

EVELINE

Veterinary Report by Embark

embarkvet.com

Test Date: December 15th, 2025

Customer-supplied information

Owner Name: Melvin Lapp
Dog Name: Eveline
Sex: Female
Date of birth: 09/21/25

Breed type: N/A
Breed: Shih Tzu
Breed registration: N/A
Microchip: N/A

Genetic summary

Genetic breed identification:
Mixed Ancestry

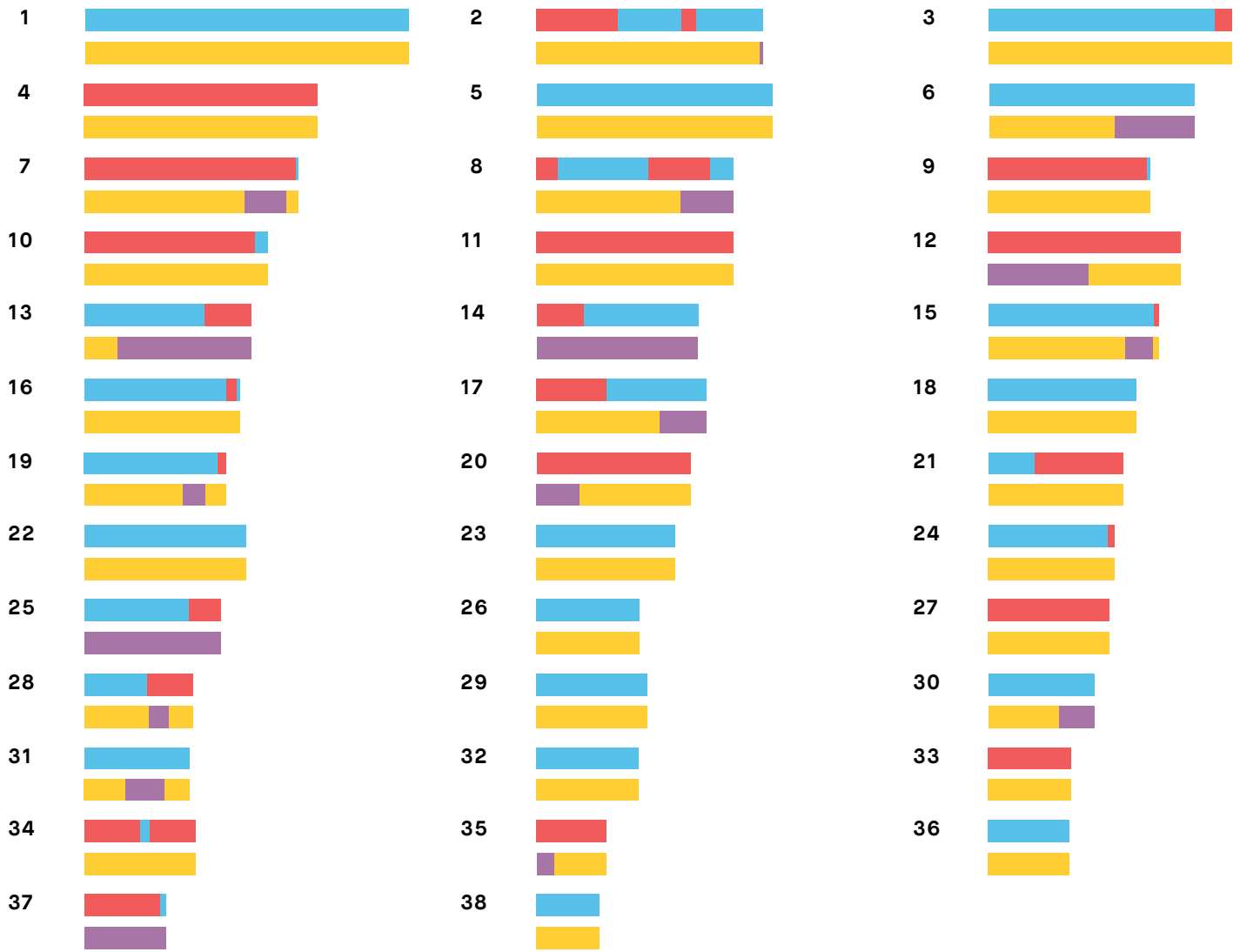
Breed ancestry:

 **Shih Tzu: 41.1%**
 **Poodle (Small): 30.0%**
 **Cavalier King Charles Spaniel: 20.0%**
 **Bichon Frise: 8.9%**

Predicted adult weight: **9 lbs**
Calculated from 17 size genes.

Life stage: **Young adult**
Based on date of birth provided.

Karyogram (Chromosome painting)



Health Report

How to interpret Eveline's genetic health results:

If Eveline 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 Eveline 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 273 genetic health risks we analyzed, we found 3 results that you should learn about.

Increased risk results (1)

Intervertebral Disc Disease (Type I)

Notable results (2)

ALT Activity

Copper Toxicosis (Accumulating)

Clear results

Breed-relevant (12)

Other (258)

Health Report

BREED-RELEVANT RESULTS

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

	Intervertebral Disc Disease (Type I) (FGF4 retrogene - CFA12)	Increased risk
	Congenital Hypothyroidism with Goiter (SLC5A5, Shih Tzu Variant)	Clear
	Degenerative Myelopathy, DM (SOD1A)	Clear
	Dry Eye Curly Coat Syndrome (FAM83H Exon 5)	Clear
	Episodic Falling Syndrome (BCAN)	Clear
	GM2 Gangliosidosis (HEXB, Poodle Variant)	Clear
	Medium-Chain Acyl-CoA Dehydrogenase Deficiency, MCADD (ACADM, Cavalier King Charles Spaniel Variant)	Clear
	Muscular Dystrophy (DMD, Cavalier King Charles Spaniel Variant 1)	Clear
	Neonatal Encephalopathy with Seizures, NEWS (ATF2)	Clear
	Osteochondrodysplasia (SLC13A1, Poodle Variant)	Clear
	Prekallikrein Deficiency (KLKB1 Exon 8)	Clear
	Progressive Retinal Atrophy, prcd (PRCD Exon 1)	Clear
	Von Willebrand Disease Type I, Type I vWD (VWF)	Clear

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OTHER RESULTS

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

 ALT Activity (GPT)	Notable
 Copper Toxicosis (Accumulating) (ATP7B)	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
 Anhidrotic Ectodermal Dysplasia (EDA Intron 8)	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 Leukocyte Adhesion Deficiency Type III, CLAD III (FERMT3, German Shepherd Variant)	Clear
 Canine Multifocal Retinopathy, cmr1 (BEST1 Exon 2)	Clear
 Canine Multifocal Retinopathy, cmr2 (BEST1 Exon 5, Coton de Tulear Variant)	Clear

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OTHER RESULTS

✓ 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
✓ 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 Dyserythropoietic Anemia and Polymyopathy (EHPB1L1, Labrador Retriever 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

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✓	Congenital Macrothrombocytopenia (TUBB1 Exon 1, Cairn and Norfolk Terrier Variant)	Clear
✓	Congenital Muscular Dystrophy (LAMA2, Italian Greyhound)	Clear
✓	Congenital Myasthenic Syndrome, CMS (COLQ, Labrador Retriever Variant)	Clear
✓	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
✓	Copper Toxicosis (Attenuating) (ATP7A, Labrador Retriever)	Clear
✓	Copper Toxicosis (Attenuating) (RETN, Labrador Retriever)	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 (CNGA3 Exon 7, German Shepherd Variant)	Clear

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 Day Blindness (CNGA3 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
 Dilated Cardiomyopathy, DCM (RBM20, Schnauzer Variant)	Clear
 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
 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

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OTHER RESULTS

✓ Enamel Hypoplasia (ENAM SNP, Parson Russell Terrier Variant)	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
✓ 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 (G6PC1, German Pinscher 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

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	GM1 Gangliosidosis (GLB1 Exon 15, Alaskan Husky Variant)	Clear
	GM2 Gangliosidosis (HEXA, Japanese Chin 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
	Hemophilia A (F8 Exon 11, German Shepherd Variant 1)	Clear
	Hemophilia A (F8 Exon 1, German Shepherd Variant 2)	Clear
	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 (PNPLA8, Australian Shepherd 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 Cataracts (FYCO1, Wirehaired Pointing Griffon Variant)	Clear
	Hereditary Cerebellar Ataxia (SELENOP, Belgian 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

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OTHER RESULTS

	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 (ASPRV1 Exon 2, German Shepherd 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
	Inflammatory Myopathy (SLC25A12)	Clear
	Inherited Myopathy of Great Danes (BIN1)	Clear
	Inherited Selected Cobalamin Malabsorption with Proteinuria (CUBN, Komondor Variant)	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 (LG12)	Clear

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✓ 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
✓ Laryngeal Paralysis and Polyneuropathy (CNTNAP1, Leonberger, Saint Bernard, and Labrador Retriever 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
✓ 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

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✓ Malignant Hyperthermia (RYR1)	Clear
✓ May-Hegglin Anomaly (MYH9)	Clear
✓ MDR1 Drug Sensitivity (ABCB1)	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 3, German Shepherd Variant)	Clear
✓ Mucopolysaccharidosis Type VII, Sly Syndrome, MPS VII (GUSB Exon 5, Terrier Brasileiro Variant)	Clear
✓ Muscular Dystrophy (DMD, Golden Retriever Variant)	Clear
✓ Muscular Dystrophy-Dystroglycanopathy (LARGE1, Labrador 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

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	Myotonia Congenita (CLCN1 Exon 7, Miniature Schnauzer Variant)	Clear
	Narcolepsy (HCRT2 Exon 1, Dachshund Variant)	Clear
	Narcolepsy (HCRT2 Intron 4, Doberman Pinscher Variant)	Clear
	Narcolepsy (HCRT2 Intron 6, Labrador Retriever Variant)	Clear
	Nemaline Myopathy (NEB, American Bulldog Variant)	Clear
	Neonatal Cerebellar Cortical Degeneration (SPTBN2, Beagle Variant)	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
	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

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	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
	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
	Paroxysmal Dyskinesia, PxD (PIGN)	Clear
	Persistent Mullerian Duct Syndrome, PMDS (AMHR2)	Clear
	Pituitary Dwarfism (POU1F1 Intron 4, Karelian Bear Dog Variant)	Clear
	Platelet Factor X Receptor Deficiency, Scott Syndrome (TMEM16F)	Clear
	Polycystic Kidney Disease, PKD (PKD1)	Clear
	Pompe's Disease (GAA, Finnish and Swedish Lapphund, Lapponian Herder Variant)	Clear
	Primary Ciliary Dyskinesia, PCD (NME5, Alaskan Malamute Variant)	Clear
	Primary Ciliary Dyskinesia, PCD (STK36, Australian Shepherd Variant)	Clear

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✓ 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 5, PRA5 (NECAP1 Exon 6, Giant Schnauzer Variant)	Clear
✓ Progressive Retinal Atrophy, Bardet-Biedl Syndrome (BBS2 Exon 11, Shetland Sheepdog Variant)	Clear
✓ 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, rcd1 (PDE6B Exon 21, Irish Setter Variant)	Clear
✓ Progressive Retinal Atrophy, rcd3 (PDE6A)	Clear

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✓ 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
✓ Renal Cystadenocarcinoma and Nodular Dermatofibrosis (FLCN Exon 7)	Clear
✓ 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

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✓ 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
✓ 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
✓ Urate Kidney & Bladder Stones (SLC2A9)	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

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	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

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Increased risk result

Intervertebral Disc Disease (Type I)

Eveline inherited one copy of the variant we tested for Chondrodystrophy and Intervertebral Disc Disease, CDDY/IVDD, Type I IVDD. Eveline is at increased risk for Type I IVDD.

How to interpret this result

Eveline has one copy of an FGF4 retrogene on chromosome 12. In some breeds such as Beagles, Cocker Spaniels, and Dachshunds (among others) this variant is found in nearly all dogs. While those breeds are known to have an elevated risk of IVDD, many dogs in those breeds never develop IVDD. For mixed breed dogs and purebreds of other breeds where this variant is not as common, risk for Type I IVDD is greater for individuals with this variant than for similar dogs.

What is Chondrodystrophy and Intervertebral Disc Disease, CDDY/IVDD, Type I IVDD?

This condition is associated with differences in body proportions, such as a longer back and shorter legs, and may increase the risk of spinal disc problems. Disc disease can vary in severity, from mild discomfort to more serious movement changes.

When signs & symptoms develop in affected dogs

Signs of CDDY are recognized in puppies as it affects body shape. IVDD is usually first recognized in adult dogs, with breed specific differences in age of onset.

Signs & symptoms

Research indicates that dogs with one or two copies of this variant have a similar risk of developing IVDD. However, there are some breeds (e.g. Beagles and Cocker Spaniels, among others) where this variant has been passed down to nearly all dogs of the breed and most do not show overt clinical signs of the disorder. This suggests that there are other genetic and environmental factors (such as weight, mobility, and family history) that contribute to an individual dog's risk of developing clinical IVDD. Signs of IVDD include neck or back pain, a change in your dog's walking pattern (including dragging of the hind limbs), and paralysis. These signs can be mild to severe, and if your dog starts exhibiting these signs, you should schedule an appointment with your veterinarian for a diagnosis.

How vets diagnose this condition

For CDDY, dogs with one copy of this variant may have mild proportional differences in their leg length. Dogs with two copies of this variant will often have visually longer bodies and shorter legs. For IVDD, a neurological exam will be performed on any dog showing suspicious signs. Based on the result of this exam, radiographs to detect the presence of calcified discs or advanced imaging (MRI/CT) to detect a disc rupture may be recommended.

How this condition is treated

IVDD is treated differently based on the severity of the disease. Mild cases often respond to medical management which includes cage rest and pain management, while severe cases are often treated with surgical intervention. Both conservative and surgical treatment should be followed up with rehabilitation and physical therapy.

Actions to take if your dog is affected

- Talk to your vet about your dog's chondrodystrophy and intervertebral disc disease result so you can discuss how it may influence their daily activities and lifestyle.
- This variant is very common in certain breeds, and many dogs with this result will not need any special accommodations because they are unlikely to develop symptoms. However, some breeds are at greater risk, and precautions may help reduce strain on the back and neck.
- Keep your dog fit with regular, low-impact exercise and maintain a healthy weight to support spinal health.
- Consider using ramps to access furniture, avoiding long flights of stairs, and choosing a harness instead of a collar to minimize stress on the spine.

Health Report

HEALTH REPORT

Notable result

ALT Activity

Eveline inherited one copy of the variant we tested for Alanine Aminotransferase Activity

Why is this important to your vet?

Eveline has one copy of a variant associated with reduced ALT activity as measured on veterinary blood chemistry panels. Please inform your veterinarian that Eveline has this genotype, as ALT is often used as an indicator of liver health and Eveline is likely to have a lower than average resting ALT activity. As such, an increase in Eveline's ALT activity could be evidence of liver damage, even if it is within normal limits by standard ALT reference ranges.

What is Alanine Aminotransferase Activity?

ALT is a liver enzyme that vets measure to monitor liver health. With this result, your dog may naturally have a lower ALT baseline. Knowing this helps your veterinarian interpret future bloodwork results more accurately.

How vets diagnose this condition

Genetic testing is the only way to provide your veterinarian with this clinical tool.

How this condition is treated

Veterinarians may recommend blood work to establish a baseline ALT value for healthy dogs with one or two copies of this variant.

Actions to take if your dog is affected

- Talk to your vet about your dog's ALT result, as it may help them better interpret your dog's blood work.
- Dogs with this result do not exhibit symptoms or develop health issues associated with this variant.

Health Report

HEALTH REPORT

Notable result

Copper Toxicosis (Accumulating)

Eveline inherited one copy of the variant we tested for Copper Toxicosis (Accumulating)

Eveline is not known to be at increased risk for Copper Toxicosis (Accumulating)

What does this result mean?

We do not know whether this increases the risk that Eveline will develop Copper Toxicosis (Accumulating).

Scientific Basis

Research studies for this variant have been based on dogs of other breeds. Not enough dogs with Eveline's breed have been studied to know whether or not this variant will increase Eveline's risk of developing this disease.

Impact on Breeding

Research into the clinical impact of this variant is ongoing. We recommend tracking this genetic result and incidence of Copper Toxicosis (Accumulating) in your breeding program and related dogs.

What is Copper Toxicosis (Accumulating)?

This condition affects the liver's ability to remove excess copper. Over time, copper can build up in the liver and damage liver cells. Both genetic and environmental factors play a role in how the condition develops.

When signs & symptoms develop in affected dogs

Signs typically develop in adults.

How vets diagnose this condition

Genetic testing, blood work, abdominal ultrasound, and surgical biopsy are all used to diagnose this condition.

How this condition is treated

Treatment includes a low copper diet and medical management to help bind excess copper. Antioxidant supplements may also be considered.

Actions to take if your dog is affected

- Talk to your vet about your dog's copper toxicosis result so you can discuss if dietary management or monitoring is indicated.
- Copper is an essential nutrient, but amounts can vary widely among commercial diets, so your vet may recommend a specific food or periodic testing to maintain safe levels.
- Many dogs with this result never develop clinical disease. Watch for signs that may indicate high copper levels, such as decreased appetite, vomiting, lethargy, or jaundice.
- Learn more about how the three variants for Copper Toxicosis are inherited and, if applicable, how results can be used in a breeding program here (<https://embarkvet.com/resources/embark-adds-copper-toxicosis-dna-test/>).

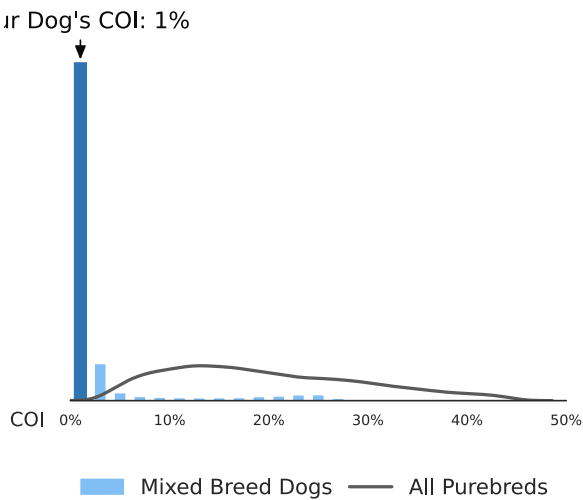
Genetic Diversity and Inbreeding

Coefficient of Inbreeding (COI)

Genetic Result: 1%

Our genetic COI measures the proportion of your dog’s genome (her genes) where the genes on the mother’s side are identical by descent to those on the father’s side. The higher your dog’s coefficient of inbreeding (the percentage), the more inbred your dog is.

Your Dog’s COI



This graph represents where your dog’s inbreeding levels fall on a scale compared to both dogs with a similar breed makeup to her (the blue bars) and all purebred dogs (the grey line).

Genetic Diversity and Inbreeding

More on the Science

Embark scientists, along with our research partners at Cornell University, have shown the impact of inbreeding on longevity and fertility and developed a state-of-the-art, peer-reviewed method for accurately measuring COI and predicting average COI in litters.

Citations

Sams & Boyko 2019 "Fine-Scale Resolution of Runs of Homozygosity Reveal Patterns of Inbreeding and Substantial Overlap with Recessive Disease Genotypes in Domestic Dogs" (<https://www.ncbi.nlm.nih.gov/pubmed/30429214>)

Chu et al 2019 "Inbreeding depression causes reduced fecundity in Golden Retrievers" (<https://link.springer.com/article/10.1007/s00335-019-09805-4>)

Yordy et al 2019 "Body size, inbreeding, and lifespan in domestic dogs" (<https://www.semanticscholar.org/paper/Body-size%2C-inbreeding%2C-and-lifespan-in-domestic-Yordy-Kraus/61d0fa7a71afb26f547f0fb7ff71e23a14d19d2c>)

About Embark

Embark Veterinary is a canine genetics company offering research-grade genetic tests to pet owners and breeders. Every Embark test examines thousands of genetic markers, and provides results for over 280 genetic health conditions, breed identification, clinical tools, and more.

Embark is a research partner of the Cornell University College of Veterinary Medicine and collaborates with scientists and registries to accelerate genetic research in canine health. We make it easy for customers and vets to understand, share and make use of their dog's unique genetic profile to improve canine health and happiness.

Learn more at embarkvet.com

Veterinarians and hospitals can send inquiries to veterinarians@embarkvet.com.