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

Canine Genetic Health Certificate™

Call Name:	Louie	**Laboratory #:**	148177
Registered Name:	Dakota's Parti Boy King Louie	**Registration #:**	PR21796503
Breed:	Standard Poodle	**Microchip #:**	956000011882055
Sex:	Male	**Certificate Date:**	Oct. 22, 2020
DOB:	June 2019		

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

Disease	Gene	Genotype	Interpretation
Chondrodysplasia (CDPA)	*CFA18* *FGF4*	cd/cd	No Leg Shortening Associated with CDPA
Chondrodystrophy with Intervertebral Disc Disease Risk Factor (CDDY with IVDD)	*CFA12* *FGF4*	WT/M	CDDY Affected with Shortened Legs and Increased IVDD Risk
Degenerative Myelopathy	*SOD1*	WT/WT	Normal (clear)
GM2 Gangliosidosis (Poodle Type)	*HEXB*	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)

Blake C Ballif, PhD
Laboratory & Scientific Director

Robert D. Westra, MS, DVM
Assistant 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.

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Coat Color and Trait Certificate

Call Name:	Louie	**Laboratory #:**	148177
Registered Name:	Dakota's Parti Boy King Louie	**Registration #:**	PR21796503
Breed:	Standard Poodle	**Microchip #:**	956000011882055
Sex:	Male	**Certificate Date:**	May 14, 2020
DOB:	June 2019		

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
B Locus (Brown)	*TYRP1*	B/b	Black coat, nose and foot pads (carries brown)
D Locus (Dilute)	*MLPH*	D/D	Non dilute
E Locus (Yellow/Red)	*MC1R*	E/e	Black (carries yellow/red)
K Locus (Dominant Black)	*CBD103*	k^y/k^y	Agouti expression allowed
S Locus (White Spotting, Parti, or Piebald)	*MITF*	s^p/s^p	Nearly solid white, parti, or piebald

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 one copy of **B** and at least one copy of **b** at the b^c, b^d or b^s locus making the overall B locus genotype of this dog **B/b**. The overall B locus genotype for a dog is determined by the combination of the genotypes at the b^c, b^d, and b^s loci. The b^c, b^d, and b^s variants confer brown coat, nose, and foot pads when at least one of these DNA changes is present on both genes of the dog at the B locus. If the dog has one or no copies of **b** then the dog will have a black coat, nose, and foot pads. However, this dog's coat color is also dependent on the E, K, and A genes. This dog will pass on **B** to 50% of its offspring and **b** to 50% of its offspring.

This dog carries two copies of **D** which does not result in the "dilution" or lightening of the black and yellow/red pigments that produce the dog's coat color. The base coat color of this dog will be primarily determined by the E, K, A, and B genes. This dog will pass on **D** to 100% of its offspring.

This dog carries one copy of **E** and one copy of **e** which allows for the production of black pigment. However, this dog's coat color is also dependent on the K, A, and B genes. This dog will pass **E** on to 50% of its offspring and **e** to 50% of its offspring, which can produce a yellow/red coat (including shades of white, cream, yellow, apricot or red) if inherited with another copy of **e**.

This dog carries two copies of **k^y** which allows for the expression of the agouti gene (A locus) which can result in a variety of coat colors including sable/fawn, tricolor, tan points, black or brown. However, this dog's coat color is dependent on its genotypes at the E, A and B genes. This dog will pass on **k^y** to 100% of its offspring.

This dog carries two copies of **s^p** which results in a nearly solid white, parti, or piebald coat color. This dog will pass on one copy of **s^p** to 100% 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.

Christina J Ramirez, PhD, DVM, DACVP
Medical Director

Robert D. Westra, MS, DVM
Assistant Medical Director

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Doctor's Copy

PennHIP Report

Referring Veterinarian:Dr Matt Stork
Clinic Name:All City Pet Care West
Email:petcarewest@nvanet.com
Clinic Address:3400 S. Holbrook Ave
Sioux Falls, SD 57106
Phone:(605) 361-3537
Fax:(605) 361-1761

Patient Information

Client:Venekamp, Brittany
Tattoo Num:
Patient Name:Louie
Patient ID:27040Dakotas Parti Boy King Louie
Reg. Name:Dakota's Parti Boy King Louie
Registration Num:
PennHIP Num:148765
Microchip Num:956000011882055
Species:Canine
Breed:STANDARD POODLE
Date of Birth:02 Jun 2019
Age:17 months
Sex:Male
Weight:11.5 lbs/5.2 kgs
Date of Study:02 Nov 2020
Date Submitted:02 Nov 2020
Date of Report:03 Nov 2020

Findings

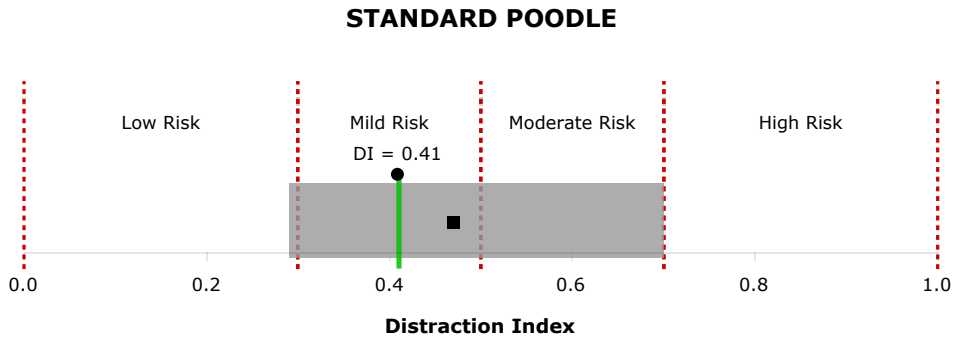
Distraction Index (DI): Right DI = 0.38, Left DI = 0.41.

Osteoarthritis (OA): **No radiographic evidence of OA for either hip.**

Cavitation/Other Findings: No cavitation present.

Interpretation

Distraction Index (DI): The laxity ranking is based on the hip with the greater laxity (larger DI). In this case the DI used is 0.41.
OA Risk Category: The DI is between 0.31 and 0.49. This patient is at mild risk for hip OA.
Distraction Index Chart:



BREED STATISTICS: This interpretation is based on a cross-section of 4168 canine patients of the STANDARD POODLE breed in the AIS PennHIP database. The gray strip represents the central 90% range of DIs (0.29 - 0.70) for the breed. The breed average DI is 0.47 (solid square). The patient DI is the solid circle (0.41).

SUMMARY: The degree of laxity (DI = 0.41) falls within the central 90% range of DIs for the breed. This amount of hip laxity places the hip at a mild risk to develop hip OA. **No radiographic evidence of OA for either hip.**

INTERPRETATION AND RECOMMENDATIONS: No OA/Mild Risk: Low risk to develop radiographic evidence of hip OA early in life, however OA may manifest after 6 years of age or later. Risk of OA increases as DI, age, body weight, and activity level increase. OA susceptibility is breed specific, larger breeds being more susceptible.
Recommendations: Evidence-based strategies to lower the risk of dogs developing hip OA or to treat those having OA fall into 5 modalities.* For detailed information, consult these documents.* Use any or all of these modalities as needed:
1) For acute or chronic pain prescribe NSAID PO short or long term. Amantadine can be added if response is marginal or if a neuropathic component to the pain is suspected.
2) Optimize body weight, keep lean, at BCS = 5/9.
3) Prescribe therapeutic exercise at intensities that do not precipitate lameness.
4) Administer polysulfated glycosaminoglycans IM or SQ, so-called DMOAD.
5) Feed an EPA-rich prescription diet preventatively for dogs at risk for OA or therapeutically for dogs already showing radiographic signs of OA.
At the present time there is inadequate evidence to confidently recommend any of the many other remedies to prevent or treat OA. Studies are in progress. Consider repeating radiographs at periodic intervals to determine the rate of OA progression and adjust treatment accordingly. Older dogs may show clinical signs such as chronic pain, reluctance to go stairs or jump onto the bed, and stiffness particularly after resting. It is unlikely that end-stage hip disease will develop for dogs at this risk level so surgical therapy for the pain of hip OA would rarely be indicated.
Breeding Recommendations: Please consult the PennHIP Manual.

* From WSAVA Global Pain Council Guidelines and the 2015 AAHA/AAFP Pain Management Guidelines

COMMENTS:

Images have very poor resolution. Please fix this.