WISDOM PANEL™

DNA Test Report

Owner Info

First Name
Lisa

Last Name
Bork

Pet Info

Registered Name
Frank

Nickname (Call Name)
Frank

Sex
Male

Country of Origin
US

Owner Reported Breed
Border Collie

Date of Birth
2/16/2021

Sample ID
DRMFQGP

Registration
N/A

Microchip ID
N/A

Tattoo ID
N/A

Genetic Diversity (Heterozygosity)

Frank's Percentage of Heterozygosity

37%

Frank's genome analysis shows an average level of genetic heterozygosity when compared with other Border Collies.

Typical Range for Border Collies

32 - 39%

Health Conditions Known in This Breed

Genetic Condition	Gene	Risk Variant	Copies	Result
Collie Eye Anomaly (CEA)	NHEJ1	Deletion	0	Clear
Dental Hypomineralization	FAM20C	C>T	0	Clear
Early Adult Onset Deafness For Border Collies only (Linkage test)	Intergenic	Insertion	0	Clear
Hereditary Calcium Oxalate Urolithiasis, Type 1	Confidential	—	0	Clear
Intestinal Cobalamin Malabsorption (Discovered in the Border Collie)	CUBN	Deletion	0	Clear
MDR1 Medication Sensitivity	MDR1/ABCB1	Deletion	0	Clear
Neuronal Ceroid Lipofuscinosis 5 (Discovered in the Border Collie)	CLN5	C>T	0	Clear
Sensory Neuropathy	FAM134B	Insertion	0	Clear
Trapped Neutrophil Syndrome	VPS13B	Deletion	0	Clear

Other Conditions Tested

Genetic Condition	Gene	Risk Variant	Copies	Result
2,8-dihydroxyadenine (DHA) Urolithiasis	APRT	G>A	0	Clear
Acral Mutilation Syndrome	GDNF	C>T	0	Clear
Acute Respiratory Distress Syndrome	ANLN	C>T	0	Clear
Alaskan Husky Encephalopathy	SLC19A3	G>A	0	Clear
Alexander Disease	GFAP	G>A	0	Clear
Amelogenesis Imperfecta (Discovered in the Italian Greyhound)	ENAM	Deletion	0	Clear
Amelogenesis Imperfecta (Discovered in the Lancashire Heeler)	Confidential	—	0	Clear
Amelogenesis Imperfecta (Discovered in the Parson Russell Terrier)	ENAM	C>T	0	Clear
Bandera's Neonatal Ataxia	GRM1	Insertion	0	Clear
Benign Familial Juvenile Epilepsy	LGI2	A>T	0	Clear
Bernard-Soulier Syndrome (Discovered in the Cocker Spaniel)	GP9	Deletion	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Canine Congenital Stationary Night Blindness (Discovered in the Beagle)	LRIT3	Deletion	0	Clear
Canine Leukocyte Adhesion Deficiency (CLAD), type III	FERMT3	Insertion	0	Clear
Canine Multifocal Retinopathy 1	BEST1	C>T	0	Clear
Canine Multifocal Retinopathy 2	BEST1	G>A	0	Clear
Canine Multifocal Retinopathy 3	BEST1	Deletion	0	Clear
Canine Multiple Systems Degeneration (Discovered in the Chinese Crested Dog)	SERAC1	Deletion	0	Clear
Canine Scott Syndrome	ANO6	G>A	0	Clear
Cardiomyopathy and Juvenile Mortality (Discovered in the Belgian Shepherd)	YARS2	G>A	0	Clear
Centronuclear Myopathy (Discovered in the Great Dane)	BIN1	A>G	0	Clear
Centronuclear Myopathy (Discovered in the Labrador Retriever)	PTPLA	Insertion	0	Clear
Cerebellar Ataxia	RAB24	A>C	0	Clear
Cerebellar Cortical Degeneration	SNX14	C>T	0	Clear
Cerebellar Hypoplasia	VLDLR	Deletion	0	Clear
Cerebral Dysfunction	SLC6A3	G>A	0	Clear
Chondrodysplasia (Discovered in Norwegian Elkhound and Karelian Bear Dog)	ITGA10	C>T	0	Clear
Chondrodystrophy (CDDY) and Intervertebral Disc Disease (IVDD) Risk	FGF4 retrogene	Insertion	0	Clear
Cleft Lip & Palate with Syndactyly	ADAMTS20	Deletion	0	Clear
Cleft Palate	DLX6	C>A	0	Clear
CNS Atrophy with Cerebellar Ataxia (Discovered in the Belgian Shepherd)	SEPP1	Deletion	0	Clear
Coat Color Dilution and Neurological Defects (Discovered in the Miniature Dachshund)	MYO5A	Insertion	0	Clear
Complement 3 Deficiency	C3	Deletion	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Cone Degeneration (Discovered in the Alaskan Malamute)	CNGB3	Deletion	0	Clear
Cone Degeneration (Discovered in the German Shepherd Dog)	CNGA3	C>T	0	Clear
Cone Degeneration (Discovered in the German Shorthaired Pointer)	CNGB3	G>A	0	Clear
Cone-Rod Dystrophy	NPHP4	Deletion	0	Clear
Cone-Rod Dystrophy 1	PDE6B	Deletion	0	Clear
Cone-Rod Dystrophy 2	IQCB1	Insertion	0	Clear
Congenital Cornification (Discovered in the Labrador Retriever)	NSDHL	Deletion	0	Clear
Congenital Dyshormonogenic Hypothyroidism with Goiter (Discovered in the Shih Tzu)	SLC5A5	G>A	0	Clear
Congenital Eye Malformations (Discovered in the Golden Retriever)	SIX6	C>T	0	Clear
Congenital Hypothyroidism (Discovered in the Tenterfield Terrier)	TPO	C>T	0	Clear
Congenital Hypothyroidism (Discovered in the Toy Fox and Rat Terrier)	TPO	C>T	0	Clear
Congenital Muscular Dystrophy (Discovered in the Italian Greyhound)	LAMA2	G>A	0	Clear
Congenital Muscular Dystrophy (Discovered in the Staffordshire Bull Terrier)	LAMA2	Deletion	0	Clear
Congenital Myasthenic Syndrome (Discovered in the Golden Retriever)	COLQ	G>A	0	Clear
Congenital Myasthenic Syndrome (Discovered in the Heideterrier)	CHRNE	Insertion	0	Clear
Congenital Myasthenic Syndrome (Discovered in the Jack Russell Terrier)	CHRNE	Insertion	0	Clear
Congenital Myasthenic Syndrome (Discovered in the Labrador Retriever)	COLQ	T>C	0	Clear
Congenital Myasthenic Syndrome (Discovered in the Old Danish Pointer)	CHAT	G>A	0	Clear
Congenital Stationary Night Blindness (CSNB)	RPE65	A>T	0	Clear
Craniomandibular Osteopathy (Discovered in Scottish Terrier breeds)	SLC37A2	C>T	0	Clear
Craniomandibular Osteopathy (Discovered in the Australian Terrier)	COL1A1	C>T	0	Clear
Craniomandibular Osteopathy (Discovered in the Basset Hound)	SLC37A2	C>T	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Craniomandibular Osteopathy (Discovered in the Weimaraner)	SLC35D1	Deletion	0	Clear
Cystic Renal Dysplasia and Hepatic Fibrosis	INPP5E	G>A	0	Clear
Cystinuria Type I-A	SLC3A1	C>T	0	Clear
Cystinuria Type II-A	SLC3A1	Deletion	0	Clear
Darier Disease (Discovered in the Irish Terrier)	ATP2A2	Insertion	0	Clear
Deafness and Vestibular Dysfunction (DINGS1), (Discovered in Doberman Pinscher)	PTPRQ	Insertion	0	Clear
Deafness and Vestibular Dysfunction (DINGS2), (Discovered in Doberman Pinscher)	MYO7A	G>A	0	Clear
Degenerative Myelopathy	SOD1	G>A	0	Clear
Demyelinating Neuropathy	SBF2	G>T	0	Clear
Dental-Skeletal-Retinal Anomaly (Discovered in the Cane Corso)	MIA3	I>S	0	Clear
Dilated Cardiomyopathy (Discovered in the Schnauzer)	RBM20	Deletion	0	Clear
Disproportionate Dwarfism (Discovered in the Dogo Argentino)	PRKG2	C>A	0	Clear
Dominant Progressive Retinal Atrophy	RHO	C>G	0	Clear
Dystrophic Epidermolysis Bullosa (Discovered in the Basset Hound)	COL7A1	Insertion	0	Clear
Dystrophic Epidermolysis Bullosa (Discovered in the Central Asian Ovcharka)	COL7A1	C>T	0	Clear
Dystrophic Epidermolysis Bullosa (Discovered in the Golden Retriever)	COL7A1	C>T	0	Clear
Early Retinal Degeneration (Discovered in the Norwegian Elkhound)	STK38L	Insertion	0	Clear
Early-Onset Adult Deafness (Discovered in the Rhodesian Ridgeback)	EPS8L2	Deletion	0	Clear
Early-Onset Progressive Polyneuropathy (Discovered in the Alaskan Malamute)	NDRG1	G>T	0	Clear
Early-Onset Progressive Polyneuropathy (Discovered in the Greyhound)	NDRG1	Deletion	0	Clear
Early-Onset Progressive Retinal Atrophy (Discovered in the Portuguese Water Dog)	Confidential	—	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Early-Onset Progressive Retinal Atrophy, (Discovered in the Spanish Water Dog)	PDE6B	Deletion	0	Clear
Ehlers-Danlos Syndrome (Discovered in mixed breed)	COL5A1	G>A	0	Clear
Ehlers-Danlos Syndrome (Discovered in the Labrador Retriever)	COL5A1	Deletion	0	Clear
Epidermolytic Hyperkeratosis	KRT10	G>T	0	Clear
Episodic Falling Syndrome	BCAN	Insertion	0	Clear
Exercise-Induced Collapse	DNM1	G>T	0	Clear
Factor VII Deficiency	F7	G>A	0	Clear
Factor XI Deficiency	FXI	Insertion	0	Clear
Familial Nephropathy (Discovered in the English Cocker Spaniel)	COL4A4	A>T	0	Clear
Familial Nephropathy (Discovered in the English Springer Spaniel)	COL4A4	C>T	0	Clear
Fanconi Syndrome	FAN1	Deletion	0	Clear
Fetal Onset Neuroaxonal Dystrophy	MFN2	G>C	0	Clear
Focal Non-Epidermolytic Palmoplantar Keratoderma	KRT16	G>C	0	Clear
Generalized Progressive Retinal Atrophy (Discovered in the Schapendoes)	CCDC66	Insertion	0	Clear
Glanzmann Thrombasthenia Type I (Discovered in Great Pyrenees)	ITGA2B	C>G	0	Clear
Glanzmann Thrombasthenia Type I (Discovered in mixed breed dogs)	ITGA2B	C>T	0	Clear
Globoid Cell Leukodystrophy (Discovered in Terriers)	GALC	A>C	0	Clear
Globoid Cell Leukodystrophy (Discovered in the Irish Setter)	GALC	A>T	0	Clear
Glycogen Storage Disease Type Ia (Discovered in the German Pinscher)	G6PC	Insertion	0	Clear
Glycogen Storage Disease Type Ia (Discovered in the Maltese)	G6PC	G>C	0	Clear
Glycogen Storage Disease Type IIIa, (GSD IIIa)	AGL	Deletion	0	Clear
GM1 Gangliosidosis (Discovered in the Portuguese Water Dog)	GLB1	G>A	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
GM1 Gangliosidosis (Discovered in the Shiba)	GLB1	Deletion	0	Clear
GM2 Gangliosidosis (Discovered in the Japanese Chin)	HEXA	G>A	0	Clear
GM2 Gangliosidosis (Discovered in the Toy Poodle)	HEXB	Deletion	0	Clear
Hemophilia A (Discovered in Old English Sheepdog)	FVIII	C>T	0	Clear
Hemophilia A (Discovered in the Boxer)	FVIII	C>G	0	Clear
Hemophilia A (Discovered in the German Shepherd Dog - Variant 1)	FVIII	G>A	0	Clear
Hemophilia A (Discovered in the German Shepherd Dog - Variant 2)	FVIII	G>A	0	Clear
Hemophilia A (Discovered in the Havanese)	FVIII	Insertion	0	Clear
Hemophilia A (Discovered in the Labrador Retriever)	Confidential	—	0	Clear
Hemophilia B	FIX	G>A	0	Clear
Hemophilia B (Discovered in the Airedale Terrier)	FIX	Insertion	0	Clear
Hemophilia B (Discovered in the Lhasa Apso)	FIX	Deletion	0	Clear
Hereditary Ataxia (Discovered in the Belgian Malinois)	SLC12A6	Insertion	0	Clear
Hereditary Ataxia (Discovered in the Norwegian Buhund)	KCNIP4	T>C	0	Clear
Hereditary Elliptocytosis	SPTB	C>T	0	Clear
Hereditary Footpad Hyperkeratosis	FAM83G	G>C	0	Clear
Hereditary Nasal Parakeratosis (Discovered in the Greyhound)	SUV39H2	Deletion	0	Clear
Hereditary Nasal Parakeratosis (Discovered in the Labrador Retriever)	SUV39H2	A>C	0	Clear
Hereditary Vitamin D-Resistant Rickets Type II	VDR	Deletion	0	Clear
Hyperuricosuria	SLC2A9	G>T	0	Clear
Hypocatalasia	CAT	G>A	0	Clear
Hypomyelination	FNIP2	Deletion	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Hypophosphatasia	Confidential	—	0	Clear
Ichthyosis (Discovered in the American Bulldog)	NIPAL4	Deletion	0	Clear
Ichthyosis (Discovered in the Great Dane)	SLC27A4	G>A	0	Clear
Ichthyosis Type 2 (Discovered in the Golden Retriever)	ABHD5	Deletion	0	Clear
Inflammatory Myopathy (Discovered in the Dutch Shepherd Dog)	SLC25A12	A>G	0	Clear
Inflammatory Pulmonary Disease (Discovered in the Rough Collie)	AKNA	Deletion	0	Clear
Intestinal Cobalamin Malabsorption (Discovered in the Beagle)	CUBN	Deletion	0	Clear
Intestinal Cobalamin Malabsorption (Discovered in the Komondor)	CUBN	G>A	0	Clear
Intestinal Lipid Malabsorption (Discovered in the Australian Kelpie)	ACSL5	Deletion	0	Clear
Junctional Epidermolysis Bullosa (Discovered in the Australian Cattle Dog Mix)	LAMA3	T>A	0	Clear
Junctional Epidermolysis Bullosa (Discovered in the Australian Shepherd)	LAMB3	A>G	0	Clear
Juvenile Cataract (Discovered in the Wirehaired Pointing Griffon)	FYCO1	Deletion	0	Clear
Juvenile Dilated Cardiomyopathy (Discovered in the Toy Manchester Terrier)	Confidential	—	0	Clear
Juvenile Encephalopathy (Discovered in the Parson Russell Terrier)	Confidential	—	0	Clear
Juvenile Laryngeal Paralysis and Polyneuropathy	RAB3GAP1	Deletion	0	Clear
Juvenile Myoclonic Epilepsy	DIRAS1	Deletion	0	Clear
L-2-Hydroxyglutaric aciduria (Discovered in the Staffordshire Bull Terrier)	L2HGDH	T>C	0	Clear
L-2-Hydroxyglutaric Aciduria (Discovered in the West Highland White Terrier)	Confidential	—	0	Clear
Lafora Disease (Linkage test)	NHLRC1	Insertion	0	Clear
Lagotto Storage Disease	ATG4D	G>A	0	Clear
Lamellar Ichthyosis	TGM1	Insertion	0	Clear
Laryngeal Paralysis (Discovered in the Bull Terrier and Miniature Bull Terrier)	RAPGEF6	Insertion	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Leigh-like Subacute Necrotizing Encephalopathy (Discovered in the Yorkshire Terrier)	SLC19A3	Insertion	0	Clear
Lethal Acrodermatitis (Discovered in the Bull Terrier)	MKLN1	A>C	0	Clear
Leukodystrophy (Discovered in the Standard Schnauzer)	TSEN54	C>T	0	Clear
Ligneous Membranitis	PLG	T>A	0	Clear
Limb-girdle Muscular Dystrophy (Discovered in the Boston Terrier)	SGCD	—	0	Clear
Limb-girdle Muscular Dystrophy, Type L3 (Discovered in the Miniature Dachshund)	SGCA	G>A	0	Clear
Lung Developmental Disease (Discovered in the Airedale Terrier)	LAMP3	C>T	0	Clear
Macrothrombocytopenia (Discovered in Norfolk and Cairn Terrier)	TUBB1	G>A	0	Clear
May-Hegglin Anomaly	MYH9	G>A	0	Clear
Microphthalmia (Discovered in the Soft-Coated Wheaten Terrier)	RBP4	Deletion	0	Clear
Mucopolysaccharidosis Type IIIA (Discovered in the Dachshund)	SGSH	C>A	0	Clear
Mucopolysaccharidosis Type IIIA (Discovered in the New Zealand Huntaway)	SGSH	Insertion	0	Clear
Mucopolysaccharidosis Type VII (Discovered in the Brazilian Terrier)	GUSB	C>T	0	Clear
Mucopolysaccharidosis Type VII (Discovered in the German Shepherd Dog)	GUSB	G>A	0	Clear
Mucopolysaccharidosis VI (Discovered in the Miniature Pinscher)	ARSB	G>A	0	Clear
Muscular Dystrophy (Discovered in the Cavalier King Charles Spaniel)	Dystrophin	G>T	0	Clear
Muscular Dystrophy (Discovered in the Golden Retriever)	Dystrophin	A>G	0	Clear
Muscular Dystrophy (Discovered in the Landseer)	COL6A1	G>T	0	Clear
Muscular Dystrophy (Discovered in the Norfolk Terrier)	Dystrophin	Deletion	0	Clear
Muscular Dystrophy-Dystroglycanopathy (Discovered in the Labrador Retriever)	LARGE	C>T	0	Clear
Muscular Hypertrophy (Double Muscling)	MSTN	T>A	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Musladin-Lueke Syndrome	ADAMTSL2	C>T	0	Clear
Myeloperoxidase Deficiency	MOP	C>T	0	Clear
Myotonia Congenita (Discovered in Australian Cattle Dog)	CLCN1	Insertion	0	Clear
Myotonia Congenita (Discovered in the Labrador Retriever)	CLCN1	T>A	0	Clear
Myotonia Congenita (Discovered in the Miniature Schnauzer)	CLCN1	C>T	0	Clear
Myotubular Myopathy	MTM1	A>C	0	Clear
Narcolepsy (Discovered in the Dachshund)	HCRTR2	G>A	0	Clear
Narcolepsy (Discovered in the Labrador Retriever)	HCRTR2	G>A	0	Clear
Nemaline Myopathy	NEB	C>A	0	Clear
Neonatal Cerebellar Cortical Degeneration	SPTBN2	Deletion	0	Clear
Neonatal Encephalopathy with Seizures	ATF2	T>G	0	Clear
Neuroaxonal Dystrophy (Discovered in Spanish Water Dog)	TECPR2	C>T	0	Clear
Neuroaxonal Dystrophy (Discovered in the Papillon)	PLA2G6	G>A	0	Clear
Neuroaxonal Dystrophy (Discovered in the Rottweiler)	VPS11	A>G	0	Clear
Neuronal Ceroid Lipofuscinosis 1	PPT1	Insertion	0	Clear
Neuronal Ceroid Lipofuscinosis 12 (Discovered in the Australian Cattle Dog)	ATP13A2	C>T	0	Clear
Neuronal Ceroid Lipofuscinosis 5 (Discovered in the Golden Retriever)	CLN5	—	0	Clear
Neuronal Ceroid Lipofuscinosis 7	MFSD8	Deletion	0	Clear
Neuronal Ceroid Lipofuscinosis 8 (Discovered in the Alpine Dachsbracke)	CLN8	Deletion	0	Clear
Neuronal Ceroid Lipofuscinosis 8 (Discovered in the Australian Shepherd)	CLN8	G>A	0	Clear
Neuronal Ceroid Lipofuscinosis 8 (Discovered in the English Setter)	CLN8	T>C	0	Clear
Neuronal Ceroid Lipofuscinosis 8 (Discovered in the Saluki)	CLN8	Insertion	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Obesity risk (POMC)	POMC	Deletion	0	Clear
Osteochondrodysplasia	SLC13A1	Deletion	0	Clear
Osteochondromatosis (Discovered in the American Staffordshire Terrier)	EXT2	C>A	0	Clear
Osteogenesis Imperfecta (Discovered in the Beagle)	COL1A2	C>T	0	Clear
Osteogenesis Imperfecta (Discovered in the Dachshund)	SERPINH1	T>C	0	Clear
P2RY12-associated Bleeding Disorder	P2RY12	Deletion	0	Clear
Palmoplantar Hyperkeratosis (Discovered in the Rottweiler)	DSG1	Deletion	0	Clear
Paroxysmal Dyskinesia	PIGN	C>T	0	Clear
Persistent Müllerian Duct Syndrome	AMHR2	C>T	0	Clear
Phosphofructokinase Deficiency	PFKM	G>A	0	Clear
Pituitary Dwarfism (Discovered in the Karelian Bear Dog)	POU1F1	C>A	0	Clear
Polycystic Kidney Disease	PKD1	G>A	0	Clear
Prekallikrein Deficiency	KLKB1	T>A	0	Clear
Primary Ciliary Dyskinesia	CCDC39	C>T	0	Clear
Primary Ciliary Dyskinesia (Discovered in the Alaskan Malamute)	NME5	Deletion	0	Clear
Primary Lens Luxation	ADAMTS17	G>A	0	Clear
Primary Open Angle Glaucoma (Discovered in Basset Fauve de Bretagne)	ADAMTS17	G>A	0	Clear
Primary Open Angle Glaucoma (Discovered in Petit Basset Griffon Vendeen)	ADAMTS17	Insertion	0	Clear
Primary Open Angle Glaucoma and Lens Luxation (Discovered in Chinese Shar-Pei)	ADAMTS17	Deletion	0	Clear
Progressive Early-Onset Cerebellar Ataxia	SEL1L	T>C	0	Clear
Progressive Retinal Atrophy (Discovered in the Basenji)	SAG	T>C	0	Clear
Progressive Retinal Atrophy (Discovered in the Golden Retriever - GR-PRA 2 variant)	TTC8	Deletion	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Progressive Retinal Atrophy (Discovered in the Golden Retriever - GR-PRA1 variant)	SLC4A3	Insertion	0	Clear
Progressive Retinal Atrophy (Discovered in the Lapponian Herder)	IFT122	C>T	0	Clear
Progressive Retinal Atrophy (Discovered in the Lhasa Apso)	Confidential	—	0	Clear
Progressive Retinal Atrophy (Discovered in the Miniature Long Haired Dachshund)	RPGRIP1	Insertion	0	Clear
Progressive Retinal Atrophy (Discovered in the Papillon and Phalène)	CNGB1	Deletion	0	Clear
Progressive Retinal Atrophy (Discovered in the Shetland Sheepdog - BBS2 variant)	Confidential	—	0	Clear
Progressive Retinal Atrophy (Discovered in the Shetland Sheepdog - CNGA1 variant)	CNGA1	Deletion	0	Clear
Progressive Retinal Atrophy (Discovered in the Swedish Vallhund)	MERTK	Insertion	0	Clear
Progressive Retinal Atrophy 1 (Discovered in the Italian Greyhound)	Confidential	—	0	Clear
Progressive Retinal Atrophy Type III	FAM161A	Insertion	0	Clear
Progressive Rod Cone Degeneration (prcd-PRA)	PRCD	G>A	0	Clear
Protein Losing Nephropathy	NPHS1	G>A	0	Clear
Pyruvate Dehydrogenase Phosphatase 1 Deficiency	PDP1	C>T	0	Clear
Pyruvate Kinase Deficiency (Discovered in the Basenji)	PKLR	Deletion	0	Clear
Pyruvate Kinase Deficiency (Discovered in the Beagle)	PKLR	G>A	0	Clear
Pyruvate Kinase Deficiency (Discovered in the Pug)	PKLR	T>C	0	Clear
Pyruvate Kinase Deficiency (Discovered in the West Highland White Terrier)	PKLR	Insertion	0	Clear
QT Syndrome	KCNQ1	C>A	0	Clear
Renal Cystadenocarcinoma and Nodular Dermatofibrosis	FLCN	A>G	0	Clear
Rod-Cone Dysplasia 1	PDE6B	G>A	0	Clear
Rod-Cone Dysplasia 1a	PDE6B	Insertion	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Rod-Cone Dysplasia 3	PDE6A	Deletion	0	Clear
Sensorineural Deafness (Discovered in the Rottweiler)	LOXHD1	G>C	0	Clear
Sensory Ataxic Neuropathy	tRNATyr	Deletion	0	Clear
Severe Combined Immunodeficiency (Discovered in Frisian Water Dogs)	RAG1	G>T	0	Clear
Severe Combined Immunodeficiency (Discovered in Russell Terriers)	PRKDC	G>T	0	Clear
Shaking Puppy Syndrome (Discovered in the Border Terrier)	Confidential	—	0	Clear
Skeletal Dysplasia 2	COL11A2	G>C	0	Clear
Spinocerebellar Ataxia (Late-Onset Ataxia)	CAPN1	G>A	0	Clear
Spinocerebellar Ataxia with Myokymia and/or Seizures	KCNJ10	C>G	0	Clear
Spondylocostal Dysostosis	HES7	Deletion	0	Clear
Spongy Degeneration with Cerebellar Ataxia (Discovered in Belgian Malinois - SDCA1)	KCNJ10	T>C	0	Clear
Spongy Degeneration with Cerebellar Ataxia (Discovered in Belgian Malinois - SDCA2)	ATP1B2	Insertion	0	Clear
Stargardt Disease (Discovered in the Labrador Retriever)	ABCA4	Insertion	0	Clear
Startle Disease (Discovered in Irish Wolfhounds)	SLC6A5	G>T	0	Clear
Startle Disease (Discovered in the Miniature American Shepherd)	Confidential	—	0	Clear
Succinic Semialdehyde Dehydrogenase Deficiency (Discovered in the Saluki)	ALDH5A1	G>A	0	Clear
Thrombopathia (Discovered in the Basset Hound)	RASGRP1	Deletion	0	Clear
Thrombopathia (Discovered in the Eskimo Spitz)	RASGRP1	—	0	Clear
Van den Ende-Gupta Syndrome	SCARF2	Deletion	0	Clear
von Willebrand's Disease, type 1	VWF	G>A	0	Clear
von Willebrand's Disease, type 2	VWF	T>G	0	Clear

Other Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
von Willebrand's Disease, type 3 (Discovered in the Kooiker Hound)	VWF	G>A	0	Clear
von Willebrand's Disease, type 3 (Discovered in the Scottish Terrier)	VWF	Deletion	0	Clear
von Willebrand's Disease, type 3 (Discovered in the Shetland Sheepdog)	VWF	Deletion	0	Clear
X-Linked Ectodermal Dysplasia	EDA	G>A	0	Clear
X-Linked Hereditary Nephropathy (Discovered in the Navasota Dog)	COL4A5	Deletion	0	Clear
X-Linked Hereditary Nephropathy (Discovered in the Samoyed)	COL4A5	G>T	0	Clear
X-Linked Myotubular Myopathy	MTM1	C>A	0	Clear
X-Linked Progressive Retinal Atrophy 1	RPGR	Deletion	0	Clear
X-Linked Progressive Retinal Atrophy 2	RPGR	Deletion	0	Clear
X-Linked Severe Combined Immunodeficiency (Discovered in the Basset Hound)	IL2RG	Deletion	0	Clear
X-Linked Severe Combined Immunodeficiency (Discovered in the Cardigan Welsh Corgi)	IL2RG	Insertion	0	Clear
X-Linked Tremors	PLP1	A>C	0	Clear
Xanthinuria (Discovered in a mixed breed dog)	Confidential	—	0	Clear
Xanthinuria (Discovered in the Cavalier King Charles Spaniel)	Confidential	—	0	Clear
Xanthinuria (Discovered in the Toy Manchester Terrier)	Confidential	—	0	Clear

Coat Color

Genetic Trait	Gene	Variant	Copies	Result
Fawn	ASIP	a^y	0	No effect
Recessive Black	ASIP	a	0	No effect
Tan Points	ASIP	a^t	2	**Tan points possible**
Dominant Black	CBD103	K^B	1	**Black or brindle possible**
Sable (Discovered in the Cocker Spaniel)	Confidential	—	0	No effect
Mask	MC1R	E^m	2	**Dark Muzzle possible**
Recessive Red (e1)	MC1R	e^1	0	No effect
Recessive Red (e2)	MC1R	e^2	0	No effect
Recessive Red (e3)	MC1R	e^3	0	No effect
Widow's Peak (Discovered in Ancient dogs)	MC1R	e^A	0	No effect
Widow's Peak (Discovered in the Afghan Hound and Saluki)	MC1R	E^G	0	No effect

Color Modification

Genetic Trait	Gene	Variant	Copies	Result
Cocoa (Discovered in the French Bulldog)	HPS3	co	0	No effect
Red Intensity	MFSD12	i	1	**No effect**
Dilution (d1) Linkage test	MLPH	d^1	0	No effect
Dilution (d2)	MLPH	d^2	0	No effect
Dilution (d3)	MLPH	d^3	0	No effect
Chocolate (basd)	TYRP1	b^{asd}	0	No effect
Chocolate (bc)	TYRP1	b^c	0	No effect
Chocolate (bd)	TYRP1	b^d	0	No effect

Color Modification (continued)

Genetic Trait	Gene	Variant	Copies	Result
Chocolate (be)	TYRP1	b^{e}	0	No effect
Chocolate (bh)	TYRP1	b^{h}	0	No effect
Chocolate (bs)	TYRP1	**b^{s}**	**2**	**Chocolate**

Coat Patterns

Genetic Trait	Gene	Variant	Copies	Result
Piebald	MITF	**s^{p}**	**1**	**White markings possible**
Merle	PMEL	M	0	No effect
Harlequin	PSMB7	H	0	No effect
Saddle Tan	RALY	-	0	No effect
Roan (Linkage test)	USH2A	T^{r}	0	No effect

Coat Length and Curl

Genetic Trait	Gene	Variant	Copies	Result
Long Hair (lh1)	FGF5	**lh^{1}**	**2**	**Long coat**
Long Hair (lh2)	FGF5	lh^{2}	0	No effect
Long Hair (lh3)	FGF5	lh^{3}	0	No effect
Long Hair (lh4)	FGF5	lh^{4}	0	No effect
Long Hair (lh5)	FGF5	lh^{5}	0	No effect
Curly Coat	KRT71	C	0	No effect

Hairlessness

Genetic Trait	Gene	Variant	Copies	Result
Hairlessness (Discovered in the Chinese Crested Dog) Linkage test	FOXI3	Hr^{cc}	0	No effect

Hairlessness (continued)

Genetic Trait	Gene	Variant	Copies	Result
Hairlessness (Discovered in the American Hairless Terrier)	SGK3	hr^{aht}	0	No effect
Hairlessness (Discovered in the Scottish Deerhound)	SKG3	hr^{sd}	0	No effect

Shedding

Genetic Trait	Gene	Variant	Copies	Result
Reduced Shedding	MC5R	sd	0	Seasonal shedder

More Coat Traits

Genetic Trait	Gene	Variant	Copies	Result
Hair Ridge	FGF3, FGF4, FGF19, ORAOV1	R	0	No effect
Furnishings	RSPO2	F	0	No effect
Albino	SLC45A2	c^{al}	0	No effect

Head Shape

Genetic Trait	Gene	Variant	Copies	Result
Short Snout (BMP3 variant)	BMP3	-	0	No effect
Short Snout (SMOC2 variant)	SMOC2	-	0	No effect

Eye Color

Genetic Trait	Gene	Variant	Copies	Result
Blue Eyes (Discovered in the Siberian Husky)	ALX4	-	0	No effect

Frank
Registration: N/A
Breed: Border Collie
Microchip Number: N/A

WISDOM PANEL™

DNA Test Report

Sample ID: DRMFQGP
Test Date: 9/12/2023
Optimal Selection - Canine

Ears

Genetic Trait	Gene	Variant	Copies	Result
Floppy Ears	MSRB3	-	0	Pricked ears more likely

Extra Toes

Genetic Trait	Gene	Variant	Copies	Result
Hind Dewclaws (Discovered in Asian breeds)	LMBR1	DC-1	0	No effect
Hind Dewclaws (Discovered in Western breeds)	LMBR1	DC-2	0	No effect

More Body Features

Genetic Trait	Gene	Variant	Copies	Result
Back Muscle and Bulk	ACSL4	-	0	No effect
High Altitude Adaptation	EPAS1	-	0	No effect
Short Legs (Chondrodysplasia, CDPA)	FGF4	-	0	No effect
Short Legs (Chondrodystrophy, CDDY)	FGF4	-	0	No effect
Short Tail	T-box	T	0	Full tail length likely

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Orthopedic Foundation for Animals
2300 E Nifong Blvd, Columbia, MO 65201
Phone (573) 442-0418 | Fax (573) 875-5073 or (573) 443-7544
Email: ofa@offa.org | Website: www.ofa.org
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Application for Hip/Elbow Dysplasia Database

Registered name: DP Frank		**AKC registration number:** DN70940002	**Other registration # (if any)** 506218 ABCA
Breed: Border Collie	**Sex:** M	**Date of birth (MM/DD/YY):** 02/16/21	**Date radiograph taken (MM/DD/YY):** 10/10/23
Microchip/tattoo: 985141005110650		**Registration number of sire:** DN66665701	**Registration number of dam:** DN66664700
Owner name: Eric Bork		**VETERINARIAN INFORMATION** **Examining veterinary clinic:** VCA Thumb Butte Animal Hospital	
Co-owner name: Lisa Bork		**Mailing address:** 1441 W Gurley Street	
Mailing address: 2815 N. Sioux Dr		**City:** Prescott	**State:** AZ **Zip/postal code:** 86305
City: Chino Valley **State:** AZ **Zip/postal code:** 86323		**Phone:** 928-445-2331	**Fax:** 928-778-6129
Phone: 303-618-4924		**Veterinarian e-mail:** au640@vca.com	

Owner e-mail.
maLisama@MSN.COM

I hereby request the OFA to provide a hip and/or elbow evaluation of the animal described on this application. I certify that the image submitted is of this animal and that neither the pelvic nor the elbow conformation have been surgically altered. I understand that the image submitted will be retained by the OFA, understand that the image is submitted for a consensus evaluation based on the independent, professional judgment of consulting board-certified veterinary radiologists, and I hereby release the OFA from any and all liability resulting from the consensus evaluation. I understand the OFA will release all normal hip and/or elbow results for animals over 24 months to the public, and by submitting this application I agree the OFA may do so. Normal hip results are defined as a consensus evaluations of Excellent, Good, or Fair and normal elbow results are defined as consensus evaluations of Normal. Abnormal hip and/or elbow results (including borderline results) will not be released to the public unless the initials of a registered owner or authorized representative appear in the box below. ***Results for Animals under 24 months will only be released and published if all criteria described on page 2 of this application have been met.*** *By submitting this hip and/or elbow application I agree to the associated current OFA evaluation fees and understand that no results will be released or reported until all related charges are paid in full.*

Signature of owner or authorized representative [signature]

Authorization to Release Abnormal Results

I hereby authorize the OFA to release the results of its evaluation of the animal described on this application to the public if the results are abnormal LMB ***(initials of registered owner or authorized representative).***

Veterinary Information

This animal was restrained using: ☐ Physical restraint only ☒ Chemical restraint

☒ **I DID** verify the microchip/tattoo information on this dog ☐ **I DID NOT** verify the microchip/tattoo information on this dog

Only dogs with Verified Permanent Identification (VPI) will have their results transmitted to the AKC for inclusion in their registration and pedigree documents

Veterinarian Signature [signature] DVM

Fees

Animals Over 24 Months

- Hip evaluation.....$45.00
- Elbow evaluation.....$45.00
- Hip and elbow evaluations submitted together.....$50.00
- Litter of 3 or more submitted together.....$120.00

Animals Under 24 Months

- Preliminary hip evaluation.....$35.00
- Preliminary elbow evaluation.....$35.00
- Preliminary hip and elbow evaluations submitted together.....$40.00
- Litter of 3 or more submitted together.....$100.00

Kennel Rate*—Individuals submitted as a group, owned/co-owned by same person, < or > 24 months*

- Minimum of 5 individuals.....$25 per study

See instructions on page 2

Payments can be made by Visa, Mastercard, check or money order (U.S. funds drawn on a U.S. bank) payable to the Orthopedic Foundation for Animals.

Party responsible for payment is: ☐ Veterinarian ☐ Owner/co-owner ☒ Other **Card type:** ☒ Visa ☐ MasterCard

4147202630096590	Heather Wherley	9/2028	426
Card number	Cardholder name	Exp date MM/YY	CVV

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Application for Patellar Luxation Database

Registered name: DP Frank			**AKC registration number:** DN70940002	**Other registry name:** ABCA	
Breed: Border Collie	**Sex:** M		**Date of birth (MM/DD/YY):** 02-16-2021	**Other registry #:** 506218	
Microchip/tattoo: 985141005110650			**Registration number of sire:** DN66657501	**Registration number of dam:** DN66647001	
Owner name: Eric Bork			**Date of evaluation (MM/DD/YY):** 10/10/23		
Co-owner name: Lisa Bork			**Examining veterinary clinic:** VCA Thumb Butte Animal Hospital		
Mailing address: 2815 N. Sioux Dr			**Mailing address:** 1441 West Gurley Street		
City: Chino Valley	**State:** AZ	**Zip/postal code:** 86323	**City:** Prescott	**State:** AZ	**Zip/postal code:** 86305
Phone: 303-618-4924	**E-mail:** MaLisama@MSN.com		**Phone:** 928-445-2331	**E-mail:** au640@vca.com	

I hereby certify that the information submitted is of the animal described on this application. I understand that by submitting these results to the OFA, if the animal was 12 months or older at the time of the exam, the results will be released to the public. Exams on animals under 12 months of age are considered preliminary, are not eligible for OFA certification numbers, and the results will not be released to the public.

Signature of owner or authorized representative _____

Patellar Examination Results

1. Normal

☒ right ☒ left

2. Patellar Luxation

☐ bilateral

☐ unilateral: ☐ right ☐ left

☐ luxated: ☐ medial ☐ lateral

luxation is: ☐ intermittent ☐ permanent

age of onset: ☐ < 2 months ☐ 2-6 months ☐ 6-12 months ☐ > 12 months

3. Classification of luxation

☐ ***Grade 1***—The patella easily luxates manually at full extension of the stifle joint, but returns to the trochlea when released.

☐ ***Grade 2***—There is frequent patellar luxation which, in some cases, becomes more or less permanent.

☐ ***Grade 3***—The patella is permanently luxated with torsion of the tibia and deviation of the tibial crest of between 30 degrees and 50 degrees from the cranial/caudal plane.

☐ ***Grade 4***—The tibia is medially twisted and the tibial crest may show further deviation medially with the result that it lies 50 degrees to 90 degrees from the cranial/caudal plane.

☒ I certify that the examination was performed according to the OFA procedure.

☒ **I DID** verify microchip/tattoo on this dog ☐ **I DID NOT** verify microchip/tattoo on this dog

_____ DVM 10/10/2023

Veterinarian Signature Specialty: ☒ Practitioner ☐ Specialist Date

Fees Animals over 12 months.....$15.00 each
A litter of 3 or more submitted together.....$30.00 total

Exams on animals under 12 months of age are considered preliminary evaluations and are not eligible for OFA numbers

Kennel rate:
Individuals submitted as a group, owned/co-owned by the same person
Minimum of 5 individuals.....$10.00 each

Payments can be made by Visa, Mastercard, check or money order (U.S. funds drawn on a U.S. bank) payable to the Orthopedic Foundation for Animals.

Card number _____ Exp MM/YY _____ CVV _____

07/2022

Submit thru https://online.ofa.org - OR - provide payment details here if mailing or emailing

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Application for Basic Cardiac Database

Registered name: DP Frank		**AKC registration number:** DN70940002	**Other registry name:** ABCA **Other registry #:** 5006218
Breed: BorderCollie	**Sex:** M	**Date of birth (MM/DD/YY):** 02-16-2021	
Microchip/tattoo: 985141005110650		**Registration number of sire:** DN66657501	**Registration number of dam:** DN66647001
Owner name: EricBork	**Co-Owner name:** LisaBork	**Examining veterinary clinic:** VCA Thumb Butte Animal Hospital	**Date of evaluation (MM/DD/YY):** 10/10/23
Mailing address: 2815 N. Sioux Dr.		**Mailing address:** 1441 West Gurley Street	
City: Chino Valley	**State:** AZ **Zip/postal code:** 86323	**City:** Prescott	**State:** AZ **Zip/postal code:** 86305
Phone: 303-618-4924	**E-mail:** malisama@msn.com	**Phone:** 928-445-2331	**E-mail:** au640@vca.com

I hereby certify that the animal examined is the animal described on this application. I understand that by submitting these results to the OFA, if the animal was 12 months or older at the time of the exam, the results will be released to the public. Exams on animals under 12 months of age are considered preliminary, are not eligible for OFA certification numbers, and the results will not be released to the public.

Signature of owner or authorized representative _____

Veterinary Exam Results

Clinical findings based on cardiac auscultation is required. (see page 2)

AUSCULTATION (REQUIRED)						
	Normal ☒	Abnormal ☐	Arrhythmia ☐			
Murmur Grade:	I ☐	II ☐	III ☐	IV ☐	V ☐	VI ☐
PMI:	Left ☐	Right ☐	Base ☐	Apex ☐		
Timing:	Systolic ☐	Diastolic ☐	Continuous ☐			
Extra Sounds:	Click ☐	Gallop ☐	Split S1 ☐	Split S2 ☐		

Summary evaluation and opinion of the examiner:

- ☒ Normal cardiovascular examination—heart disease is not evident
- ☐ Equivocal cardiovascular examination—heart disease cannot be diagnosed nor excluded; status uncertain for breeding.
- ☐ Abnormal cardiovascular examination indicative of heart disease; indicate suspected diagnosis below:

_____

_____

☒ I certify that the standards for cardiac examination as set forth by the OFA were carefully followed in performing this examination.
☒ **I DID** verify microchip/tattoo on this dog ☐ **I DID NOT** verify microchip/tattoo on this dog

Veterinarian Signature DVM Check one box: ☒ Practitioner, ☐ Specialist, ☐ Cardiologist — Date 10/10/2023

Fees

Animals Over 12 Months	$15.00
Litter of 3 or more submitted together	$30.00

Kennel Rate—Individuals submitted as a group, owned/co-owned by same person.
Minimum of 5 individuals ..... $10.00 each

Exams on animals under 12 months of age are considered preliminary evaluations and are not eligible for OFA numbers

Payments can be made by Visa, Mastercard, check or money order (U.S. funds drawn on a U.S. bank) payable to the Orthopedic Foundation for Animals.

Card number _____ Cardholder name _____ Exp date MM/YY _____ CVV _____

Submit thru https://online.ofa.org - OR - provide payment details here if mailing or emailing