

# INDIGO

## Veterinary Report by Embark

embarkvet.com

Test Date: July 7th, 2023

### Customer-supplied information

Owner Name: Melissa Alvarez

Dog Name: Indigo

Sex: Female

Date of birth: n/a

Breed type: N/A

Breed: Bernedoodle

Breed registration: N/A

Microchip: N/A

### Genetic summary

Genetic breed identification:

**Bernedoodle**

Predicted adult weight: **54 lbs**

Calculated from 17 size genes.

Breed ancestry:

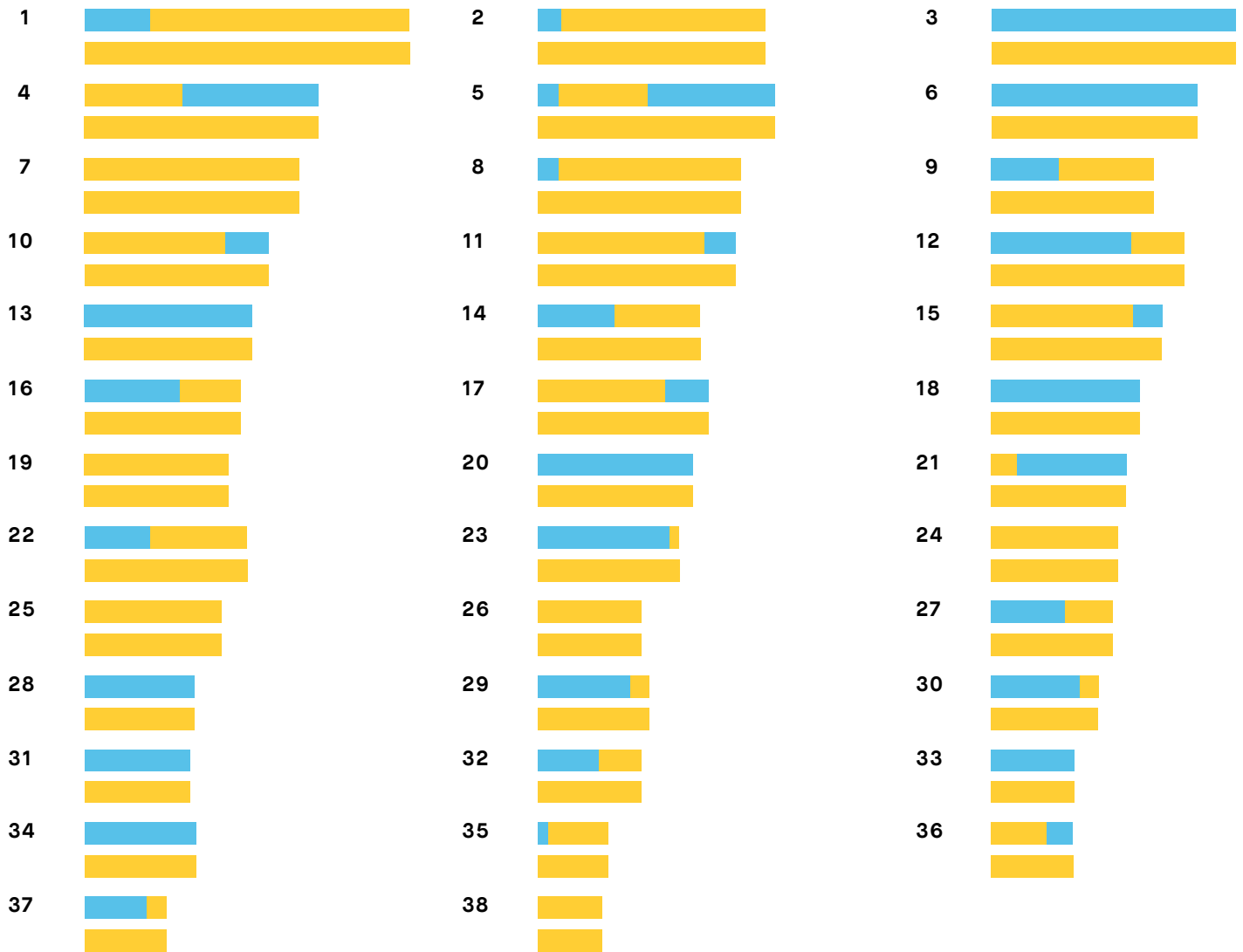


**Poodle (Standard): 74.6%**



**Bernese Mountain Dog: 25.4%**

# Karyogram (Chromosome painting)



# Health Report

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## How to interpret Indigo's genetic health results:

If Indigo 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 Indigo 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 256 genetic health risks we analyzed, we found 1 result that you should learn about.

### Notable results (1)

**ALT Activity**

### Clear results








**Breed-relevant (7)**

**Other (247)**

# Health Report

## BREED-RELEVANT RESULTS

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

	Degenerative Myelopathy, DM (SOD1A)	Clear
	GM2 Gangliosidosis (HEXB, Poodle Variant)	Clear
	Intervertebral Disc Disease (Type I) (FGF4 retrogene - CFA12)	Clear
	Neonatal Encephalopathy with Seizures, NEWS (ATF2)	Clear
	Osteochondrodysplasia (SLC13A1, Poodle Variant)	Clear
	Progressive Retinal Atrophy, prcd (PRCD Exon 1)	Clear
	Von Willebrand Disease Type I, Type I vWD (VWF)	Clear

# Health Report



















## OTHER RESULTS

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

⊖ ALT Activity (GPT)	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
✓ Canine Multifocal Retinopathy, cmr3 (BEST1 Exon 10 Deletion, Finnish and Swedish Lapphund, Lapponian Herder Variant)	Clear

# Health Report

## OTHER RESULTS

	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 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

# Health Report

## OTHER RESULTS

✓	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
✓	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
✓	Day Blindness (CNGB3 Deletion, Alaskan Malamute Variant)	Clear
✓	Day Blindness (CNGA3 Exon 7, German Shepherd Variant)	Clear
✓	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

# Health Report

## OTHER RESULTS

✓	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
✓	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
✓	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





















# Health Report

## OTHER RESULTS

✓ 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 (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
✓ 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

# Health Report

## OTHER RESULTS

	Hemophilia A (F8 Exon 11, German Shepherd Variant 1)	<a href="#">Clear</a>
	Hemophilia A (F8 Exon 1, German Shepherd Variant 2)	<a href="#">Clear</a>
	Hemophilia A (F8 Exon 10, Boxer Variant)	<a href="#">Clear</a>
	Hemophilia B (F9 Exon 7, Terrier Variant)	<a href="#">Clear</a>
	Hemophilia B (F9 Exon 7, Rhodesian Ridgeback Variant)	<a href="#">Clear</a>
	Hereditary Ataxia, Cerebellar Degeneration (RAB24, Old English Sheepdog and Gordon Setter Variant)	<a href="#">Clear</a>
	Hereditary Cataracts (HSF4 Exon 9, Australian Shepherd Variant)	<a href="#">Clear</a>
	Hereditary Footpad Hyperkeratosis (FAM83G, Terrier and Kromfohrlander Variant)	<a href="#">Clear</a>
	Hereditary Footpad Hyperkeratosis (DSG1, Rottweiler Variant)	<a href="#">Clear</a>
	Hereditary Nasal Parakeratosis (SUV39H2 Intron 4, Greyhound Variant)	<a href="#">Clear</a>
	Hereditary Nasal Parakeratosis, HNPK (SUV39H2)	<a href="#">Clear</a>
	Hereditary Vitamin D-Resistant Rickets (VDR)	<a href="#">Clear</a>
	Hypocatalasia, Acatlasemia (CAT)	<a href="#">Clear</a>
	Hypomyelination and Tremors (FNIP2, Weimaraner Variant)	<a href="#">Clear</a>
	Hypophosphatasia (ALPL Exon 9, Karelian Bear Dog Variant)	<a href="#">Clear</a>
	Ichthyosis (NIPAL4, American Bulldog Variant)	<a href="#">Clear</a>
	Ichthyosis (ASPRV1 Exon 2, German Shepherd Variant)	<a href="#">Clear</a>
	Ichthyosis (SLC27A4, Great Dane Variant)	<a href="#">Clear</a>

# Health Report

## OTHER RESULTS

✓ Ichthyosis, Epidermolytic Hyperkeratosis (KRT10, Terrier Variant)	Clear
✓ Ichthyosis, ICH1 (PNPLA1, 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 (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



















# Health Report

## OTHER RESULTS

✔ 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
✔ 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

# Health Report

## OTHER RESULTS

	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, 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 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



















# Health Report

## 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
✓	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



















# Health Report

## OTHER RESULTS

	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
	Prekallikrein Deficiency (KLKB1 Exon 8)	Clear
	Primary Ciliary Dyskinesia, PCD (NME5, Alaskan Malamute 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
	Progressive Retinal Atrophy, CNGA (CNGA1 Exon 9)	Clear

# Health Report



















## OTHER RESULTS

	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
	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

















# Health Report

## OTHER RESULTS

 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
 Ullrich-like Congenital Muscular Dystrophy (COL6A3 Exon 10, Labrador Retriever Variant)	Clear

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## OTHER RESULTS

 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
 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
 $\beta$ -Mannosidosis (MANBA Exon 16, Mixed-Breed Variant)	Clear
Mast Cell Tumor	No result

# Health Report

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## HEALTH REPORT

### Notable result

#### ALT Activity

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

#### Why is this important to your vet?

Indigo has one copy of a variant associated with reduced ALT activity as measured on veterinary blood chemistry panels. Please inform your veterinarian that Indigo has this genotype, as ALT is often used as an indicator of liver health and Indigo is likely to have a lower than average resting ALT activity. As such, an increase in Indigo'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?

Alanine aminotransferase (ALT) is a clinical tool that can be used by veterinarians to better monitor liver health. This result is not associated with liver disease. ALT is one of several values veterinarians measure on routine blood work to evaluate the liver. It is a naturally occurring enzyme located in liver cells that helps break down protein. When the liver is damaged or inflamed, ALT is released into the bloodstream.

#### 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.

# Genetic Diversity and Inbreeding

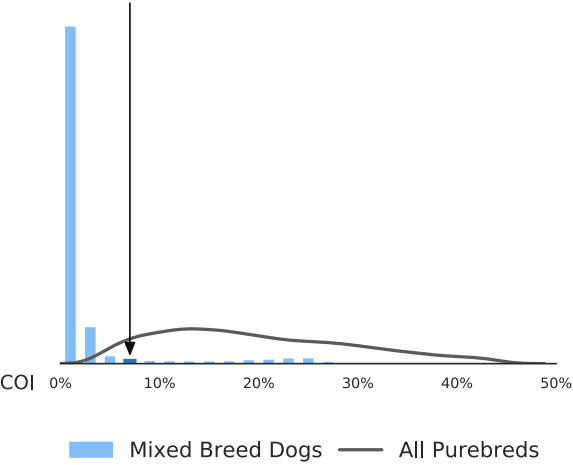
## Coefficient of Inbreeding (COI)

Genetic Result: 7%

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

Your Dog's COI: 7%



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

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## 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

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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](https://embarkvet.com)

Veterinarians and hospitals can send inquiries to [veterinarians@embarkvet.com](mailto:veterinarians@embarkvet.com).