Collapse  WT/WT  Normal (clear)  Factor XI Deficiency.  Familial Nephropathy (Cocker Spaniel Type)  WT/WT  Normal (clear)  Familial Nephropathy (English Springer Spaniel Type)  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  Fucosidosis  Gallbladder Mucoceles  Glanzmann's Thrombasthenia (Great Pyrenees Type)  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type)  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type)  WT/WT  Normal (clear)  Glaucoma (Border Collie Type)  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Irish Setter Type)  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Irish Setter Type)  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Irish Setter Type)  WT/WT  Normal (clear)  Normal (clear)  Normal (clear)	<u>Dystrophic Epidermolysis Bullosa</u>	WT/WT	Normal (clear)
Ectodermal Dysplasia, X-Linked (Dachshund Type)  Ectodermal Dysplasia, X-Linked (Shepherd Type)  Ectodermal Dysplasia, X-Linked (Shepherd Type)  Ehlers-Danlos Syndrome  WT/WT  Normal (Clear)  Ehlers-Danlos Syndrome (Variant 1) Ehlers-Danlos Syndrome (Variant 2)  Elliptocytosis  WT/WT  Normal (clear)  Epidermolytic Hyperkeratosis  WT/WT  Normal (clear)  Exercise-Induced Collapse  WT/WT  Normal (clear)  Factor XI Deficiency  Familial Nephropathy (Cocker Spaniel Type)  Familial Nephropathy (English Springer Spaniel Type)  Fucosidosis  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type)  Glanzmann's Thrombasthenia (Otterhound Type)  WT/WT  Normal (clear)  Glaucoma (Border Collie Type)  Globoid Cell Leukodystrophy (Irish Setter Type)  Glycogen Storage Disease Ia  WT/WT  Normal (clear)  Normal (clear)  WT/WT  Normal (clear)	Early Retinal Degeneration	WT/WT	Normal (clear)
Ectodermal Dysplasia. X-Linked (Shepherd Type).  Ehlers-Danlos Syndrome  WT/WT  Normal (Clear)  Ehlers-Danlos Syndrome (Variant 1) Ehlers-Danlos Syndrome (Variant 2)  Elliptocytosis  WT/WT  Normal (clear)  Epidermolytic Hyperkeratosis  WT/WT  Epidermolytic Hyperkeratosis  WT/WT  Normal (clear)  Exercise-Induced Collapse  WT/WT  Normal (clear)  Exercise-Induced Collapse  WT/WT  Normal (clear)  Factor XI Deficiency.  Familial Nephropathy (Cocker Spaniel Type).  WT/WT  Normal (clear)  Familial Nephropathy (English Springer Spaniel Type).  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  Gallbladder Mucoceles  Glanzmann's Thrombasthenia (Great Pyrenees Type).  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type).  WT/WT  Normal (clear)  Glaucoma (Border Collie Type).  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type).  WT/WT  Normal (clear)  Glycogen Storage Disease Illa  WT/WT  Normal (clear)  Normal (clear)		WT/WT	Normal (clear)
Ehlers-Danlos Syndrome (Variant 1) Ehlers-Danlos Syndrome (Variant 1) Ehlers-Danlos Syndrome (Variant 1) Ehlers-Danlos Syndrome (Variant 2)  Elliptocytosis WT/WT Normal (clear)  Epidermolytic Hyperkeratosis WT/WT Normal (clear)  Episodic Falling, Syndrome WT/WT Normal (clear)  Exercise-Induced Collapse WT/WT Normal (clear)  Exercise-Induced Collapse WT/WT Normal (clear)  Factor XI Deficiency WT/WT Normal (clear)  Familial Nephropathy, (Cocker Spaniel Type) WT/WT Normal (clear)  Familial Nephropathy, (English Springer Spaniel Type) WT/WT Normal (clear)  Fucosidosis WT/WT Normal (clear)  Gallbladder Mucoceles WT/WT Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type) WT/WT Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type) WT/WT Normal (clear)  Glaucoma (Border Collie Type) WT/WT Normal (clear)  Globoid Cell Leukodystrophy, (Irish Setter Type) WT/WT Normal (clear)  Glycogen Storage Disease Illa WT/WT Normal (clear)	Ectodermal Dysplasia, X-Linked (Dachshund Type)	WT/WT	X-Linked Female Normal
Ehlers-Danlos Syndrome (Variant 1) Ehlers-Danlos Syndrome (Variant 2)  Elliptocytosis  WT/WT  Normal (clear)  Epidermolytic Hyperkeratosis  WT/WT  Normal (clear)  Episodic Falling Syndrome  WT/WT  Normal (clear)  Exercise-Induced Collapse  WT/WT  Normal (clear)  Exercise-Induced Collapse  WT/WT  Normal (clear)  Factor XI Deficiency.  Familial Nephropathy (Cocker Spaniel Type).  WT/WT  Normal (clear)  Familial Nephropathy (English Springer Spaniel Type).  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  Gallbladder Mucoceles  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type).  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type).  WT/WT  Normal (clear)  Glaucoma (Border Collie Type)  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Irish Setter Type).  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type).  WT/WT  Normal (clear)  Glycogen Storage Disease Illa  WT/WT  Normal (clear)	Ectodermal Dysplasia, X-Linked (Shepherd Type)	WT/WT	X-Linked Female Normal
Elliptocytosis WT/WT Normal (clear) Epidermolytic Hyperkeratosis WT/WT Normal (clear)  Episodic Falling Syndrome WT/WT Normal (clear)  Exercise-Induced Collapse WT/WT Normal (clear)  Factor XI Deficiency WT/WT Normal (clear)  Familial Nephropathy (Cocker Spaniel Type) WT/WT Normal (clear)  Familial Nephropathy (English Springer Spaniel Type) WT/WT Normal (clear)  Fucosidosis WT/WT Normal (clear)  Gallbladder Mucoceles WT/WT Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type) WT/WT Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type) WT/WT Normal (clear)  Glaucoma (Border Collie Type) WT/WT Normal (clear)  Globoid Cell Leukodystrophy (Irish Setter Type) WT/WT Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type) WT/WT Normal (clear)  Glycogen Storage Disease lla WT/WT Normal (clear)	Ehlers-Danlos Syndrome	WT/WT	Normal (Clear)
Epidermolytic Hyperkeratosis  Episodic Falling Syndrome  WT/WT  Normal (clear)  Exercise-Induced Collapse  WT/WT  Normal (clear)  Factor XI Deficiency.  Familial Nephropathy (Cocker Spaniel Type)  Familial Nephropathy (English Springer Spaniel Type)  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  Gallbladder Mucoceles  WT/WT  Glanzmann's Thrombasthenia (Great Pyrenees Type)  Glanzmann's Thrombasthenia (Otterhound Type)  WT/WT  Normal (clear)  Glaucoma (Border Collie Type)  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type)  Glycogen Storage Disease la  WT/WT  Normal (clear)  Normal (clear)  Normal (clear)			
Episodic Falling Syndrome  Exercise-Induced Collapse  WT/WT  Normal (clear)  Factor XI Deficiency.  WT/WT  Normal (clear)  Familial Nephropathy (Cocker Spaniel Type).  WT/WT  Normal (clear)  Familial Nephropathy (English Springer Spaniel Type).  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  Gallbladder Mucoceles  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type).  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type).  WT/WT  Normal (clear)  Glaucoma (Border Collie Type).  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Irish Setter Type).  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type).  WT/WT  Normal (clear)  Glycogen Storage Disease la  WT/WT  Normal (clear)	Elliptocytosis	WT/WT	Normal (clear)
Exercise-Induced Collapse WT/WT Normal (clear) Factor XI Deficiency. WT/WT Normal (clear)  Familial Nephropathy (Cocker Spaniel Type). WT/WT Normal (clear)  Familial Nephropathy (English Springer Spaniel Type). WT/WT Normal (clear)  Fucosidosis WT/WT Normal (clear)  Gallbladder Mucoceles WT/WT Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type). WT/WT Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type). WT/WT Normal (clear)  Glaucoma (Border Collie Type). WT/WT Normal (clear)  Globoid Cell Leukodystrophy (Irish Setter Type). WT/WT Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type). WT/WT Normal (clear)  Glycogen Storage Disease la WT/WT Normal (clear)	<u>Epidermolytic Hyperkeratosis</u>	WT/WT	Normal (clear)
Factor XI Deficiency.  Familial Nephropathy (Cocker Spaniel Type).  Familial Nephropathy (English Springer Spaniel Type).  Fucosidosis.  WT/WT  Normal (clear)  Fucosidosis.  WT/WT  Normal (clear)  Fucosidosis.  WT/WT  Normal (clear)  Gallbladder Mucoceles.  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type).  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type).  WT/WT  Normal (clear)  Glaucoma (Border Collie Type).  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Irish Setter Type).  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type).  WT/WT  Normal (clear)  Glycogen Storage Disease la  WT/WT  Normal (clear)  Normal (clear)	Episodic Falling Syndrome	WT/WT	Normal (clear)
Familial Nephropathy (Cocker Spaniel Type).  WT/WT  Normal (clear)  Familial Nephropathy (English Springer Spaniel Type).  WT/WT  Normal (clear)  Fucosidosis  WT/WT  Normal (clear)  Gallbladder Mucoceles  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type).  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type).  WT/WT  Normal (clear)  Glaucoma (Border Collie Type).  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Irish Setter Type).  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type).  WT/WT  Normal (clear)  Glycogen Storage Disease la  WT/WT  Normal (clear)  Normal (clear)	Exercise-Induced Collapse	WT/WT	Normal (clear)
Familial Nephropathy (English Springer Spaniel Type).  Fucosidosis  WT/WT  Normal (clear)  Gallbladder Mucoceles  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type)  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Otterhound Type).  WT/WT  Normal (clear)  Glaucoma (Border Collie Type).  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Irish Setter Type).  WT/WT  Normal (clear)  Globoid Cell Leukodystrophy (Terrier Type).  WT/WT  Normal (clear)  Glycogen Storage Disease la  WT/WT  Normal (clear)  Normal (clear)	Factor XI Deficiency	WT/WT	Normal (clear)
Fucosidosis  Gallbladder Mucoceles  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type)  WT/WT  Normal (clear)  MT/WT  Normal (clear)  WT/WT  Normal (clear)	Familial Nephropathy (Cocker Spaniel Type)	WT/WT	Normal (clear)
Gallbladder Mucoceles  WT/WT  Normal (clear)  Glanzmann's Thrombasthenia (Great Pyrenees Type)  WT/WT  Normal (clear)  Glycogen Storage Disease la  WT/WT  Normal (clear)  Normal (clear)	<u>Familial Nephropathy (English Springer Spaniel Type)</u>	WT/WT	Normal (clear)
Glanzmann's Thrombasthenia (Great Pyrenees Type).  Glanzmann's Thrombasthenia (Otterhound Type).  Glaucoma (Border Collie Type).  Globoid Cell Leukodystrophy (Irish Setter Type).  Globoid Cell Leukodystrophy (Terrier Type).  Glycogen Storage Disease la  WT/WT  Normal (clear)  WT/WT  Normal (clear)  WT/WT  Normal (clear)  WT/WT  Normal (clear)	<u>Fucosidosis</u>	WT/WT	Normal (clear)
Glanzmann's Thrombasthenia (Otterhound Type).  Glaucoma (Border Collie Type).  Globoid Cell Leukodystrophy (Irish Setter Type).  Globoid Cell Leukodystrophy (Terrier Type).  Glycogen Storage Disease la  Glycogen Storage Disease Illa  WT/WT  Normal (clear)  Normal (clear)  WT/WT  Normal (clear)	Gallbladder Mucoceles	WT/WT	Normal (clear)
Glaucoma (Border Collie Type).  Globoid Cell Leukodystrophy (Irish Setter Type).  Globoid Cell Leukodystrophy (Terrier Type).  Globoid Cell Leukodystrophy (Terrier Type).  Glycogen Storage Disease la  WT/WT  Normal (clear)  Wt/WT  Normal (clear)  Mt/WT  Normal (clear)	Glanzmann's Thrombasthenia (Great Pyrenees Type)	WT/WT	Normal (clear)
Globoid Cell Leukodystrophy (Irish Setter Type).  Globoid Cell Leukodystrophy (Terrier Type).  Glycogen Storage Disease Ia  Glycogen Storage Disease Illa  WT/WT  Normal (clear)  WT/WT  Normal (clear)	Glanzmann's Thrombasthenia (Otterhound Type)	WT/WT	Normal (clear)
Globoid Cell Leukodystrophy (Terrier Type)  Glycogen Storage Disease Ia  WT/WT  Normal (clear)  Glycogen Storage Disease IIIa  WT/WT  Normal (clear)	Glaucoma (Border Collie Type)	WT/WT	Normal (clear)
Glycogen Storage Disease Ia WT/WT Normal (clear)  Glycogen Storage Disease IIIa WT/WT Normal (clear)	Globoid Cell Leukodystrophy (Irish Setter Type)	WT/WT	Normal (clear)
Glycogen Storage Disease IIIa WT/WT Normal (clear)	Globoid Cell Leukodystrophy (Terrier Type)	WT/WT	Normal (clear)
<u> </u>	Glycogen Storage Disease la	WT/WT	Normal (clear)
Glycogen Storage Disease VII (Wachtelhund Type) WT/WT Normal (clear)	Glycogen Storage Disease IIIa	WT/WT	Normal (clear)
	Glycogen Storage Disease VII (Wachtelhund Type)	WT/WT	Normal (clear)

Glycogen Storage Disease VII, PFK Deficiency	WT/WT	Normal (clear)
GM1 Gangliosidosis (Alaskan Husky Type)	WT/WT	Normal (clear)
GM1 Gangliosidosis (Portuguese Water Dog Type)	WT/WT	Normal (clear)
GM1 Gangliosidosis (Shiba Inu Type)	WT/WT	Normal (clear)
GM2 Gangliosidosis (Japanese Chin Type)	WT/WT	Normal (clear)
GM2 Gangliosidosis (Poodle Type)	WT/WT	Normal (clear)
<u>Greyhound Polyneuropathy</u>	WT/WT	Normal (clear)
<u>Hemophilia A (Boxer Type)</u>	WT/WT	X-Linked Female Normal
Hemophilia A (German Shepherd Dog, Type 1)	WT/WT	X-Linked Female Normal
Hemophilia A (German Shepherd Dog, Type 2)	WT/WT	X-Linked Female Normal
Hemophilia B (Cairn Terrier Type)	WT/WT	X-Linked Female Normal
Hemophilia B (Lhasa Apso Type)	WT/WT	X-Linked Female Normal
Hemophilia B (Rhodesian Ridgeback Type)	WT/WT	X-Linked Female Normal
<u>Hereditary Cataracts (Australian Shepherd Type)</u>	WT/WT	Normal (clear)
Hereditary Cataracts	WT/WT	Normal (clear)
<u>Hereditary Footpad Hyperkeratosis (Irish Terrier and Kromfohrländer Type)</u>	WT/WT	Normal (clear)
Hereditary Nasal Parakeratosis	WT/WT	Normal (clear)
Hereditary Nasal Parakeratosis (Greyhound Type)	WT/WT	Normal (clear)
Hereditary Nephritis (Samoyed Type)	WT/WT	X-Linked Female Normal
<u>Hyperuricosuria</u>	WT/WT	Normal (clear)
<u>Hypomyelination (Weimaraner Type)</u>	WT/WT	Normal (clear)
<u>Ichthyosis (American Bulldog Type)</u>	WT/WT	Normal (clear)
Ichthyosis (Golden Retriever Type 1)	WT/WT	Normal (clear)
<u>Ichthyosis (Great Dane Type)</u>	WT/WT	Normal (clear)
Inherited Myopathy of Great Danes	WT/WT	Normal (clear)
Intervertebral Disc Disease Risk Factor and Chondrodystrophy (CDDY with IVDD)	WT/WT	Normal (clear)
Intestinal Cobalamin Malabsorption (Beagle Type)	WT/WT	Normal (clear)
<u>Intestinal Cobalamin Malabsorption (Border Collie Type)</u>	WT/WT	Normal (clear)
Juvenile Laryngeal Paralysis and Polyneuropathy	WT/WT	Normal (clear)

<u>Juvenile Myoclonic Epilepsy (Rhodesian Ridgeback Type).</u>	WT/WT	Normal (clear)
<u>L-2-Hydroxyglutaric Aciduria (Staffordshire Bull Terrier Type)</u>	WT/WT	Normal (clear)
<u>Lagotto Storage Disorder</u>	WT/WT	Normal (clear)
Late Onset Ataxia	WT/WT	Normal (clear)
<u>Lethal Acrodermatitis</u>	WT/WT	Normal (clear)
Leukocyte Adhesion Deficiency, Type I	WT/WT	Normal (clear)
Leukocyte Adhesion Deficiency, Type III	WT/WT	Normal (clear)
<u>Ligneous Membranitis</u>	WT/WT	Normal (clear)
<u>Lundehund Syndrome</u>	WT/WT	Normal (clear)
Macular Corneal Dystrophy (Labrador Retriever Type)	WT/WT	Normal (clear)
May-Hegglin Anomaly	WT/WT	Normal (clear)
<u>Mucopolysaccharidosis I</u>	WT/WT	Normal (clear)
Mucopolysaccharidosis IIIA (Dachshund Type)	WT/WT	Normal (clear)
<u>Mucopolysaccharidosis IIIA (New Zealand Huntaway Type)</u>	WT/WT	Normal (clear)
Mucopolysaccharidosis VII (Shepherd Type)	WT/WT	Normal (clear)
Multidrug Resistance 1	WT/WT	Normal (clear)
Multifocal Retinopathy 1	WT/WT	Normal (clear)
Multifocal Retinopathy 2	WT/WT	Normal (clear)
Multifocal Retinopathy 3	WT/WT	Normal (clear)
Muscular Dystrophy (Golden Retriever Type)	WT/WT	X-Linked Female Normal
Musladin-Lueke Syndrome	WT/WT	Normal (clear)
Myostatin Deficiency (Whippet and Longhaired Whippet Type)	WT/WT	Normal (clear)
Myotonia Congenita (Australian Cattle Dog Type)	WT/WT	Normal (clear)
Myotonia Congenita (Schnauzer Type)	WT/WT	Normal (clear)
Myotubular Myopathy 1	WT/WT	X-Linked Female Normal
Myotubular Myopathy 1 (Rottweiler Type)	WT/WT	X-Linked Female Normal
Narcolepsy (Dachshund Type)	WT/WT	Normal (clear)
Narcolepsy (Doberman Pinscher Type)	WT/WT	Normal (clear)

Narcolepsy (Labrador Retriever Type)	WT/WT	Normal (clear)
Neonatal Cerebellar Cortical Degeneration	WT/WT	Normal (clear)
Neonatal Encephalopathy with Seizures	WT/WT	Normal (clear)
Neuroaxonal Dystrophy (Rottweiler Type)	WT/WT	Normal (clear)
Neuroaxonal Dystrophy (Spanish Water Dog Type)	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis (Tibetan Terrier Type)	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 1 (Cane Corso Type)	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 1	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 10	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 12	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 2	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 4A	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 5 (Australian Cattle Dog/Border Collie Type)	WT/WT	Normal (clear)
<u>Neuronal Ceroid Lipofuscinosis 5 (Golden Retriever Type)</u>	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 6	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 7	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 8 (Australian Shepherd Type)	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 8 (Setter Type)	WT/WT	Normal (clear)
Oculocutaneous Albinism	WT/WT	Normal (clear)
Oculocutaneous Albinism (Small Breed Type)	WT/WT	Normal (clear)
<u>Osteochondrodysplasia</u>	WT/WT	Normal (clear)
Osteogenesis Imperfecta (Beagle Type)	WT/WT	Normal (clear)
Osteogenesis Imperfecta (Dachshund Type)	No Result	No Result
Osteogenesis Imperfecta (Golden Retriever Type)	WT/WT	Normal (clear)
P2RY12 Receptor Platelet Disorder	WT/WT	Normal (clear)
Pembroke Welsh Corgi Duchenne Muscular Dystrophy	WT/WT	X-Linked Female Normal
Persistent Müllerian Duct Syndrome	WT/WT	Normal (clear)
Polyneuropathy (Leonberger and Saint Bernard Type)	WT/WT	Normal (clear)

Polyneuropathy (Leonberger Type 2)	WT/WT	Normal (clear)
Polyneuropathy with Ocular Abnormalities and Neuronal Vacuolation	WT/WT	Normal (clear)
Pompe Disease	WT/WT	Normal (clear)
Prekallikrein Deficiency	WT/WT	Normal (clear)
Primary Ciliary Dyskinesia	WT/WT	Normal (clear)
Primary Hyperoxaluria	WT/WT	Normal (clear)
Primary Lens Luxation	WT/WT	Normal (clear)
<u>Primary Open Angle Glaucoma (Basset Fauve de Bretagne Type)</u>	WT/WT	Normal (clear)
Primary Open Angle Glaucoma (Basset Hound Type)	WT/WT	Normal (clear)
Primary Open Angle Glaucoma	WT/WT	Normal (clear)
<u>Primary Open Angle Glaucoma (Norwegian Elkhound Type)</u>	WT/WT	Normal (clear)
Primary Open Angle Glaucoma and Primary Lens Luxation (Shar Pei Type)	WT/WT	Normal (clear)
Progressive Retinal Atrophy (Basenji Type)	WT/WT	Normal (clear)
<u>Progressive Retinal Atrophy (Bullmastiff/Mastiff Type).</u>	WT/WT	Normal (clear)
<u>Progressive Retinal Atrophy (Giant Schnauzer Type)</u>	WT/WT	Normal (clear)
<u>Progressive Retinal Atrophy (Irish Setter Type)</u>	WT/WT	Normal (clear)
<u>Progressive Retinal Atrophy (Shetland Sheepdog Type)</u>	No Result	No Result
<u>Progressive Retinal Atrophy (Sloughi Type)</u>	WT/WT	Normal (clear)
<u>Progressive Retinal Atrophy, Cone-Rod Dystrophy</u>	WT/WT	Normal (clear)
<u>Progressive Retinal Atrophy, Cone-Rod Dystrophy 1</u>	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Cone-Rod Dystrophy 2	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Cone-Rod Dystrophy 3	WT/WT	Normal (clear)
<u>Progressive Retinal Atrophy, Cone-Rod Dystrophy 4</u> (crd4/cord1)	WT/WT	Normal (Clear)
Progressive Retinal Atrophy, Generalized	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Golden Retriever 1	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Golden Retriever 2	WT/WT	Normal (clear)
Progressive Retinal Atrophy, PRA1 (Papillon Type)	WT/WT	Normal (clear)

Progressive Retinal Atrophy, PRA3 (Tibetan Terrier and Spaniel Type)	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Progressive Rod-Cone Degeneration (prcd)	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Rod-Cone Dysplasia 3	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Rod-Cone Dysplasia 4	WT/WT	Normal (clear)
Progressive Retinal Atrophy, X-Linked 1	WT/WT	X-Linked Female Normal
<u>Protein Losing Nephropathy</u>	WT/WT, WT/WT	Normal (Clear) - No Increased Risk
Protein Losing Nephropathy (Variant 1) Protein Losing Nephropathy (Variant 2)	0	
Pyruvate Dehydrogenase Deficiency	WT/WT	Normal (clear)
<u>Pyruvate Kinase Deficiency (Basenji Type)</u>	No Result	No Result
<u>Pyruvate Kinase Deficiency (Beagle Type)</u>	WT/WT	Normal (clear)
<u>Pyruvate Kinase Deficiency (Labrador Retriever Type)</u>	WT/WT	Normal (clear)
<u>Pyruvate Kinase Deficiency (Pug Type)</u>	WT/WT	Normal (clear)
<u>Pyruvate Kinase Deficiency (Terrier Type)</u>	WT/WT	Normal (clear)
Recurrent Inflammatory Pulmonary Disease	WT/WT	Normal (clear)
Renal Cystadenocarcinoma and Nodular  Dermatofibrosis	WT/WT	Normal (clear)
Retinal Dysplasia/Oculoskeletal Dysplasia 1	WT/WT	Normal (clear)
Retinal Dysplasia/Oculoskeletal Dysplasia 2	No Result	No Result
Sensory Neuropathy (Border Collie Type)	WT/WT	Normal (Clear)
<u>Severe Combined Immunodeficiency Disease (Terrier Type)</u>	WT/WT	Normal (clear)
<u>Severe Combined Immunodeficiency Disease</u> (Wetterhoun Type)	WT/WT	Normal (clear)
<u>Severe Combined Immunodeficiency Disease, X-Linked (Basset Hound Type)</u>	WT/WT	X-Linked Female Normal
<u>Severe Combined Immunodeficiency Disease, X-Linked (Corgi Type)</u>	WT/WT	X-Linked Female Normal
Shar-Pei Autoinflammatory Disease	WT/WT	Normal (clear)
Skeletal Dysplasia 2	WT/WT	Normal (clear)
<u>Spinal Dysraphism</u>	WT/WT	Normal (clear)

<u>Spinocerebellar Ataxia</u>	WT/WT	Normal (clear)
<u>Spondylocostal Dysostosis</u>	WT/WT	Normal (clear)
Stargardt Disease	WT/WT	Normal (clear)
Startle Disease	WT/WT	Normal (clear)
Thrombopathia (American Eskimo Dog Type)	WT/WT	Normal (clear)
Thrombopathia (Basset Hound Type)	WT/WT	Normal (clear)
Thrombopathia (Newfoundland Type)	WT/WT	Normal (clear)
<u>Trapped Neutrophil Syndrome</u>	WT/WT	Normal (clear)
<u>Urolithiasis (Native American Indian Dog Type)</u>	WT/WT	Normal (clear)
Van Den Ende-Gupta Syndrome	WT/WT	Normal (clear)
Von Willebrand Disease I	WT/WT	Normal (clear)
Von Willebrand Disease II	WT/WT	Normal (clear)
Von Willebrand Disease III (Kooikerhondje Type)	WT/WT	Normal (clear)
Von Willebrand Disease III (Scottish Terrier Type)	WT/WT	Normal (clear)
Von Willebrand Disease III (Shetland Sheepdog Type)	WT/WT	Normal (clear)

WT: wild type (normal)

M: mutant

Y: Y chromosome (male)

Sho (Saller)

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