Registration: DN54068302

Breed: Border Collie

## 

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

# **DNA Test Report**

Owner Info

First Name Last Name ALEX **PRUETT** 

Pet Info

**Registered Name** Date of Birth 6/17/2018 Friday

Nickname (Call Name) Sample ID **DNVQFJS** 

Sex Registration DN54068302 Female

**Country of Origin** Microchip ID N/A

US

**Owner Reported Breed** Tattoo ID Border Collie N/A

Registration: DN54068302

Breed: Border Collie

## 

# **DNA Test Report**

Sample ID: DNVQFJS
Test Date: 12/5/2020
Optimal Selection - Canine

### Genetic Diversity (Heterozygosity)

#### Friday's Percentage of Heterozygosity

35%

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

Typical Range for Border Collies

32 - 39%

Registration: DN54068302

Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

#### Health Conditions Known in This Breed

Genetic Condition	Gene	Risk Variant	Copies	Result
Collie Eye Anomaly (CEA)	NHEJ1	Deletion	1	Notable
Early Adult Onset Deafness For Border Collies only (Linkage test)	Intergenic	Insertion	1	Notable
Dental Hypomineralization	FAM20C	C>T	0	Clear
Intestinal Cobalamin Malabsorption (Discovered in the Border Collie)	CUBN	Deletion	0	Clear
MDR1 Medication Sensitivity	MDR1/ABCB1	Deletion	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 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
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

Registration: DN54068302

Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

Genetic Condition	Gene	Risk Variant	Copies	Result
Canine Scott Syndrome	ANO6	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
Cleft Lip & Palate with Syndactyly	ADAMTS20	Deletion	0	Clear
Cleft Palate	DLX6	C>A	0	Clear
Complement 3 Deficiency	C3	Deletion	0	Clear
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 Dyshormonogenic Hypothyroidism with Goiter (Discovered in the Shih Tzu)	SLC5A5	G>A	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 Myasthenic Syndrome (Discovered in the Golden Retriever)	COLQ	G>A	0	Clear
Congenital Myasthenic Syndrome (Discovered in the Jack Russell Terrier)	CHRNE	Insertion	0	Clear

Registration: DN54068302

Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

Genetic Condition	Gene	Risk Variant	Copies	Result
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
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
Deafness and Vestibular Dysfunction (DINGS1), (Discovered in Doberman Pinscher)	PTPRQ	Insertion	0	Clear
Degenerative Myelopathy	SOD1	G>A	0	Clear
Demyelinating Neuropathy	SBF2	G>T	0	Clear
Dilated Cardiomyopathy (Discovered in the Schnauzer)	RBM20	Deletion	0	Clear
Dominant Progressive Retinal Atrophy	RHO	C>G	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 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
Epidermolytic Hyperkeratosis	KRT10	G>T	0	Clear
Episodic Falling Syndrome	BCAN	Insertion	0	Clear
Exercise-Induced Collapse	DNM1	G>T	0	Clear

Registration: DN54068302

Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

Genetic Condition	Gene	Risk Variant	Copies	Result
Factor VII Deficiency	F7	G>A	0	Clear
Factor XI Deficiency	FXI	Insertion	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 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
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 B	FIX	G>A	0	Clear

## 

Friday

Registration: DN54068302

Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

Genetic Condition	Gene	Risk Variant	Copies	Result
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 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
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
Intestinal Cobalamin Malabsorption (Discovered in the Beagle)	CUBN	Deletion	0	Clear
Intestinal Cobalamin Malabsorption (Discovered in the Komondor)	CUBN	G>A	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
Lagotto Storage Disease	ATG4D	G>A	0	Clear

Registration: DN54068302

Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

Genetic Condition	Gene	Risk Variant	Copies	Result
Lamellar Ichthyosis	TGM1	Insertion	0	Clear
Lethal Acrodermatitis (Discovered in the Bull Terrier)	MKLN1	A>C	0	Clear
Ligneous Membranitis	PLG	T>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
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 Hypertrophy (Double Muscling)	MSTN	T>A	0	Clear
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

Registration: DN54068302

Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

Genetic Condition	Gene	Risk Variant	Copies	Result
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 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
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
Paroxysmal Dyskinesia	PIGN	C>T	0	Clear

Registration: DN54068302

Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

Genetic Condition	Gene	Risk Variant	Copies	Result
Persistent Müllerian Duct Syndrome	AMHR2	C>T	0	Clear
Phosphofructokinase Deficiency	PFKM	G>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-PRA1 variant)	SLC4A3	Insertion	0	Clear
Progressive Retinal Atrophy (Discovered in the Lhasa Apso)	Confidential	_	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

Registration: DN54068302

Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

Genetic Condition	Gene	Risk Variant	Copies	Result
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
Rod-Cone Dysplasia 3	PDE6A	Deletion	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

Registration: DN54068302

Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

Genetic Condition	Gene	Risk Variant	Copies	Result
Stargardt Disease (Discovered in the Labrador Retriever)	ABCA4	Insertion	0	Clear
Startle Disease (Discovered in Irish Wolfhounds)	SLC6A5	G>T	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
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

## 

Registration: DN54068302 Breed: Border Collie

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

#### Coat Color

Genetic Trait	Gene	Variant	Copies	Result
Fawn	ASIP	a <sup>y</sup>	0	No effect
Recessive Black	ASIP	а	0	No effect
Tan Points	ASIP	a <sup>t</sup>	2	Tan points possible
Dominant Black	CBD103	$K^{B}$	2	Black possible
Mask	MC1R	E <sup>m</sup>	0	No effect
Recessive Red (e1)	MC1R	e <sup>1</sup>	0	No effect
Recessive Red (e2)	MC1R	e <sup>2</sup>	0	No effect
Recessive Red (e3)	MC1R	e <sup>3</sup>	0	No effect
Widow's Peak (Discovered in Ancient dogs)	MC1R	e <sup>A</sup>	0	No effect
Widow's Peak (Discovered in the Afghan Hound and Saluki)	MC1R	E <sup>G</sup>	0	No effect

### **Color Modification**

Genetic Trait	Gene	Variant	Copies	Result
Red Intensity	MFSD12	i	0	No effect
Dilution (d1) Linkage test	MLPH	$d^1$	0	No effect
Dilution (d2)	MLPH	$d^2$	0	No effect
Dilution (d3)	MLPH	d <sup>3</sup>	0	No effect
Chocolate (basd)	TYRP1	b <sup>asd</sup>	0	No effect
Chocolate (bc)	TYRP1	b°	0	No effect
Chocolate (bd)	TYRP1	b <sup>d</sup>	0	No effect
Chocolate (bs)	TYRP1	b <sup>s</sup>	2	Chocolate

Registration: DN54068302

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

#### Coat Patterns

Breed: Border Collie

Genetic Trait	Gene	Variant	Copies	Result
Piebald	MITF	s <sup>p</sup>	0	No effect
Merle	PMEL	M	0	No effect
Harlequin	PSMB7	Н	0	No effect
Saddle Tan	RALY	-	0	No effect

## Coat Length and Curl

Genetic Trait	Gene	Variant	Copies	Result
Long Hair (Ih1)	FGF5	lh <sup>1</sup>	2	Long coat
Long Hair (lh2)	FGF5	lh <sup>2</sup>	0	No effect
Long Hair (lh3)	FGF5	Ih <sup>3</sup>	0	No effect
Long Hair (lh4)	FGF5	Ih <sup>4</sup>	0	No effect
Long Hair (lh5)	FGF5	Ih <sup>5</sup>	0	No effect
Curly Coat	KRT71	С	0	No effect

### Hairlessness

Genetic Trait	Gene	Variant	Copies	Result
Hairlessness (Discovered in the Chinese Crested Dog) Linkage test	FOXI3	Hr <sup>cc</sup>	0	No effect
Hairlessness (Discovered in the American Hairless Terrier)	SGK3	hr <sup>aht</sup>	0	No effect
Hairlessness (Discovered in the Scottish Deerhound)	SKG3	hr <sup>sd</sup>	0	No effect

## Shedding

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

Registration: DN54068302

Breed: Border Collie

## 

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

# **DNA Test Report**

#### More Coat Traits

Genetic Trait	Gene	Variant	Copies	Result
Hair Ridge	FGF3, FGF4, FGF19, ORAOV1	R	0	No effect
Furnishings	RSP02	F	0	No effect
Albino	SLC45A2	cal	0	No effect

### Head Shape

Genetic Trait	Gene	Variant	Copies	Result
Short Snout (BMP3 variant)	ВМР3	-	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

#### 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

Registration: DN54068302

Breed: Border Collie

## 

# **DNA Test Report**

Sample ID: DNVQFJS Test Date: 12/5/2020 Optimal Selection - Canine

### 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 Tail	T-box	Т	0	Full tail length likely