Paw Print Genetics
A division of Genetic Veterinary Sciences, Inc.

Coat Color and Trait Certificate

Call Name:	Chloe	**Laboratory #:**	321002
Registered Name:	-	**Registration #:**	-
Breed:	Bernedoodle	**Certificate Date:**	Aug. 19, 2022
Sex:	Female		
DOB:	Dec. 2020		

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

Coat Color/Trait Test	Gene	Genotype	Interpretation
A Locus (Agouti)	*ASIP*	a^t/a^t	Tricolor, black and tan
A^S Locus (Saddle Tan)	*RALY*	N/N	No saddle tan/creeping tan
B Locus (Brown)	*TYRP1*	B/B	Black coat, nose and foot pads (does not carry brown)
Cu Locus (Curly Hair)	*KRT71*	Cu/Cu^C	Wavy/Curly coat (carrier)
I Locus (Intensity)	*MFSD12*	I/I	Normal intensity
IC Locus (Improper Coat/Furnishings)	*RSPO2*	F/IC	Furnishings (improper coat carrier)
SD Locus (Shedding)	*MC5R*	sd/SD	Moderate shedding

Interpretation:

This dog carries two copies of **a^t** which results in tan points and can also present as a black and tan or tricolor coat color. However, this dog's coat color is also dependent on the E, K, and B genes. The tan point coat color is only expressed if the dog is also E/E or E/e at the E locus and k^y/k^y at the K locus. This dog will pass on **a^t** to 100% of its offspring.

This dog carries two copies of the **N** allele, which is not associated with a saddle tan coat color. This dog's coat color is also dependent on the E, A, and K genes, among others. This dog will pass **N** to 100% of its offspring.

This dog does not carry any copies of the b^a, b^c, b^d or b^s mutations and has a B locus genotype of **B/B**. Thus, this dog typically will have a black coat, nose, and foot pads. However, this dog's coat color is dependent on the genotypes of many other genes. This dog will pass one copy of **B** to 100% of its offspring and cannot produce b/b dogs.

This dog carries one copy of **Cu^C** and one copy of **Cu** which results in a wavy or curly coat. However, the overall coat type of this dog is dependent on the combination of this dog's genotypes at the L, Cu, and IC loci. This dog will pass **Cu^C** on to 50% of its offspring and **Cu** to 50% of its offspring.

This dog does not carry a copy of the i mutation and has an I locus genotype of **I/I** which does not result in the lightening of the light, phaeomelanin pigments that produce the dog's coat color in an e/e dog. This dog will pass one copy of **I** to 100% of its offspring and cannot produce i/i dogs.

This dog carries one copy of the mutation for improper coat (**IC**) and one copy of **F** and will therefore have furnishings (proper coat). This dog does not carry the mutation for weak furnishings. However, the overall coat type of this dog is dependent on the combination of this dog's genotypes at the L, Cu, and IC loci. This dog will pass **IC** (improper coat) to 50% of its offspring and **F** (furnishings, proper coat) to 50% of its offspring. Therefore,

this dog can produce puppies with improper coat if bred with a dog that carries one copy (F/IC) or two copies (IC/IC) of the mutation for improper coat.

This dog carries one copy of **sd** and one copy of **SD** which has been associated with moderate shedding. However, the overall degree of shedding for this dog is dependent on the combination of this dog's genotypes at the SD and IC loci. This dog will pass **SD** on to 50% of its offspring and **sd** on to 50% of its offspring.

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

Paw Print Genetics® performed the testing on the dog listed on this certificate. The genes/traits reported here were selected by the client. Normal results do not exclude inherited mutations not tested in these or other genes that may cause variation in traits, medical problems or may be passed on to offspring. The results included in this report relate only to the items tested using the sample provided. These tests were developed and their performance determined by Paw Print Genetics This laboratory has established and verified the test(s)' accuracy and precision with >99.9% sensitivity and specificity. The presence of mosaicism may not be detected by this test. Non-paternity may lead to unexpected results. This is not a breed identification test. Because all tests performed are DNA-based, rare genomic variations may interfere with the performance of some tests producing false results. If you think any 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.

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Laboratory Report

Laboratory #:	321002	**Call Name:**	Chloe
Order #:	144485	**Registered Name:**	-
Ordered By:	Nicholas Miller	**Breed:**	Bernedoodle
Ordered:	Aug. 3, 2022	**Sex:**	Female
Received:	Aug. 12, 2022	**DOB:**	Dec. 2020
Reported:	Aug. 19, 2022	**Registration #:**	-

Results:

Disease	Gene	Genotype	Interpretation
Congenital Methemoglobinemia	*CYB5R3*	WT/WT	Normal (clear)
Degenerative Myelopathy	*SOD1*	WT/WT	Normal (clear)
Degenerative Myelopathy (Bernese Mountain Dog Type)	*SOD1*	WT/WT	Normal (clear)
GM2 Gangliosidosis (Poodle Type)	*HEXB*	WT/WT	Normal (clear)
Neonatal Encephalopathy with Seizures	*ATF2*	WT/WT	Normal (clear)
Osteochondrodysplasia	*SLC13A1*	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Progressive Rod-Cone Degeneration	*PRCD*	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Rod-Cone Dysplasia 4	*C2orf71*	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 nine specific mutations reported to be associated with disease in dogs. We identified two normal copies of the DNA sequences in nine mutations tested. Thus, this dog is not at an increased risk for the diseases associated with these nine mutations.

Recommendations:

No mutations were identified. Thus, this dog is not at an increased risk for the diseases caused by or associated with the mutations tested. Because this dog is "clear" of these mutations, this dog will only pass the normal genes on to its offspring. 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. 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.

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Christina J Ramirez, PhD, DVM, DACVP
Medical Director

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