Canine HealthCheck

Results for Bella

Bella's demographic profile:

Call Name:	Bella	**Owner:**	Kimberly Kostyak
Registered Name:	Backwoods Bella of the Ball	**Registration #:**	-
Breed:	Miniature Australian Shepherd	**Microchip/Tattoo:**	-
Sex:	Female	**Kit #:**	10496
Approx. DOB:	December, 2015	**Report Date:**	October 18, 2017

Bella's genetic health profile:

- **Bella is a carrier for the following 1 disease:**
  - Multidrug resistance 1
    ⚠ Carriers for this mutation may be at-risk.
    Read More
- **Bella had a normal result for all other diseases tested**

Bella's appearance profile:

- Bella is a **Female**
- Bella's coat is likely **Straight, Long** and **Black with tan points** in color
- Bella's face likely **Has a Mask on the Muzzle** and a **Black** nose
- Bella's tail is likely **Normal** in length

These tests were developed and performed by Paw Print Genetics®, Spokane WA.

Explanation of Results

Normal A "normal" result means that your dog does not have the mutation that causes the associated genetic disease.

Carrier A "carrier" result indicates that your dog has inherited one copy of the mutation that has been reported to cause this genetic disease. Your dog may not be clinically affected by this mutation because two copies of the mutation are usually required to cause disease.

At-Risk An "at-risk" result indicates that your dog may have inherited one or two copies of the mutation that has been reported to cause this genetic disease. Depending on the mode of genetic inheritance for this particular disease, inheriting one **or** two mutant copies of the gene may result in the disease. *You may want to consider ordering follow-up testing to confirm the results of this initial screen for any dog that is "at-risk" for a disease.*

Failed A “failed” result indicates that we were unable to obtain a genotype for your dog for this specific disease or trait and does not mean that your dog is a carrier or at-risk for this disease. There are a variety of reasons why a specific test may fail. However, we promise to provide at least 150 results to you for your dog.

Please review our testing terms and disclaimers regarding your results.

Blood and Clotting

Coagulation factor VII deficiency	Normal
Elliptocytosis	Normal
Glanzmann's thrombasthenia (Great Pyrenees type)	Normal
Glanzmann's thrombasthenia (Otterhound type)	Normal
Glycogen storage disease VII (Wachtelhund type)	Normal
Hemophilia A (Boxer type)	Normal
Hemophilia A (German Shepherd Dog, type 1)	Normal
Hemophilia A (German Shepherd Dog, type 2)	Normal
Hemophilia B (Cairn Terrier type)	Failed
Hemophilia B (Lhasa Apso type)	Normal
Hemophilia B (Rhodesian Ridgeback type)	Normal
Leukocyte adhesion deficiency, type III	Normal
May-Hegglin anomaly	Normal
P2RY12 receptor platelet disorder	Normal
Prekallikrein deficiency	Normal
Pyruvate kinase deficiency (Basenji type)	Normal
Pyruvate kinase deficiency (Beagle type)	Normal
Pyruvate kinase deficiency (Labrador Retriever type)	Normal
Pyruvate kinase deficiency (Pug type)	Normal
Pyruvate kinase deficiency (Terrier type)	Failed
Thrombopathia (American Eskimo Dog type)	Normal
Thrombopathia (Basset Hound type)	Normal
Thrombopathia (Newfoundland type)	Failed
Von Willebrand disease I	Normal
Von Willebrand disease II	Normal
Von Willebrand disease III (Kooikerhondje type)	Normal
Von Willebrand disease III (Scottish Terrier type)	Normal

Cancer

Renal cystadenocarcinoma and nodular dermatofibrosis	Normal

Dental

Amelogenesis imperfecta	Normal

Drug Metabolism

Multidrug resistance 1	At-Risk Carrier

Eyes

Collie eye anomaly	Normal
Cone degeneration	Normal
Cone degeneration (German Shorthaired Pointer type)	Normal
Congenital stationary night blindness	Normal
Dry eye curly coat syndrome	Normal
Early retinal degeneration	Normal
GM1 Gangliosidosis (Alaskan Husky type)	Normal
GM1 Gangliosidosis (Portuguese Water Dog type)	Normal
GM1 Gangliosidosis (Shiba Inu type)	Normal
GM2 Gangliosidosis (Poodle type)	Normal
Hereditary cataracts	Normal
Hereditary cataracts (Australian Shepherd type)	Normal
Juvenile Laryngeal Paralysis and Polyneuropathy	Normal
Multifocal retinopathy 1	Normal
Multifocal retinopathy 2	Normal
Multifocal retinopathy 3	Normal
Primary lens luxation	Normal
Primary open angle glaucoma	Normal
Progressive retinal atrophy (Basenji type)	Normal
Progressive retinal atrophy (Bullmastiff/Mastiff type)	Normal
Progressive retinal atrophy (Irish Setter type)	Normal
Progressive retinal atrophy (Sloughi type)	Normal
Progressive retinal atrophy, Cone-rod dystrophy 1	Normal
Progressive retinal atrophy, Cone-rod dystrophy 2	Normal
Progressive retinal atrophy, Cone-rod dystrophy 3	Normal
Progressive retinal atrophy, Golden Retriever 1	Normal
Progressive retinal atrophy, Golden Retriever 2	Normal
Progressive retinal atrophy, PRA1 (Papillon type)	Normal
Progressive retinal atrophy, Progressive rod-cone degeneration	Normal
Progressive retinal atrophy, Rod-cone dysplasia 3	Normal
Progressive retinal atrophy, generalized	Normal

Heart

Dilated cardiomyopathy	Normal

Hormonal

Congenital hypothyroidism with goiter (Terrier type)	Normal

Immune System

Complement 3 deficiency	Normal
Cyclic neutropenia	Normal
Leukocyte adhesion deficiency, type I	Normal
Leukocyte adhesion deficiency, type III	Normal

Primary ciliary dyskinesia	Normal
Severe combined immunodeficiency disease (Terrier type)	Normal
Severe combined immunodeficiency disease (Wetterhoun type)	Normal
Severe combined immunodeficiency disease, X-linked (Basset Hound type)	Normal
Severe combined immunodeficiency disease, X-linked (Corgi type)	Normal
Trapped neutrophil syndrome	Normal

Liver/Gastrointestinal

Gallbladder mucoceles	Normal
Glycogen storage disease IIIa	Normal
Intestinal cobalamin malabsorption (Beagle type)	Normal
Intestinal cobalamin malabsorption (Border Collie type)	Normal

Metabolic

Adult-onset neuronal ceroid lipofuscinosis	Normal
GM1 Gangliosidosis (Alaskan Husky type)	Normal
GM1 Gangliosidosis (Portuguese Water Dog type)	Normal
GM1 Gangliosidosis (Shiba Inu type)	Normal
GM2 Gangliosidosis (Japanese Chin type)	Normal
GM2 Gangliosidosis (Poodle type)	Normal
Globoid cell leukodystrophy (Irish Setter type)	Normal
Globoid cell leukodystrophy (Terrier type)	Normal
Glycogen storage disease IIIa	Normal
Glycogen storage disease Ia	Normal
Glycogen storage disease VII (Wachtelhund type)	Normal
Intestinal cobalamin malabsorption (Beagle type)	Normal
Intestinal cobalamin malabsorption (Border Collie type)	Normal
L-2-hydroxyglutaric aciduria (Staffordshire Bull Terrier type)	Normal
Mucopolysaccharidosis I	Normal
Mucopolysaccharidosis IIIA (Dachshund type)	Normal
Mucopolysaccharidosis IIIA (New Zealand Huntaway type)	Normal
Mucopolysaccharidosis VII (Shepherd type)	Normal
Neuronal ceroid lipofuscinosis 1	Normal
Neuronal ceroid lipofuscinosis 10	Normal
Neuronal ceroid lipofuscinosis 2	Failed
Neuronal ceroid lipofuscinosis 4A	Normal
Neuronal ceroid lipofuscinosis 5	Normal
Neuronal ceroid lipofuscinosis 6	Normal
Neuronal ceroid lipofuscinosis 8 (Australian Shepherd type)	Normal
Neuronal ceroid lipofuscinosis 8 (Setter type)	Normal
Pompe disease	Normal
Pyruvate dehydrogenase deficiency	Normal
Pyruvate kinase deficiency (Basenji type)	Normal
Pyruvate kinase deficiency (Beagle type)	Normal
Pyruvate kinase deficiency (Labrador Retriever type)	Normal

Pyruvate kinase deficiency (Pug type)	Normal
Pyruvate kinase deficiency (Terrier type)	Failed

Midline Defect

Juvenile Laryngeal Paralysis and Polyneuropathy	Normal
Spinal dysraphism (Weimaraner type)	Normal

Musculoskeletal

Adult-onset neuronal ceroid lipofuscinosis	Normal
Alaskan Malamute polyneuropathy	Failed
Chondrodysplasia (Karelian Bear Dog and Norwegian Elkhound type)	Normal
Congenital myasthenic syndrome (Labrador Retriever type)	Normal
Congenital myasthenic syndrome (Old Danish Pointer type)	Normal
Degenerative myelopathy	Normal
Exercise-induced collapse	Normal
GM1 Gangliosidosis (Alaskan Husky type)	Normal
GM1 Gangliosidosis (Portuguese Water Dog type)	Normal
GM1 Gangliosidosis (Shiba Inu type)	Normal
Glycogen storage disease IIIa	Normal
Glycogen storage disease VII (Wachtelhund type)	Normal
Greyhound polyneuropathy	Normal
Inherited myopathy of Great Danes	Normal
Juvenile Laryngeal Paralysis and Polyneuropathy	Normal
Mucopolysaccharidosis I	Normal
Mucopolysaccharidosis VII (Shepherd type)	Normal
Muscular Dystrophy (Golden Retriever Type)	Normal
Musladin-Lueke syndrome	Failed
Myostatin deficiency (Whippet and Longhaired Whippet type)	Normal
Myotonia congenita (Australian Cattle Dog type)	Normal
Myotonia congenita (Schnauzer type)	Normal
Myotubular myopathy 1	Normal
Osteochondrodysplasia	Normal
Osteogenesis imperfecta (Beagle type)	Normal
Osteogenesis imperfecta (Dachshund type)	Normal
Osteogenesis imperfecta (Golden Retriever type)	Normal
Pembroke Welsh Corgi Duchenne muscular dystrophy	Normal
Polyneuropathy (Leonberger and Saint Bernard type)	Normal
Pompe disease	Normal
Skeletal dysplasia 2	Normal
Vitamin D dependent rickets, type II (Pomeranian type)	Normal

Neurologic

Adult-onset neuronal ceroid lipofuscinosis	Normal
Alaskan Husky encephalopathy	Normal
Alaskan Malamute polyneuropathy	Failed
Benign familial juvenile epilepsy	Normal
Canine multiple system degeneration (Chinese Crested type)	Normal
Canine multiple system degeneration (Kerry Blue Terrier type)	Normal
Cerebellar ataxia (Finnish Hound type)	Normal
Congenital myasthenic syndrome (Labrador Retriever type)	Normal
Congenital myasthenic syndrome (Old Danish Pointer type)	Normal
Degenerative myelopathy	Normal
Episodic falling syndrome	Normal
Exercise-induced collapse	Normal
GM1 Gangliosidosis (Alaskan Husky type)	Normal
GM1 Gangliosidosis (Portuguese Water Dog type)	Normal
GM1 Gangliosidosis (Shiba Inu type)	Normal
GM2 Gangliosidosis (Japanese Chin type)	Normal
GM2 Gangliosidosis (Poodle type)	Normal
Globoid cell leukodystrophy (Irish Setter type)	Normal
Globoid cell leukodystrophy (Terrier type)	Normal
Greyhound polyneuropathy	Normal
Juvenile Laryngeal Paralysis and Polyneuropathy	Normal
L-2-hydroxyglutaric aciduria (Staffordshire Bull Terrier type)	Normal
Late onset ataxia	Normal
Mucopolysaccharidosis I	Normal
Mucopolysaccharidosis IIIA (Dachshund type)	Normal
Mucopolysaccharidosis IIIA (New Zealand Huntaway type)	Normal
Musladin-Lueke syndrome	Failed
Myotonia congenita (Australian Cattle Dog type)	Normal
Myotonia congenita (Schnauzer type)	Normal
Narcolepsy (Dachshund type)	Normal
Narcolepsy (Doberman Pinscher type)	Normal
Narcolepsy (Labrador Retriever type)	Normal
Neonatal cerebellar cortical degeneration	Normal
Neonatal encephalopathy with seizures	Normal
Neuronal ceroid lipofuscinosis 1	Normal
Neuronal ceroid lipofuscinosis 10	Normal
Neuronal ceroid lipofuscinosis 2	Failed
Neuronal ceroid lipofuscinosis 4A	Normal
Neuronal ceroid lipofuscinosis 5	Normal
Neuronal ceroid lipofuscinosis 6	Normal
Neuronal ceroid lipofuscinosis 8 (Australian Shepherd type)	Normal
Neuronal ceroid lipofuscinosis 8 (Setter type)	Normal
Polyneuropathy (Leonberger and Saint Bernard type)	Normal
Sensory ataxic neuropathy	Normal
Spinocerebellar ataxia	Normal
Startle disease	Normal

Neuromuscular

Globoid cell leukodystrophy (Irish Setter type)	Normal
Globoid cell leukodystrophy (Terrier type)	Normal
Musladin-Lueke syndrome	Failed

Reproduction

Primary ciliary dyskinesia	Normal

Respiratory

Primary ciliary dyskinesia	Normal

Skin and Hair

Anhidrotic ectodermal dysplasia	Normal
Dry eye curly coat syndrome	Normal
Dystrophic epidermolysis bullosa	Normal
Ectodermal dysplasia	Failed
Epidermolytic hyperkeratosis	Normal
Hereditary footpad hyperkeratosis (Irish Terrier and Kromfohrländer type)	Normal
Hereditary nasal parakeratosis	Normal
Ichthyosis (Golden Retriever type)	Normal
Musladin-Lueke syndrome	Failed
Renal cystadenocarcinoma and nodular dermatofibrosis	Normal

Urinary Tract

Cystinuria (Australian Cattle Dog type)	Normal
Cystinuria (Miniature Pinscher type)	Failed
Cystinuria (Newfoundland type)	Normal
Familial nephropathy (Cocker Spaniel type)	Normal
Familial nephropathy (English Springer Spaniel type)	Normal
Fanconi syndrome	Normal
Hereditary nephritis (Samoyed type)	Normal
Hyperuricosuria	Normal
Persistent Müllerian duct syndrome	Normal
Primary ciliary dyskinesia	Normal
Primary hyperoxaluria	Normal
Renal cystadenocarcinoma and nodular dermatofibrosis	Normal

Canine Genetic Health Certificate™

Call Name:	Loverboy	**Laboratory #:**	51951
Registered Name:	Hughes Toys MountainCreeks Red Hot BET	**Registration #:**	ASDM-TX-1500550
Breed:	Miniature Australian Shepherd	**Certificate Date:**	Nov. 16, 2017
Sex:	Male		
DOB:	Oct. 2014		

This canine's DNA showed the following genotype(s):

Disease	Gene	Genotype	Interpretation
Collie Eye Anomaly	*NHEJ1*	WT/WT	Normal (clear)
Cone Degeneration	*CNGB3*	WT/WT	Normal (clear)
Degenerative Myelopathy	*SOD1*	WT/WT	Normal (clear)
Hereditary Cataracts (Australian Shepherd Type)	*HSF4*	WT/WT	Normal (clear)
Hyperuricosuria	*SLC2A9*	WT/WT	Normal (clear)
Multidrug Resistance 1	*ABCB1*	WT/M	Carrier
Multifocal Retinopathy 1	*BEST1*	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 6	*CLN6*	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Progressive Rod-Cone Degeneration	*PRCD*	WT/WT	Normal (clear)

WT, wild type (normal); M, mutant; Y, Y chromosome (male)

Blake C Ballif, PhD
Laboratory & Scientific Director

Christina J Ramirez, PhD, DVM, DACVP
Medical Director

Paw Print Genetics® performed the tests listed on this dog. See the Laboratory Report for interpretation and recommendations based on these findings. The genes/diseases reported here were selected by the client. Normal results do not exclude inherited mutations not tested in these or other genes that may cause medical problems or may be passed on to offspring. These tests were developed and their performance determined by Paw Print Genetics. This laboratory has established and verified the tests' accuracy and precision. Because all tests performed are DNA-based, rare genomic variations may interfere with the performance of some tests producing false results. If you think these results are in error, please contact the laboratory immediately for further evaluation. In the event of a valid dispute of results claim, Paw Print Genetics will do its best to resolve such a claim to the customer's satisfaction. If no resolution is possible after investigation by Paw Print Genetics with the cooperation of the customer, the extent of the customer's sole remedy is a refund of the fee paid. In no event shall Paw Print Genetics be liable for indirect, consequential or incidental damages of any kind. Any claim must be asserted within 60 days of the report of the test results. Genetic counseling is available at Paw Print Genetics.