

Hilltop Pups Daisy  
Registration: N/A  
Breed: Other

Sample ID: BR03483  
Test Date: 9/12/2020  
Optimal Selection - Canine - Legacy

# DNA Test Report

## Owner Info

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**First Name**

Beverly

**Last Name**

Eckert

## Pet Info

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**Registered Name**

Hilltop Pups Daisy

**Date of Birth**

6/7/2017

**Nickname (Call Name)**

Daisy

**Sample ID**

BR03483

**Sex**

Female

**Registration**

N/A

**Country of Origin**

US

**Microchip ID**

981020021823077

**Owner Reported Breed**

Other

**Tattoo ID**

N/A

Hilltop Pups Daisy

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# DNA Test Report

## Genetic Diversity (Heterozygosity)

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### Daisy's Percentage of Heterozygosity

30%

Daisy's genome analysis shows an average level of genetic heterozygosity when compared with other purebred dogs.

### Typical Range for Purebred Dogs

26 - 40%

# DNA Test Report

## Health Conditions Tested

Genetic Condition	Gene	Risk Variant	Copies	Result
Alaskan Husky Encephalopathy	SLC19A3	G>A	0	Clear
Amelogenesis Imperfecta	ENAM	Deletion	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
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 Hypoplasia	VLDLR	Deletion	0	Clear
Cerebral Dysfunction	SLC6A3	G>A	0	Clear
Chondrodysplasia	ITGA10	C>T	0	Clear
Cleft Lip & Palate with Syndactyly	ADAMTS20	Deletion	0	Clear
Cleft Palate	DLX6	C>A	0	Clear
Collie Eye Anomaly (CEA)	NHEJ1	Deletion	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

# DNA Test Report

## Health Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Cone-Rod Dystrophy	NPHP4	Deletion	0	Clear
Cone-Rod Dystrophy 1	PDE6B	Deletion	0	Clear
Cone-Rod Dystrophy 2	IQCB1	Insertion	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 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
Cranio-mandibular Osteopathy	SLC37A2	C>T	0	Clear
Cystinuria Type I-A	SLC3A1	C>T	0	Clear
Cystinuria Type II-A	SLC3A1	Deletion	0	Clear
Degenerative Myelopathy	SOD1	G>A	0	Clear
Dental Hypomineralization	FAM20C	C>T	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-Onset Progressive Polyneuropathy (Discovered in the Alaskan Malamute)	NDRG1	G>T	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

# DNA Test Report

## Health Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
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
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	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
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 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
Hemophilia B (Discovered in the Airedale Terrier)	FIX	A>T	0	Clear
Hereditary Elliptocytosis	SPTB	C>T	0	Clear
Hereditary Footpad Hyperkeratosis	FAM83G	G>C	0	Clear
Hereditary Vitamin D-Resistant Rickets Type II	VDR	Deletion	0	Clear
Hyperekplexia or Startle Disease	SLC6A5	G>T	0	Clear

# DNA Test Report

## Health Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Hyperuricosuria	SLC2A9	G>T	0	Clear
Hypocatalasia	CAT	G>A	0	Clear
Hypomyelination	FNIP2	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 Border Collie)	CUBN	Deletion	0	Clear
L-2-Hydroxyglutaric Aciduria	L2HGDH	T>C	0	Clear
Lagotto Storage Disease	ATG4D	G>A	0	Clear
Lamellar Ichthyosis	TGM1	Insertion	0	Clear
Ligneous Membranitis	PLG	T>A	0	Clear
Macrothrombocytopenia	TUBB1	G>A	0	Clear
May-Hegglin Anomaly	MYH9	G>A	0	Clear
MDR1 Medication Sensitivity	MDR1/ABCB1	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

# DNA Test Report

## Health Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
Musladin-Lueke Syndrome	ADAMTSL2	C>T	0	Clear
Myotonia Congenita	CLCN1	Insertion	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
Neonatal Cerebellar Cortical Degeneration	SPTBN2	Deletion	0	Clear
Neonatal Encephalopathy with Seizures	ATF2	T>G	0	Clear
Neuroaxonal Dystrophy	TECPR2	C>T	0	Clear
Neuronal Ceroid Lipofuscinosis 1	PPT1	Insertion	0	Clear
Neuronal Ceroid Lipofuscinosis 7	MFSD8	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
Osteochondrodysplasia	SLC13A1	Deletion	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
Persistent Müllerian Duct Syndrome	AMHR2	C>T	0	Clear
Phosphofruktokinase 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 Lens Luxation	ADAMTSL17	G>A	0	Clear

# DNA Test Report

## Health Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
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 Papillon and Phalène)	CNGB1	Deletion	0	Clear
Progressive Retinal Atrophy (Discovered in the Shetland Sheepdog - CNGA1 variant)	CNGA1	Deletion	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
Rod-Cone Dysplasia 3	PDE6A	Deletion	0	Clear
Sensory Ataxic Neuropathy	tRNATyr	Deletion	0	Clear
Severe Combined Immunodeficiency	PRKDC	G>T	0	Clear
Severe Combined Immunodeficiency (Discovered in Frisian Water Dogs)	RAG1	G>T	0	Clear



# DNA Test Report

## Health Conditions Tested (continued)

Genetic Condition	Gene	Risk Variant	Copies	Result
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
Trapped Neutrophil Syndrome	VPS13B	Deletion	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 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
Hemophilia B (Discovered in the Lhasa Apso)	FIX	Deletion	—	Inconclusive

# DNA Test Report

## Coat Color

Genetic Trait	Gene	Variant	Copies	Result
Fawn	ASIP	a <sup>y</sup>	0	No effect
Recessive Black	ASIP	a	0	No effect
Tan Points	ASIP	a <sup>t</sup>	2	<b>Tan points possible</b>
Dominant Black	CBD103	K <sup>B</sup>	2	<b>Black possible</b>
Mask	MC1R	E <sup>m</sup>	0	No effect
Recessive Red (Variant 1)	MC1R	e <sup>1</sup>	2	<b>Cream to red coat</b>
Widow's Peak (Discovered in the Afghan Hound and Saluki)	MC1R	E <sup>G</sup>	0	No effect
Chocolate (Variant 1)	TYRP1	b <sup>c</sup>	0	No effect
Chocolate (Variant 2)	TYRP1	b <sup>s</sup>	0	No effect

## Coat Patterns

Genetic Trait	Gene	Variant	Copies	Result
Piebald	MITF	s <sup>p</sup>	0	No effect
Merle	PMEL	M	0	No effect
Harlequin	PSMB7	H	0	No effect
Saddle Tan	RALY	-	1	<b>Saddle possible</b>

## Coat Length and Curl

Genetic Trait	Gene	Variant	Copies	Result
Long Hair (Variant 1)	FGF5	lh <sup>1</sup>	2	<b>Long coat</b>
Long Hair (Variant 2)	FGF5	lh <sup>2</sup>	0	No effect
Long Hair (Variant 4)	FGF5	lh <sup>4</sup>	0	No effect
Long Hair (Variant 5)	FGF5	lh <sup>5</sup>	0	No effect

# DNA Test Report

## Coat Length and Curl (continued)

Genetic Trait	Gene	Variant	Copies	Result
Curly Coat	KRT71	C	0	No effect

## More Coat Traits

Genetic Trait	Gene	Variant	Copies	Result
Albino	SLC45A2	c <sup>al</sup>	0	No effect

## Head Shape

Genetic Trait	Gene	Variant	Copies	Result
Short Snout (Variant 2)	BMP3	-	0	No effect

## Ears

Genetic Trait	Gene	Variant	Copies	Result
Floppy Ears	MSRB3	-	2	Floppy ears more likely

## More Body Features

Genetic Trait	Gene	Variant	Copies	Result
Short Legs	FGF4	-	0	Medium to long legs
Short Tail	T-box	T	0	Full tail length likely