

220 E. Rowan, Suite 220 Spokane, Washington 99207 www.pawprintgenetics.com (509) 483-5950

Laboratory Report

Laboratory #: 163570 **Call Name:** Teller

Order #: 112441 Registered Name: Limelite's Banking It
Ordered By: Jennifer Margettes Breed: Australian Shepherd

 Ordered:
 July 6, 2021
 Sex:
 Male

 Received:
 July 26, 2021
 DOB:
 July 2019

 Reported:
 Aug. 5, 2021
 Registration #:
 DN58830802

Microchip #: 956000010784576

Results:

Disease	Gene	Genotype	Interpretation
Chondrodystrophy with Intervertebral Disc Disease Risk Factor (CDDY with IVDD)	CFA12 FGF4	WT/WT	Normal (Clear) - No CDDY or Increased IVDD Risk
Coagulation Factor VII Deficiency	F7	WT/WT	Normal (clear)
Collie Eye Anomaly	NHEJ1	WT/WT	Normal (clear)
Cone Degeneration	CNGB3	WT/WT	Normal (clear)
Craniomandibular Osteopathy	SLC37A2	WT/WT	Normal (clear)
Degenerative Myelopathy	SOD1	WT/WT	Normal (clear)
Exercise-Induced Collapse	DNM1	WT/WT	Normal (clear)
Hereditary Cataracts (Australian Shepherd Type)	HSF4	WT/WT	Normal (clear)
Hyperuricosuria	SLC2A9	WT/WT	Normal (clear)
Intestinal Cobalamin Malabsorption (Australian Shepherd Type)	AMN	WT/WT	Normal (clear)
Intestinal Cobalamin Malabsorption (Border Collie Type)	CUBN	WT/WT	Normal (clear)
Multidrug Resistance 1	ABCB1	WT/M	Carrier (At-Risk)
Multifocal Retinopathy 1	BEST1	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 6	CLN6	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 8 (Australian Shepherd Type)	CLN8	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Progressive Rod-Cone Degeneration	PRCD	WT/WT	Normal (clear)
Von Willebrand Disease I	VWF	WT/WT	Normal (clear)

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

Interpretation:

Molecular genetic analysis was performed for 17 specific mutations reported to be associated with disease in dogs. We identified two normal copies of the DNA sequences in 16 of the mutations tested. Thus, this dog is not at an increased risk for the diseases associated with these 16 mutations. However, we identified one normal copy and one mutant copy of the DNA sequences for *ABCB1*. Thus, this dog is a carrier of (and may be at risk for) Multidrug Resistance 1.

Recommendations:

Multidrug Resistance 1 is inherited in an autosomal incomplete dominant manner in dogs. Based on this, and the fact that this dog showed a mutation in one copy of the *ABCB1* gene, this dog is a carrier of Multidrug Resistance 1 and at a low risk of developing neurological disease when given certain medications. Dogs affected with this disease lack the ability to remove certain drugs and toxins from the central nervous system putting them at risk for developing neurologic symptoms that could range from tremors, excess salivation, anorexia, and blindness to coma and even death. Though adverse reactions to certain drugs are most commonly seen in dogs having two copies of the mutated gene, carrier dogs can also experience drug sensitivities and dosages need to be adjusted accordingly. Thus, dogs that have one or two mutant copies of the gene are considered at risk for adverse drug reactions. Your veterinarian should be notified that this dog is a carrier for Multidrug Resistance 1 prior to administration of any medications. When carriers of this mutation are bred with another dog that also is a carrier of the same mutation, there is risk of having affected pups. For each pup that is born to this pairing, there is a 25% chance that the puppy will inherit two copies of the mutation and a 50% chance that the puppy will inherit one copy of the mutation and, in either case, may be susceptible to having adverse drug reactions. Dogs related to this dog have an increased risk to be affected by or carry the mutated gene. Additional testing for this mutation is indicated for related dogs.

Paw Print Genetics[®] has genetic counseling available to you at no additional charge to answer any questions about these test results, their implications and potential outcomes in breeding this dog.

Blake C Ballif, PhD

Laboratory & Scientific Director

Christina J Ramirez, PhD, DVM, DACVP

Medical Director

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.