

BREED ANCESTRY

 German Shepherd Dog : 100.0%

GENETIC STATS

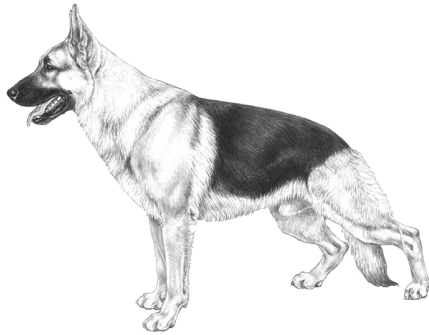
Predicted adult weight: 66 lbs

TEST DETAILS

Kit number: EM-50513810

Swab number: 31220910004056

GERMAN SHEPHERD DOG

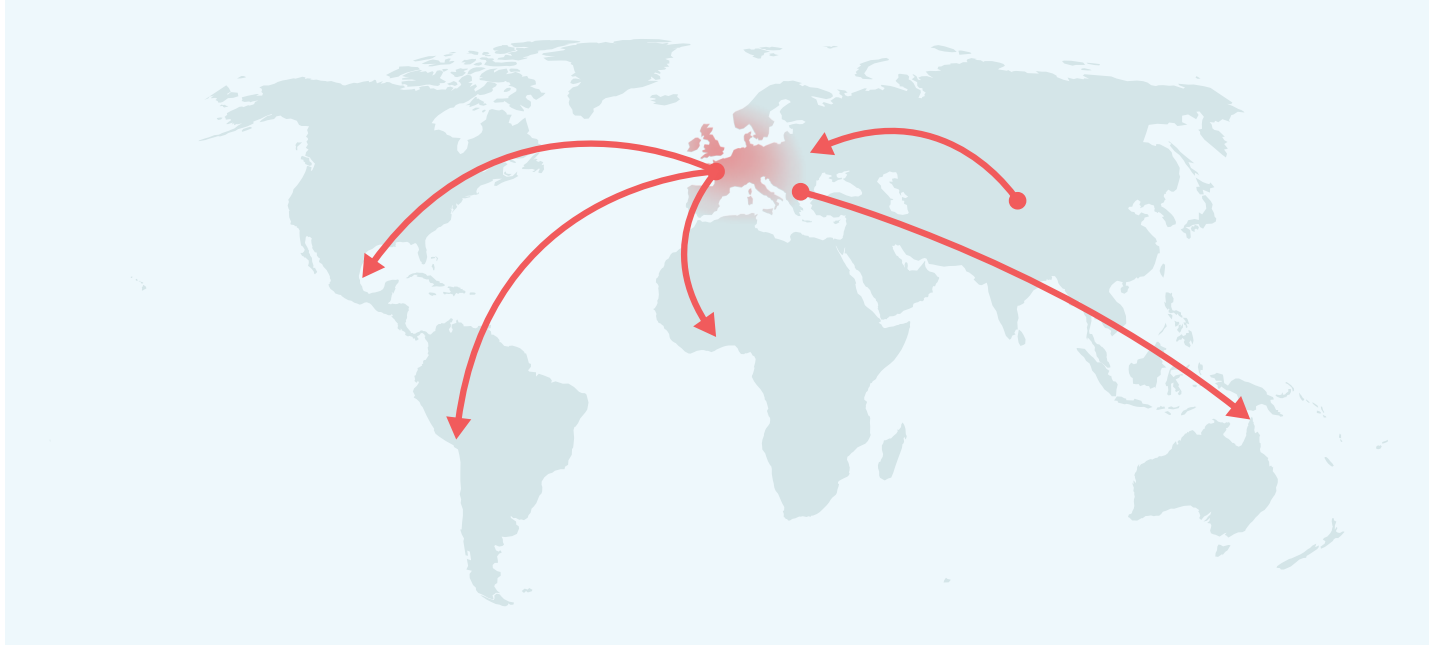


The German Shepherd dog is the second most popular dog breed in the United States, and the fourth most popular in the United Kingdom (where it is known as the Alsatian). This breed was standardized in Germany at the end of the 19th century from local dogs used for herding and livestock guarding. Their confidence, courageousness and keen sense of smell coupled with their notable intelligence make them highly suited to police work, military roles, and search and rescue. German Shepherds require regular physical and mental exercise and have a heavy shedding coat that comes in both short and long varieties. They were first recognized by the AKC in 1908 and later became fashionable as soldiers returning from WWI spoke highly of the German dogs and Hollywood popularized the breed with stars like Strongheart and Rin Tin Tin.

Fun Fact

Despite being sometimes called the “Alsatian wolf dog”, German Shepherds are not true wolf dogs— they are 100% dog. Nevertheless, German shepherds were crossed with wolves in the past to form the Czechoslovakian and Saarloos wolfdog breeds. German Shepherds, along with other breeds and sled dogs, were also used in the creation of the Chinook breed.

MATERNAL LINE



Through Winnie's mitochondrial DNA we can trace her mother's ancestry back to where dogs and people first became friends. This map helps you visualize the routes that her ancestors took to your home. Their story is described below the map.

HAPLOGROUP: A1a

A1a is the most common maternal lineage among Western dogs. This lineage traveled from the site of dog domestication in Central Asia to Europe along with an early dog expansion perhaps 10,000 years ago. It hung around in European village dogs for many millennia. Then, about 300 years ago, some of the prized females in the line were chosen as the founding dogs for several dog breeds. That set in motion a huge expansion of this lineage. It's now the maternal lineage of the overwhelming majority of Mastiffs, Labrador Retrievers and Gordon Setters. About half of Boxers and less than half of Shar-Pei dogs descend from the A1a line. It is also common across the world among village dogs, a legacy of European colonialism.

HAPLOTYPE: A381

Part of the large A1a haplogroup, this haplotype occurs most frequently in German Shepherd Dogs, Doberman Pinschers, and Dachshunds.

TRAITS: COAT COLOR

TRAIT	RESULT
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E Locus (MC1R)

The E Locus determines if and where a dog can produce dark (black or brown) hair. Dogs with two copies of the recessive **e** variant do not produce dark hairs and will express a red pigment called pheomelanin over their entire body. The shade of red, which can range from a deep copper to white, depends on other genetic factors, including the Intensity loci. In addition to determining if a dog can develop dark hairs, the E Locus can give a dog a black "mask" or "widow's peak" unless the dog has overriding coat color genetic factors.

Can have a melanistic mask (**E^mE^m**)

Dogs with one or two copies of the **E^m** variant may have a melanistic mask (dark facial hair as commonly seen in the German Shepherd Dog and Pug). In the absence of **E^m**, dogs with the **E^g** variant can have a "grizzle" phenotype (darker color on the head and top with a melanistic "widow's peak" and a lighter underside, commonly seen in the Afghan Hound and Borzoi and also referred to as "domino"). In the absence of both **E^m** and **E** variants, dogs with the **E^a** or **E^h** variants can express the grizzle phenotype. Additionally, a dog with any combination of two of the **E^g**, **E^a**, or **E^h** variants (example: **E^gE^a**) is also expected to express the grizzle phenotype.

K Locus (CBD103)

The K Locus **K^B** allele "overrides" the A Locus, meaning that it prevents the A Locus genotype from affecting coat color. For this reason, the **K^B** allele is referred to as the "dominant black" allele. As a result, dogs with at least one **K^B** allele will usually have solid black or brown coats (or red/cream coats if they are **ee** at the E Locus) regardless of their genotype at the A Locus, although several other genes could impact the dog's coat and cause other patterns, such as white spotting. Dogs with the **k^yk^y** genotype will show a coat color pattern based on the genotype they have at the A Locus. Dogs who test as **K^Bk^y** may be brindle rather than black or brown.

More likely to have a patterned haircoat (**k^yk^y**)

TRAITS: COAT COLOR (CONTINUED)

TRAIT	RESULT
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Intensity Loci

Areas of a dog's coat where dark (black or brown) pigment is not expressed either contain red/yellow pigment, or no pigment at all. Five locations across five chromosomes explain approximately 70% of red pigmentation "intensity" variation across all dogs. Dogs with a result of **Intense Red Pigmentation** will likely have deep red hair like an Irish Setter or "apricot" hair like some Poodles, dogs with a result of **Intermediate Red Pigmentation** will likely have tan or yellow hair like a Soft-Coated Wheaten Terrier, and dogs with **Dilute Red Pigmentation** will likely have cream or white hair like a Samoyed. Because the mutations we test may not directly cause differences in red pigmentation intensity, we consider this to be a linkage test.

Any light hair likely white or cream (Dilute Red Pigmentation)

A Locus (ASIP)

The A Locus controls switching between black and red pigment in hair cells, but it will only be expressed in dogs that are not **ee** at the E Locus and are **k^Yk^Y** at the K Locus. Sable (also called "Fawn") dogs have a mostly or entirely red coat with some interspersed black hairs. Agouti (also called "Wolf Sable") dogs have red hairs with black tips, mostly on their head and back. Black and tan dogs are mostly black or brown with lighter patches on their cheeks, eyebrows, chest, and legs. Recessive black dogs have solid-colored black or brown coats.

Agouti (Wolf Sable) coat color pattern (a^Wa^t)

D Locus (MLPH)

The D locus result that we report is determined by three different genetic variants that can work together to cause diluted pigmentation. These are the common **d** allele, also known as "**d1**", and the less common alleles known as "**d2**" and "**d3**". Dogs with two **d** alleles, regardless of which variant, will have all black pigment lightened ("diluted") to gray, or brown pigment lightened to lighter brown in their hair, skin, and sometimes eyes. There are many breed-specific names for these dilute colors, such as "blue", "charcoal", "fawn", "silver", and "Isabella". Note that in certain breeds, dilute dogs have a higher incidence of Color Dilution Alopecia. Dogs with one **d** allele will not be dilute, but can pass the **d** allele on to their puppies.

Dark areas of hair and skin are not lightened (Dd)

TRAITS: COAT COLOR (CONTINUED)

TRAIT	RESULT
Cocoa (HPS3) Dogs with the coco genotype will produce dark brown pigment instead of black in both their hair and skin. Dogs with the Nco genotype will produce black pigment, but can pass the co allele on to their puppies. Dogs that have the coco genotype as well as the bb genotype at the B locus are generally a lighter brown than dogs that have the Bb or BB genotypes at the B locus.	No co alleles, not expressed (NN)
B Locus (TYRP1) Dogs with two copies of the b allele produce brown pigment instead of black in both their hair and skin. Dogs with one copy of the b allele will produce black pigment, but can pass the b allele on to their puppies. E Locus ee dogs that carry two b alleles will have red or cream coats, but have brown noses, eye rims, and footpads (sometimes referred to as "Dudley Nose" in Labrador Retrievers). "Liver" or "chocolate" is the preferred color term for brown in most breeds; in the Doberman Pinscher it is referred to as "red".	Black or gray hair and skin (Bb)
Saddle Tan (RALY) The "Saddle Tan" pattern causes the black hairs to recede into a "saddle" shape on the back, leaving a tan face, legs, and belly, as a dog ages. The Saddle Tan pattern is characteristic of breeds like the Corgi, Beagle, and German Shepherd. Dogs that have the II genotype at this locus are more likely to be mostly black with tan points on the eyebrows, muzzle, and legs as commonly seen in the Doberman Pinscher and the Rottweiler. This gene modifies the A Locus a^t allele, so dogs that do not express a^t are not influenced by this gene.	Not expressed (NI)
S Locus (MITF) The S Locus determines white spotting and pigment distribution. MITF controls where pigment is produced, and an insertion in the MITF gene causes a loss of pigment in the coat and skin, resulting in white hair and/or pink skin. Dogs with two copies of this variant will likely have breed-dependent white patterning, with a nearly white, parti, or piebald coat. Dogs with one copy of this variant will have more limited white spotting and may be considered flash, parti or piebald. This MITF variant does not explain all white spotting patterns in dogs and other variants are currently being researched. Some dogs may have small amounts of white on the paws, chest, face, or tail regardless of their S Locus genotype.	Likely to have little to no white in coat (SS)

TRAITS: COAT COLOR (CONTINUED)

TRAIT	RESULT
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M Locus (PMEL)

Merle coat patterning is common to several dog breeds including the Australian Shepherd, Catahoula Leopard Dog, and Shetland Sheepdog, among many others. Merle arises from an unstable SINE insertion (which we term the "M*" allele) that disrupts activity of the pigmentary gene PMEL, leading to mottled or patchy coat color. Dogs with an **M*m** result are likely to be phenotypically merle or could be "non-expressing" merle, meaning that the merle pattern is very subtle or not at all evident in their coat. Dogs with an **M*M*** result are likely to be phenotypically merle or double merle. Dogs with an **mm** result have no merle alleles and are unlikely to have a merle coat pattern.

No merle alleles (mm)

Note that Embark does not currently distinguish between the recently described cryptic, atypical, atypical+, classic, and harlequin merle alleles. Our merle test only detects the presence, but not the length of the SINE insertion. We do not recommend making breeding decisions on this result alone. Please pursue further testing for allelic distinction prior to breeding decisions.

R Locus (USH2A)

The R Locus regulates the presence or absence of the roan coat color pattern. Partial duplication of the USH2A gene is strongly associated with this coat pattern. Dogs with at least one **R** allele will likely have roaning on otherwise uniformly unpigmented white areas. Roan appears in white areas controlled by the S Locus but not in other white or cream areas created by other loci, such as the E Locus with **ee** along with Dilute Red Pigmentation by I Locus (for example, in Samoyeds). Mechanisms for controlling the extent of roaning are currently unknown, and roaning can appear in a uniform or non-uniform pattern. Further, non-uniform roaning may appear as ticked, and not obviously roan. The roan pattern can appear with or without ticking.

Likely no impact on coat pattern (Rr)

H Locus (Harlequin)

This pattern is recognized in Great Danes and causes dogs to have a white coat with patches of darker pigment. A dog with an **Hh** result will be harlequin if they are also **M*m** or **M*M*** at the M Locus and are not **ee** at the E locus. Dogs with a result of **hh** will not be harlequin. This trait is thought to be homozygous lethal; a living dog with an **HH** genotype has never been found.

No harlequin alleles (hh)

TRAITS: OTHER COAT TRAITS

TRAIT	RESULT
Furnishings (RSPO2)	
Dogs with one or two copies of the F allele have “furnishings”: the mustache, beard, and eyebrows characteristic of breeds like the Schnauzer, Scottish Terrier, and Wire Haired Dachshund. A dog with two I alleles will not have furnishings, which is sometimes called an “improper coat” in breeds where furnishings are part of the breed standard. The mutation is a genetic insertion which we measure indirectly using a linkage test highly correlated with the insertion.	Likely unfurnished (no mustache, beard, and/or eyebrows) (II)

TRAITS: OTHER COAT TRAITS (CONTINUED)

TRAIT	RESULT
Coat Length (FGF5)	
The FGF5 gene affects hair length in many species, including cats, dogs, mice, and humans. In dogs, an Lh allele confers a long, silky hair coat across many breeds, including Yorkshire Terriers, Cocker Spaniels, and Golden Retrievers, while the Sh allele causes a shorter coat, as seen in the Boxer or the American Staffordshire Terrier. In certain breeds, such as the Pembroke Welsh Corgi and French Bulldog, the long haircoat is described as “fluffy”. The coat length determined by FGF5, as reported by us, is influenced by four genetic variants that work together to promote long hair.	
The most common of these is the Lh1 variant (G/T, CanFam3.1, chr32, g.4509367) and the less common ones are Lh2 (C/T, CanFam3.1, chr32, g.4528639), Lh3 (16bp deletion, CanFam3.1, chr32, g.4528616), and Lh4 (GG insertion, CanFam3.1, chr32, g.4528621). The FGF5_Lh1 variant is found across many dog breeds. The less common alleles, FGF5_Lh2, have been found in the Akita, Samoyed, and Siberian Husky, FGF5_Lh3 have been found in the Eurasier, and FGF5_Lh4 have been found in the Afghan Hound, Eurasier, and French Bulldog.	Likely long coat (LhLh)
The Lh alleles have a recessive mode of inheritance, meaning that two copies of the Lh alleles are required to have long hair. The presence of two Lh alleles at any of these FGF5 loci is expected to result in long hair. One copy each of Lh1 and Lh2 have been found in Samoyeds, one copy each of Lh1 and Lh3 have been found in Eurasiers, and one copy each of Lh1 and Lh4 have been found in the Afghan Hounds and Eurasiers.	
Interestingly, the Lh3 variant, a 16 base pair deletion, encompasses the Lh4 variant (GG insertion). The presence of one or two copies of Lh3 influences the outcome at the Lh4 locus. When two copies of Lh3 are present, there will be no reportable result for the FGF5_Lh4 locus. With one copy of Lh3, Lh4 can have either one copy of the variant allele or the normal allele. The overall FGF5 result remains unaffected by this.	

TRAITS: OTHER COAT TRAITS (CONTINUED)

TRAIT	RESULT
Shedding (MC5R) Dogs with at least one copy of the ancestral C allele, like many Labradors and German Shepherd Dogs, are heavy or seasonal shedders, while those with two copies of the T allele, including many Boxers, Shih Tzus and Chihuahuas, tend to be lighter shedders. Dogs with furnished/wire-haired coats caused by RSPO2 (the furnishings gene) tend to be low shedders regardless of their genotype at this gene.	Likely heavy/seasonal shedding (CC)
Coat Texture (KRT71) Dogs with a long coat and at least one copy of the T allele have a wavy or curly coat characteristic of Poodles and Bichon Frises. Dogs with two copies of the ancestral C allele are likely to have a straight coat, but there are other factors that can cause a curly coat, for example if they at least one F allele for the Furnishings (RSPO2) gene then they are likely to have a curly coat. Dogs with short coats may carry one or two copies of the T allele but still have straight coats.	Likely straight coat (CC)
Hairlessness (FOXI3) A duplication in the FOXI3 gene causes hairlessness over most of the body as well as changes in tooth shape and number. This mutation occurs in Peruvian Inca Orchid, Xoloitzcuintli (Mexican Hairless), and Chinese Crested (other hairless breeds have different mutations). Dogs with the NDup genotype are likely to be hairless while dogs with the NN genotype are likely to have a normal coat. The DupDup genotype has never been observed, suggesting that dogs with that genotype cannot survive to birth. Please note that this is a linkage test, so it may not be as predictive as direct tests of the mutation in some lines.	Very unlikely to be hairless (NN)
Hairlessness (SGK3) Hairlessness in the American Hairless Terrier arises from a mutation in the SGK3 gene. Dogs with the DD result are likely to be hairless. Dogs with the ND genotype will have a normal coat, but can pass the D variant on to their offspring.	Very unlikely to be hairless (NN)

TRAITS: OTHER COAT TRAITS (CONTINUED)

TRAIT	RESULT
Oculocutaneous Albinism Type 2 (SLC45A2) Dogs with two copies DD of this deletion in the SLC45A2 gene have oculocutaneous albinism (OCA), also known as Doberman Z Factor Albinism, a recessive condition characterized by severely reduced or absent pigment in the eyes, skin, and hair. Affected dogs sometimes suffer from vision problems due to lack of eye pigment (which helps direct and absorb ambient light) and are prone to sunburn. Dogs with a single copy of the deletion ND will not be affected but can pass the mutation on to their offspring. This particular mutation can be traced back to a single white Doberman Pinscher born in 1976, and it has only been observed in dogs descended from this individual. Please note that this is a linkage test, so it may not be as predictive as direct tests of the mutation in some lines.	Likely not albino (NN)

TRAITS: OTHER BODY FEATURES

TRAIT	RESULT
Muzzle Length (BMP3) Dogs in medium-length muzzle (mesocephalic) breeds like Staffordshire Terriers and Labradors, and long muzzle (dolichocephalic) breeds like Whippet and Collie have one, or more commonly two, copies of the ancestral C allele. Dogs in many short-length muzzle (brachycephalic) breeds such as the English Bulldog, Pug, and Pekingese have two copies of the derived A allele. At least five different genes affect muzzle length in dogs, with BMP3 being the only one with a known causal mutation. For example, the skull shape of some breeds, including the dolichocephalic Scottish Terrier or the brachycephalic Japanese Chin, appear to be caused by other genes. Thus, dogs may have short or long muzzles due to other genetic factors that are not yet known to science.	Likely medium or long muzzle (CC)
Tail Length (T) Whereas most dogs have two C alleles and a long tail, dogs with one G allele are likely to have a bobtail, which is an unusually short or absent tail. This mutation causes natural bobtail in many breeds including the Pembroke Welsh Corgi, the Australian Shepherd, and the Brittany Spaniel. Dogs with GG genotypes have not been observed, suggesting that dogs with the GG genotype do not survive to birth. Please note that this mutation does not explain every natural bobtail! While certain lineages of Boston Terrier, English Bulldog, Rottweiler, Miniature Schnauzer, Cavalier King Charles Spaniel, and Parson Russell Terrier, and Dobermans are born with a natural bobtail, these breeds do not have this mutation. This suggests that other unknown genetic mutations can also lead to a natural bobtail.	Likely normal-length tail (CC)
Hind Dewclaws (LMBR1) Common in certain breeds such as the Saint Bernard, hind dewclaws are extra, nonfunctional digits located midway between a dog's paw and hock. Dogs with at least one copy of the T allele have about a 50% chance of having hind dewclaws. Note that other (currently unknown to science) mutations can also cause hind dewclaws, so some CC or TC dogs will have hind dewclaws.	Unlikely to have hind dew claws (CC)

TRAITS: OTHER BODY FEATURES (CONTINUED)

TRAIT	RESULT
Chondrodysplasia (Chr. 18 FGF4 Retrogene)	
Dogs with one or two copies of the I allele will exhibit a short-legged trait known as chondrodysplasia (CDPA). CDPA is a breed-defining characteristic of many breeds exhibiting the "short-legged, long-bodied" appearance known as disproportionate dwarfism, including the corgi, dachshund and basset hound. The impact of the I allele on leg length is additive. Therefore, dogs with the II result display the largest reduction in leg length. Dogs with the NI genotype will have an intermediate leg length, while dogs with the NN result will not exhibit leg shortening due to this variant. Breeds that display disproportionate dwarfism also frequently inherit a genetic variant known as the chondrodystrophy (CDDY) variant. The CDDY variant also shortens legs (in a less significant amount than CDPA) but, secondarily, increases the risk of Type I Intervertebral Disc Disease (IVDD). Test results for CDDY are listed in this dog's health testing results under "Intervertebral Disc Disease (Type I)". In contrast, the CDPA variant has NOT been shown to increase the risk of IVDD.	Not indicative of chondrodysplasia (normal leg length) (NN)
Blue Eye Color (ALX4)	
Embark researchers discovered this large duplication associated with blue eyes in Arctic breeds like Siberian Husky as well as tri-colored (non-merle) Australian Shepherds. Dogs with at least one copy of the duplication (Dup) are more likely to have at least one blue eye. Some dogs with the duplication may have only one blue eye (complete heterochromia) or may not have blue eyes at all; nevertheless, they can still pass the duplication and the trait to their offspring. NN dogs do not carry this duplication, but may have blue eyes due to other factors, such as merle. Please note that this is a linkage test, so it may not be as predictive as direct tests of the mutation in some lines.	Less likely to have blue eyes (NN)
Back Muscling & Bulk, Large Breed (ACSL4)	
The T allele is associated with heavy muscling along the back and trunk in characteristically "bulky" large-breed dogs including the Saint Bernard, Bernese Mountain Dog, Greater Swiss Mountain Dog, and Rottweiler. The "bulky" T allele is absent from leaner shaped large breed dogs like the Great Dane, Irish Wolfhound, and Scottish Deerhound, which are fixed for the ancestral C allele. Note that this mutation does not seem to affect muscling in small or even mid-sized dog breeds with notable back muscling, including the American Staffordshire Terrier, Boston Terrier, and the English Bulldog.	Likely normal muscling (CC)

TRAITS: BODY SIZE

TRAIT	RESULT
Body Size (IGF1) The I allele is associated with smaller body size.	Larger (NN)
Body Size (IGFR1) The A allele is associated with smaller body size.	Larger (GG)
Body Size (STC2) The A allele is associated with smaller body size.	Larger (TT)
Body Size (GHR - E191K) The A allele is associated with smaller body size.	Larger (GG)
Body Size (GHR - P177L) The T allele is associated with smaller body size.	Larger (CC)

TRAITS: PERFORMANCE

TRAIT	RESULT
Altitude Adaptation (EPAS1) This mutation causes dogs to be especially tolerant of low oxygen environments (hypoxia), such as those found at high elevations. Dogs with at least one A allele are less susceptible to "altitude sickness." This mutation was originally identified in breeds from high altitude areas such as the Tibetan Mastiff.	Normal altitude tolerance (GG)
Appetite (POMC) This mutation in the POMC gene is found primarily in Labrador and Flat Coated Retrievers. Compared to dogs with no copies of the mutation (NN), dogs with one (ND) or two (DD) copies of the mutation are more likely to have high food motivation, which can cause them to eat excessively, have higher body fat percentage, and be more prone to obesity. Read more about the genetics of POMC, and learn how you can contribute to research, in our blog post (https://embarkvet.com/resources/blog/pomc-dogs/). We measure this result using a linkage test.	Normal food motivation (NN)

HEALTH REPORT

How to interpret Winnie's genetic health results:

If Winnie inherited any of the variants that we tested, they will be listed at the top of the Health Report section, along with a description of how to interpret this result. We also include all of the variants that we tested Winnie for that we did not detect the risk variant for.

A genetic test is not a diagnosis

This genetic test does not diagnose a disease. Please talk to your vet about your dog's genetic results, or if you think that your pet may have a health condition or disease.

Summary

Of the 262 genetic health risks we analyzed, we found 2 results that you should learn about.

Notable results (2)

Degenerative Myelopathy, DM

Dilated Cardiomyopathy, DCM

Clear results

Breed-relevant (11)

Other (248)

BREED-RELEVANT RESULTS

Research studies indicate that these results are more relevant to dogs like Winnie, and may influence her chances of developing certain health conditions.

 Degenerative Myelopathy, DM (SOD1A)	Notable
 Anhidrotic Ectodermal Dysplasia (EDA Intron 8)	Clear
 Canine Leukocyte Adhesion Deficiency Type III, CLAD III (FERMT3, German Shepherd Variant)	Clear
 Day Blindness (CNGA3 Exon 7, German Shepherd Variant)	Clear
 Hemophilia A (F8 Exon 11, German Shepherd Variant 1)	Clear
 Hemophilia A (F8 Exon 1, German Shepherd Variant 2)	Clear
 Ichthyosis (ASPRV1 Exon 2, German Shepherd Variant)	Clear
 Mucopolysaccharidosis Type VII, Sly Syndrome, MPS VII (GUSB Exon 3, German Shepherd Variant)	Clear
 Multiple Drug Sensitivity (ABCB1)	Clear
 Platelet Factor X Receptor Deficiency, Scott Syndrome (TMEM16F)	Clear
 Renal Cystadenocarcinoma and Nodular Dermatofibrosis (FLCN Exon 7)	Clear
 Urate Kidney & Bladder Stones (SLC2A9)	Clear

OTHER RESULTS

Research has not yet linked these conditions to dogs with similar breeds to Winnie. Review any increased risk or notable results to understand her potential risk and recommendations.

 Dilated Cardiomyopathy, DCM (RBM20, Schnauzer Variant)	Notable
 2-DHA Kidney & Bladder Stones (APRT)	Clear
 Acral Mutilation Syndrome (GDNF-AS, Spaniel and Pointer Variant)	Clear
 Alaskan Husky Encephalopathy (SLC19A3)	Clear
 Alaskan Malamute Polyneuropathy, AMPN (NDRG1 SNP)	Clear
 Alexander Disease (GFAP)	Clear
 ALT Activity (GPT)	Clear
 Autosomal Dominant Progressive Retinal Atrophy (RHO)	Clear
 Bald Thigh Syndrome (IGFBP5)	Clear
 Bernard-Soulier Syndrome, BSS (GP9, Cocker Spaniel Variant)	Clear
 Bully Whippet Syndrome (MSTN)	Clear
 Canine Elliptocytosis (SPTB Exon 30)	Clear
 Canine Fucosidosis (FUCA1)	Clear
 Canine Leukocyte Adhesion Deficiency Type I, CLAD I (ITGB2, Setter Variant)	Clear
 Canine Multifocal Retinopathy, cmr1 (BEST1 Exon 2)	Clear
 Canine Multifocal Retinopathy, cmr2 (BEST1 Exon 5, Coton de Tulear Variant)	Clear
 Canine Multifocal Retinopathy, cmr3 (BEST1 Exon 10 Deletion, Finnish and Swedish Lapphund, Lapponian Herder Variant)	Clear
 Canine Multiple System Degeneration (SERAC1 Exon 4, Chinese Crested Variant)	Clear

OTHER RESULTS

✓ Canine Multiple System Degeneration (SERAC1 Exon 15, Kerry Blue Terrier Variant)	Clear
✓ Cardiomyopathy and Juvenile Mortality (YARS2)	Clear
✓ Centronuclear Myopathy, CNM (PTPLA)	Clear
✓ Cerebellar Hypoplasia (VLDLR, Eurasier Variant)	Clear
✓ Chondrodysplasia (ITGA10, Norwegian Elkhound and Karelian Bear Dog Variant)	Clear
✓ Cleft Lip and/or Cleft Palate (ADAMTS20, Nova Scotia Duck Tolling Retriever Variant)	Clear
✓ Cleft Palate, CP1 (DLX6 intron 2, Nova Scotia Duck Tolling Retriever Variant)	Clear
✓ Cobalamin Malabsorption (CUBN Exon 8, Beagle Variant)	Clear
✓ Cobalamin Malabsorption (CUBN Exon 53, Border Collie Variant)	Clear
✓ Collie Eye Anomaly (NHEJ1)	Clear
✓ Complement 3 Deficiency, C3 Deficiency (C3)	Clear
✓ Congenital Cornification Disorder (NSDHL, Chihuahua Variant)	Clear
✓ Congenital Hypothyroidism (TPO, Rat, Toy, Hairless Terrier Variant)	Clear
✓ Congenital Hypothyroidism (TPO, Tenterfield Terrier Variant)	Clear
✓ Congenital Hypothyroidism with Goiter (TPO Intron 13, French Bulldog Variant)	Clear
✓ Congenital Hypothyroidism with Goiter (SLC5A5, Shih Tzu Variant)	Clear
✓ Congenital Macrothrombocytopenia (TUBB1 Exon 1, Cairn and Norfolk Terrier Variant)	Clear
✓ Congenital Myasthenic Syndrome, CMS (COLQ, Labrador Retriever Variant)	Clear

OTHER RESULTS

✓ Congenital Myasthenic Syndrome, CMS (COLQ, Golden Retriever Variant)	Clear
✓ Congenital Myasthenic Syndrome, CMS (CHAT, Old Danish Pointing Dog Variant)	Clear
✓ Congenital Myasthenic Syndrome, CMS (CHRNE, Jack Russell Terrier Variant)	Clear
✓ Congenital Stationary Night Blindness (LRIT3, Beagle Variant)	Clear
✓ Congenital Stationary Night Blindness (RPE65, Briard Variant)	Clear
✓ Craniomandibular Osteopathy, CMO (SLC37A2)	Clear
✓ Craniomandibular Osteopathy, CMO (SLC37A2 Intron 16, Basset Hound Variant)	Clear
✓ Cystinuria Type I-A (SLC3A1, Newfoundland Variant)	Clear
✓ Cystinuria Type II-A (SLC3A1, Australian Cattle Dog Variant)	Clear
✓ Cystinuria Type II-B (SLC7A9, Miniature Pinscher Variant)	Clear
✓ Darier Disease (ATP2A2, Irish Terrier Variant)	Clear
✓ Day Blindness (CNGB3 Deletion, Alaskan Malamute Variant)	Clear
✓ Day Blindness (CNGB3 Exon 7, Labrador Retriever Variant)	Clear
✓ Day Blindness (CNGB3 Exon 6, German Shorthaired Pointer Variant)	Clear
✓ Deafness and Vestibular Syndrome of Dobermans, DVDob, DINGS (MYO7A)	Clear
✓ Demyelinating Polyneuropathy (SBF2/MTRM13)	Clear
✓ Dental-Skeletal-Retinal Anomaly (MIA3, Cane Corso Variant)	Clear
✓ Diffuse Cystic Renal Dysplasia and Hepatic Fibrosis (INPP5E Intron 9, Norwich Terrier Variant)	Clear

OTHER RESULTS

✔ Dilated Cardiomyopathy, DCM1 (PDK4, Doberman Pinscher Variant 1)	Clear
✔ Dilated Cardiomyopathy, DCM2 (TTN, Doberman Pinscher Variant 2)	Clear
✔ Disproportionate Dwarfism (PRKG2, Dogo Argentino Variant)	Clear
✔ Dry Eye Curly Coat Syndrome (FAM83H Exon 5)	Clear
✔ Dystrophic Epidermolysis Bullosa (COL7A1, Central Asian Shepherd Dog Variant)	Clear
✔ Dystrophic Epidermolysis Bullosa (COL7A1, Golden Retriever Variant)	Clear
✔ Early Bilateral Deafness (LOXHD1 Exon 38, Rottweiler Variant)	Clear
✔ Early Onset Adult Deafness, EOAD (EPS8L2 Deletion, Rhodesian Ridgeback Variant)	Clear
✔ Early Onset Cerebellar Ataxia (SEL1L, Finnish Hound Variant)	Clear
✔ Ehlers Danlos (ADAMTS2, Doberman Pinscher Variant)	Clear
✔ Ehlers-Danlos Syndrome (EDS) (COL5A1, Labrador Retriever Variant)	Clear
✔ Enamel Hypoplasia (ENAM Deletion, Italian Greyhound Variant)	Clear
✔ Enamel Hypoplasia (ENAM SNP, Parson Russell Terrier Variant)	Clear
✔ Episodic Falling Syndrome (BCAN)	Clear
✔ Exercise-Induced Collapse, EIC (DNM1)	Clear
✔ Factor VII Deficiency (F7 Exon 5)	Clear
✔ Factor XI Deficiency (F11 Exon 7, Kerry Blue Terrier Variant)	Clear
✔ Familial Nephropathy (COL4A4 Exon 3, Cocker Spaniel Variant)	Clear

OTHER RESULTS

✓ Familial Nephropathy (COL4A4 Exon 30, English Springer Spaniel Variant)	Clear
✓ Fanconi Syndrome (FAN1, Basenji Variant)	Clear
✓ Fetal-Onset Neonatal Neuroaxonal Dystrophy (MFN2, Giant Schnauzer Variant)	Clear
✓ Glanzmann's Thrombasthenia Type I (ITGA2B Exon 13, Great Pyrenees Variant)	Clear
✓ Glanzmann's Thrombasthenia Type I (ITGA2B Exon 12, Otterhound Variant)	Clear
✓ Globoid Cell Leukodystrophy, Krabbe disease (GALC Exon 5, Terrier Variant)	Clear
✓ Glycogen Storage Disease Type IA, Von Gierke Disease, GSD IA (G6PC, Maltese Variant)	Clear
✓ Glycogen Storage Disease Type IIIA, GSD IIIA (AGL, Curly Coated Retriever Variant)	Clear
✓ Glycogen storage disease Type VII, Phosphofructokinase Deficiency, PFK Deficiency (PFKM, Whippet and English Springer Spaniel Variant)	Clear
✓ Glycogen storage disease Type VII, Phosphofructokinase Deficiency, PFK Deficiency (PFKM, Wachtelhund Variant)	Clear
✓ GM1 Gangliosidosis (GLB1 Exon 2, Portuguese Water Dog Variant)	Clear
✓ GM1 Gangliosidosis (GLB1 Exon 15, Shiba Inu Variant)	Clear
✓ GM1 Gangliosidosis (GLB1 Exon 15, Alaskan Husky Variant)	Clear
✓ GM2 Gangliosidosis (HEXA, Japanese Chin Variant)	Clear
✓ GM2 Gangliosidosis (HEXB, Poodle Variant)	Clear
✓ Golden Retriever Progressive Retinal Atrophy 1, GR-PRA1 (SLC4A3)	Clear
✓ Golden Retriever Progressive Retinal Atrophy 2, GR-PRA2 (TTC8)	Clear
✓ Goniodysgenesis and Glaucoma, Pectinate Ligament Dysplasia, PLD (OLFM3)	Clear

OTHER RESULTS

 Hemophilia A (F8 Exon 10, Boxer Variant)	Clear
 Hemophilia B (F9 Exon 7, Terrier Variant)	Clear
 Hemophilia B (F9 Exon 7, Rhodesian Ridgeback Variant)	Clear
 Hereditary Ataxia, Cerebellar Degeneration (RAB24, Old English Sheepdog and Gordon Setter Variant)	Clear
 Hereditary Cataracts (HSF4 Exon 9, Australian Shepherd Variant)	Clear
 Hereditary Footpad Hyperkeratosis (FAM83G, Terrier and Kromfohrlander Variant)	Clear
 Hereditary Footpad Hyperkeratosis (DSG1, Rottweiler Variant)	Clear
 Hereditary Nasal Parakeratosis (SUV39H2 Intron 4, Greyhound Variant)	Clear
 Hereditary Nasal Parakeratosis, HNPK (SUV39H2)	Clear
 Hereditary Vitamin D-Resistant Rickets (VDR)	Clear
 Hypocatalasia, Acatalasemia (CAT)	Clear
 Hypomyelination and Tremors (FNIP2, Weimaraner Variant)	Clear
 Hypophosphatasia (ALPL Exon 9, Karelian Bear Dog Variant)	Clear
 Ichthyosis (NIPAL4, American Bulldog Variant)	Clear
 Ichthyosis (SLC27A4, Great Dane Variant)	Clear
 Ichthyosis, Epidermolytic Hyperkeratosis (KRT10, Terrier Variant)	Clear
 Ichthyosis, ICH1 (PNPLA1, Golden Retriever Variant)	Clear
 Ichthyosis, ICH2 (ABHD5, Golden Retriever Variant)	Clear

OTHER RESULTS

✓ Inflammatory Myopathy (SLC25A12)	Clear
✓ Inherited Myopathy of Great Danes (BIN1)	Clear
✓ Inherited Selected Cobalamin Malabsorption with Proteinuria (CUBN, Komondor Variant)	Clear
✓ Intervertebral Disc Disease (Type I) (FGF4 retrogene - CFA12)	Clear
✓ Intestinal Lipid Malabsorption (ACSL5, Australian Kelpie)	Clear
✓ Junctional Epidermolysis Bullosa (LAMA3 Exon 66, Australian Cattle Dog Variant)	Clear
✓ Junctional Epidermolysis Bullosa (LAMB3 Exon 11, Australian Shepherd Variant)	Clear
✓ Juvenile Epilepsy (LGI2)	Clear
✓ Juvenile Laryngeal Paralysis and Polyneuropathy (RAB3GAP1, Rottweiler Variant)	Clear
✓ Juvenile Myoclonic Epilepsy (DIRAS1)	Clear
✓ L-2-Hydroxyglutaricaciduria, L2HGA (L2HGDH, Staffordshire Bull Terrier Variant)	Clear
✓ Lagotto Storage Disease (ATG4D)	Clear
✓ Laryngeal Paralysis (RAPGEF6, Miniature Bull Terrier Variant)	Clear
✓ Late Onset Spinocerebellar Ataxia (CAPN1)	Clear
✓ Late-Onset Neuronal Ceroid Lipofuscinosis, NCL 12 (ATP13A2, Australian Cattle Dog Variant)	Clear
✓ Leonberger Polyneuropathy 1 (LPN1, ARHGEF10)	Clear
✓ Leonberger Polyneuropathy 2 (GJA9)	Clear
✓ Lethal Acrodermatitis, LAD (MKLN1)	Clear

OTHER RESULTS

✓ Leukodystrophy (TSEN54 Exon 5, Standard Schnauzer Variant)	Clear
✓ Ligneous Membranitis, LM (PLG)	Clear
✓ Limb Girdle Muscular Dystrophy (SGCD, Boston Terrier Variant)	Clear
✓ Limb-Girdle Muscular Dystrophy 2D (SGCA Exon 3, Miniature Dachshund Variant)	Clear
✓ Long QT Syndrome (KCNQ1)	Clear
✓ Lundehund Syndrome (LEPREL1)	Clear
✓ Macular Corneal Dystrophy, MCD (CHST6)	Clear
✓ Malignant Hyperthermia (RYR1)	Clear
✓ May-Hegglin Anomaly (MYH9)	Clear
✓ Medium-Chain Acyl-CoA Dehydrogenase Deficiency, MCADD (ACADM, Cavalier King Charles Spaniel Variant)	Clear
✓ Methemoglobinemia (CYB5R3, Pit Bull Terrier Variant)	Clear
✓ Methemoglobinemia (CYB5R3)	Clear
✓ Microphthalmia (RBP4 Exon 2, Soft Coated Wheaten Terrier Variant)	Clear
✓ Mucopolysaccharidosis IIIB, Sanfilippo Syndrome Type B, MPS IIIB (NAGLU, Schipperke Variant)	Clear
✓ Mucopolysaccharidosis Type IIIA, Sanfilippo Syndrome Type A, MPS IIIA (SGSH Exon 6, Dachshund Variant)	Clear
✓ Mucopolysaccharidosis Type IIIA, Sanfilippo Syndrome Type A, MPS IIIA (SGSH Exon 6, New Zealand Huntaway Variant)	Clear
✓ Mucopolysaccharidosis Type VI, Maroteaux-Lamy Syndrome, MPS VI (ARSB Exon 5, Miniature Pinscher Variant)	Clear
✓ Mucopolysaccharidosis Type VII, Sly Syndrome, MPS VII (GUSB Exon 5, Terrier Brasileiro Variant)	Clear

OTHER RESULTS

✓ Muscular Dystrophy (DMD, Cavalier King Charles Spaniel Variant 1)	Clear
✓ Muscular Dystrophy (DMD, Golden Retriever Variant)	Clear
✓ Musladin-Lueke Syndrome, MLS (ADAMTSL2)	Clear
✓ Myasthenia Gravis-Like Syndrome (CHRNE, Heideterrier Variant)	Clear
✓ Myotonia Congenita (CLCN1 Exon 23, Australian Cattle Dog Variant)	Clear
✓ Myotonia Congenita (CLCN1 Exon 19, Labrador Retriever Variant)	Clear
✓ Myotonia Congenita (CLCN1 Exon 7, Miniature Schnauzer Variant)	Clear
✓ Narcolepsy (HCRTR2 Exon 1, Dachshund Variant)	Clear
✓ Narcolepsy (HCRTR2 Intron 4, Doberman Pinscher Variant)	Clear
✓ Narcolepsy (HCRTR2 Intron 6, Labrador Retriever Variant)	Clear
✓ Nemaline Myopathy (NEB, American Bulldog Variant)	Clear
✓ Neonatal Cerebellar Cortical Degeneration (SPTBN2, Beagle Variant)	Clear
✓ Neonatal Encephalopathy with Seizures, NEWS (ATF2)	Clear
✓ Neonatal Interstitial Lung Disease (LAMP3)	Clear
✓ Neuroaxonal Dystrophy, NAD (VPS11, Rottweiler Variant)	Clear
✓ Neuroaxonal Dystrophy, NAD (TECPR2, Spanish Water Dog Variant)	Clear
✓ Neuronal Ceroid Lipofuscinosis 1, NCL 1 (PPT1 Exon 8, Dachshund Variant 1)	Clear
✓ Neuronal Ceroid Lipofuscinosis 10, NCL 10 (CTSD Exon 5, American Bulldog Variant)	Clear

OTHER RESULTS

✓ Neuronal Ceroid Lipofuscinosis 2, NCL 2 (TPP1 Exon 4, Dachshund Variant 2)	Clear
✓ Neuronal Ceroid Lipofuscinosis 5, NCL 5 (CLN5 Exon 4 SNP, Border Collie Variant)	Clear
✓ Neuronal Ceroid Lipofuscinosis 5, NCL 5 (CLN5 Exon 4 Deletion, Golden Retriever Variant)	Clear
✓ Neuronal Ceroid Lipofuscinosis 6, NCL 6 (CLN6 Exon 7, Australian Shepherd Variant)	Clear
✓ Neuronal Ceroid Lipofuscinosis 7, NCL 7 (MFSD8, Chihuahua and Chinese Crested Variant)	Clear
✓ Neuronal Ceroid Lipofuscinosis 8, NCL 8 (CLN8, Australian Shepherd Variant)	Clear
✓ Neuronal Ceroid Lipofuscinosis 8, NCL 8 (CLN8 Exon 2, English Setter Variant)	Clear
✓ Neuronal Ceroid Lipofuscinosis 8, NCL 8 (CLN8 Insertion, Saluki Variant)	Clear
✓ Neuronal Ceroid Lipofuscinosis, Cerebellar Ataxia, NCL4A (ARSG Exon 2, American Staffordshire Terrier Variant)	Clear
✓ Oculocutaneous Albinism, OCA (SLC45A2 Exon 6, Bullmastiff Variant)	Clear
✓ Oculocutaneous Albinism, OCA (SLC45A2, Small Breed Variant)	Clear
✓ Oculoskeletal Dysplasia 2 (COL9A2, Samoyed Variant)	Clear
✓ Osteochondrodysplasia (SLC13A1, Poodle Variant)	Clear
✓ Osteogenesis Imperfecta (COL1A2, Beagle Variant)	Clear
✓ Osteogenesis Imperfecta (SERPINH1, Dachshund Variant)	Clear
✓ Osteogenesis Imperfecta (COL1A1, Golden Retriever Variant)	Clear
✓ P2Y12 Receptor Platelet Disorder (P2Y12)	Clear
✓ Pachyonychia Congenita (KRT16, Dogue de Bordeaux Variant)	Clear

OTHER RESULTS

 Paroxysmal Dyskinesia, PxD (PIGN)	Clear
 Persistent Mullerian Duct Syndrome, PMDS (AMHR2)	Clear
 Pituitary Dwarfism (POU1F1 Intron 4, Karelian Bear Dog Variant)	Clear
 Polycystic Kidney Disease, PKD (PKD1)	Clear
 Pompe's Disease (GAA, Finnish and Swedish Lapphund, Lapponian Herder Variant)	Clear
 Prekallikrein Deficiency (KLKB1 Exon 8)	Clear
 Primary Ciliary Dyskinesia, PCD (NME5, Alaskan Malamute Variant)	Clear
 Primary Ciliary Dyskinesia, PCD (STK36, Australian Shepherd Variant)	Clear
 Primary Ciliary Dyskinesia, PCD (CCDC39 Exon 3, Old English Sheepdog Variant)	Clear
 Primary Hyperoxaluria (AGXT)	Clear
 Primary Lens Luxation (ADAMTS17)	Clear
 Primary Open Angle Glaucoma (ADAMTS17 Exon 11, Basset Fauve de Bretagne Variant)	Clear
 Primary Open Angle Glaucoma (ADAMTS10 Exon 17, Beagle Variant)	Clear
 Primary Open Angle Glaucoma (ADAMTS10 Exon 9, Norwegian Elkhound Variant)	Clear
 Primary Open Angle Glaucoma and Primary Lens Luxation (ADAMTS17 Exon 2, Chinese Shar-Pei Variant)	Clear
 Progressive Retinal Atrophy (SAG)	Clear
 Progressive Retinal Atrophy (IFT122 Exon 26, Lapponian Herder Variant)	Clear
 Progressive Retinal Atrophy, Bardet-Biedl Syndrome (BBS2 Exon 11, Shetland Sheepdog Variant)	Clear

OTHER RESULTS

✓ Progressive Retinal Atrophy, CNGA (CNGA1 Exon 9)	Clear
✓ Progressive Retinal Atrophy, crd1 (PDE6B, American Staffordshire Terrier Variant)	Clear
✓ Progressive Retinal Atrophy, crd4/cord1 (RPGRIP1)	Clear
✓ Progressive Retinal Atrophy, PRA1 (CNGB1)	Clear
✓ Progressive Retinal Atrophy, PRA3 (FAM161A)	Clear
✓ Progressive Retinal Atrophy, prcd (PRCD Exon 1)	Clear
✓ Progressive Retinal Atrophy, rcd1 (PDE6B Exon 21, Irish Setter Variant)	Clear
✓ Progressive Retinal Atrophy, rcd3 (PDE6A)	Clear
✓ Proportionate Dwarfism (GH1 Exon 5, Chihuahua Variant)	Clear
✓ Protein Losing Nephropathy, PLN (NPHS1)	Clear
✓ Pyruvate Dehydrogenase Deficiency (PDP1, Spaniel Variant)	Clear
✓ Pyruvate Kinase Deficiency (PKLR Exon 5, Basenji Variant)	Clear
✓ Pyruvate Kinase Deficiency (PKLR Exon 7, Beagle Variant)	Clear
✓ Pyruvate Kinase Deficiency (PKLR Exon 10, Terrier Variant)	Clear
✓ Pyruvate Kinase Deficiency (PKLR Exon 7, Labrador Retriever Variant)	Clear
✓ Pyruvate Kinase Deficiency (PKLR Exon 7, Pug Variant)	Clear
✓ Raine Syndrome (FAM20C)	Clear
✓ Recurrent Inflammatory Pulmonary Disease, RIPD (AKNA, Rough Collie Variant)	Clear

OTHER RESULTS

	Retina Dysplasia and/or Optic Nerve Hypoplasia (SIX6 Exon 1, Golden Retriever Variant)	Clear
	Sensory Neuropathy (FAM134B, Border Collie Variant)	Clear
	Severe Combined Immunodeficiency, SCID (PRKDC, Terrier Variant)	Clear
	Severe Combined Immunodeficiency, SCID (RAG1, Wetterhoun Variant)	Clear
	Shaking Puppy Syndrome (PLP1, English Springer Spaniel Variant)	Clear
	Shar-Pei Autoinflammatory Disease, SPAID, Shar-Pei Fever (MTBP)	Clear
	Skeletal Dysplasia 2, SD2 (COL11A2, Labrador Retriever Variant)	Clear
	Skin Fragility Syndrome (PKP1, Chesapeake Bay Retriever Variant)	Clear
	Spinocerebellar Ataxia (SCN8A, Alpine Dachsbracke Variant)	Clear
	Spinocerebellar Ataxia with Myokymia and/or Seizures (KCNJ10)	Clear
	Spongy Degeneration with Cerebellar Ataxia 1 (KCNJ10)	Clear
	Spongy Degeneration with Cerebellar Ataxia 2 (ATP1B2)	Clear
	Stargardt Disease (ABCA4 Exon 28, Labrador Retriever Variant)	Clear
	Succinic Semialdehyde Dehydrogenase Deficiency (ALDH5A1 Exon 7, Saluki Variant)	Clear
	Thrombopathia (RASGRP1 Exon 5, American Eskimo Dog Variant)	Clear
	Thrombopathia (RASGRP1 Exon 5, Basset Hound Variant)	Clear
	Thrombopathia (RASGRP1 Exon 8, Landseer Variant)	Clear
	Trapped Neutrophil Syndrome, TNS (VPS13B)	Clear

OTHER RESULTS

✔ Ullrich-like Congenital Muscular Dystrophy (COL6A3 Exon 10, Labrador Retriever Variant)	Clear
✔ Ullrich-like Congenital Muscular Dystrophy (COL6A1 Exon 3, Landseer Variant)	Clear
✔ Unilateral Deafness and Vestibular Syndrome (PTPRQ Exon 39, Doberman Pinscher)	Clear
✔ Von Willebrand Disease Type I, Type I vWD (VWF)	Clear
✔ Von Willebrand Disease Type II, Type II vWD (VWF, Pointer Variant)	Clear
✔ Von Willebrand Disease Type III, Type III vWD (VWF Exon 4, Terrier Variant)	Clear
✔ Von Willebrand Disease Type III, Type III vWD (VWF Intron 16, Nederlandse Kooikerhondje Variant)	Clear
✔ Von Willebrand Disease Type III, Type III vWD (VWF Exon 7, Shetland Sheepdog Variant)	Clear
✔ X-Linked Hereditary Nephropathy, XLHN (COL4A5 Exon 35, Samoyed Variant 2)	Clear
✔ X-Linked Myotubular Myopathy (MTM1, Labrador Retriever Variant)	Clear
✔ X-Linked Progressive Retinal Atrophy 1, XL-PRA1 (RPGR)	Clear
✔ X-linked Severe Combined Immunodeficiency, X-SCID (IL2RG Exon 1, Basset Hound Variant)	Clear
✔ X-linked Severe Combined Immunodeficiency, X-SCID (IL2RG, Corgi Variant)	Clear
✔ Xanthine Urolithiasis (XDH, Mixed Breed Variant)	Clear
✔ β-Mannosidosis (MANBA Exon 16, Mixed-Breed Variant)	Clear
Mast Cell Tumor	No result

HEALTH REPORT

Notable result

Degenerative Myelopathy, DM

Winnie inherited one copy of the variant we tested for Degenerative Myelopathy, DM

What does this result mean?

This variant should not impact Winnie's health. This variant is inherited in an autosomal recessive manner, meaning that a dog needs two copies of the variant to show signs of this condition. Winnie is unlikely to develop this condition due to this variant because she only has one copy of the variant.

Impact on Breeding

Your dog carries this variant and will pass it on to ~50% of her offspring. You can email breeders@embarkvet.com to discuss with a genetic counselor how the genotype results should be applied to a breeding program.

What is Degenerative Myelopathy, DM?

The dog equivalent of Amyotrophic Lateral Sclerosis, or Lou Gehrig's disease, DM is a progressive degenerative disorder of the spinal cord. Because the nerves that control the hind limbs are the first to degenerate, the most common clinical signs are back muscle wasting and gait abnormalities.

When signs & symptoms develop in affected dogs

Affected dogs do not usually show signs of DM until they are at least 8 years old.

How vets diagnose this condition

Definitive diagnosis requires microscopic analysis of the spinal cord after death. However, veterinarians use clues such as genetic testing, breed, age, and other diagnostics to determine if DM is the most likely cause of your dog's clinical signs.

How this condition is treated

As dogs are seniors at the time of onset, the treatment for DM is aimed towards increasing their comfort through a combination of lifestyle changes, medication, and physical therapy.

Actions to take if your dog is affected

- Giving your dog the best quality of life for as long as possible is all you can do after receiving this diagnosis.

HEALTH REPORT

Notable result

Dilated Cardiomyopathy, DCM

Winnie inherited one copy of the variant we tested for Dilated Cardiomyopathy, DCM

What does this result mean?

This variant should not impact Winnie's health. This variant is inherited in an autosomal recessive manner, meaning that a dog needs two copies of the variant to show signs of this condition. Winnie is unlikely to develop this condition due to this variant because she only has one copy of the variant.

Impact on Breeding

Your dog carries this variant and will pass it on to ~50% of her offspring. You can email breeders@embarkvet.com to discuss with a genetic counselor how the genotype results should be applied to a breeding program.

What is Dilated Cardiomyopathy, DCM?

Dilated Cardiomyopathy (DCM) is reportedly the most common myocardial disease affecting dogs. The heart has two heavily muscled ventricles that pump blood. DCM causes progressive weakening of the ventricles by reducing the muscle mass, which causes the ventricles to dilate. Dilated ventricles do not contract and circulate oxygenated blood well, which eventually leads to heart failure.

When signs & symptoms develop in affected dogs

In general, DCM progresses through two distinct stages: an asymptomatic stage and an overt stage, in which clinical signs attributable to congestive heart failure (CHF) become apparent. Affected dogs are typically between one to five years of age at the time of diagnosis.

How vets diagnose this condition

A vet may use an echocardiogram (ultrasound of the heart) or radiographs (x-rays) to observe progressive dilation and/or weakness of the left or both ventricles. CHF may be diagnosed by observing an increased opacity in the lungs or abdomen on radiographs due to the presence of fluid.

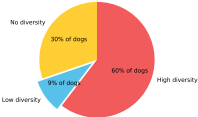
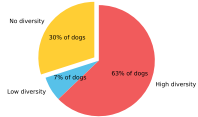
How this condition is treated

Medical treatment is aimed at reducing the abnormal fluid accumulation, improving the function of the heart, and addressing arrhythmias, if present.

Actions to take if your dog is affected

- If you notice signs of CHF including weakness, cold toes and ears, pale or blue gums or tongue, or respiratory distress, seek veterinary care immediately.
- The earlier a diagnosis can be reached, the better the outcome. If you are concerned about your dog's heart, discuss it with your veterinarian, who can perform testing.
- Regular echocardiograms by a board certified cardiologist and Holter monitoring are the best ways to diagnose DCM early.
- Treatment is dependent on how advanced the disease is at the time of diagnosis. It can range from monitoring the patient

INBREEDING AND DIVERSITY

CATEGORY	RESULT
Coefficient Of Inbreeding Our genetic COI measures the proportion of your dog's genome where the genes on the mother's side are identical by descent to those on the father's side.	33%  The histogram displays the distribution of Coefficient of Inbreeding (COI) for German Shepherd Dogs (blue bars) and All Purebreds (grey line). The x-axis represents COI from 0% to 80%, and the y-axis represents frequency. A vertical line indicates 'Your Dog's COI: 33%'. The German Shepherd Dogs distribution is centered around 20-30%, while the All Purebreds distribution is broader and centered around 10-20%.
MHC Class II - DLA DRB1 A Dog Leukocyte Antigen (DLA) gene, DRB1 encodes a major histocompatibility complex (MHC) protein involved in the immune response. Some studies have shown associations between certain DRB1 haplotypes and autoimmune diseases such as Addison's disease (hypoadrenocorticism) in certain dog breeds, but these findings have yet to be scientifically validated.	Low Diversity How common is this amount of diversity in purebreds:  The pie chart illustrates the distribution of diversity levels for DLA DRB1 in purebred dogs. The categories are: High diversity (60% of dogs, red), No diversity (30% of dogs, yellow), and Low diversity (10% of dogs, blue).
MHC Class II - DLA DQA1 and DQB1 DQA1 and DQB1 are two tightly linked DLA genes that code for MHC proteins involved in the immune response. A number of studies have shown correlations of DQA-DQB1 haplotypes and certain autoimmune diseases; however, these have not yet been scientifically validated.	No Diversity How common is this amount of diversity in purebreds:  The pie chart illustrates the distribution of diversity levels for DLA DQA1 and DQB1 in purebred dogs. The categories are: High diversity (60% of dogs, red), No diversity (30% of dogs, yellow), and Low diversity (10% of dogs, blue).