

Laboratory Report

Laboratory #:	70140	Call Name:	Apollo
Order #:	30658	Registered Name:	Brookhaven's to the Moon and Back
Ordered By:	Sharlene Pitman	Breed:	Labrador Retriever
Ordered:	Nov. 18, 2017	Sex:	Male
Received:	Nov. 30, 2017	DOB:	Jan. 2017
Reported:	Dec. 8, 2017	Registration #:	SR96881701
		Microchip #:	AVID 985 112 008 196 236

Results:

Disease	Gene	Genotype	Interpretation
Centronuclear Myopathy	<i>PTPLA</i>	WT/WT	Normal (clear)
Congenital Myasthenic Syndrome (Labrador Retriever Type)	<i>COLQ</i>	WT/WT	Normal (clear)
Copper Toxicosis (Labrador Retriever Type) ATP7A	<i>ATP7A</i>	M/Y	Carrier Male
Copper Toxicosis (Labrador Retriever Type) ATP7B	<i>ATP7B</i>	WT/WT	Normal (clear)
Cystinuria (Labrador Retriever Type)	<i>SLC3A1</i>	WT/WT	Normal (clear)
Degenerative Myelopathy	<i>SOD1</i>	WT/WT	Normal (clear)
Elliptocytosis	<i>SPTB</i>	WT/WT	Normal (clear)
Exercise-Induced Collapse	<i>DNM1</i>	WT/WT	Normal (clear)
Hereditary Nasal Parakeratosis	<i>SUV39H2</i>	WT/WT	Normal (clear)
Hyperuricosuria	<i>SLC2A9</i>	WT/WT	Normal (clear)
Myotubular Myopathy 1	<i>MTM1</i>	WT/Y	Normal/Clear Male
Narcolepsy (Labrador Retriever Type)	<i>HCRT2</i>	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Cone-Rod Dystrophy 4	<i>RPGRIP1</i>	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Golden Retriever 2	<i>TTC8</i>	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Progressive Rod-Cone Degeneration	<i>PRCD</i>	WT/WT	Normal (clear)
Pyruvate Kinase Deficiency (Labrador Retriever Type)	<i>PKLR</i>	WT/WT	Normal (clear)
Retinal Dysplasia/Oculoskeletal Dysplasia 1	<i>COL9A3</i>	WT/WT	Normal (clear)
Skeletal Dysplasia 2	<i>COL11A2</i>	WT/WT	Normal (clear)

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

Interpretation:

Molecular genetic analysis was performed for 18 specific mutations reported to be associated with disease in dogs (17 deleterious and one protective mutation). We identified two normal copies of the DNA sequences in all 17 of the deleterious mutations tested. Thus, this dog is not an increased risk for the diseases associated with these 17 mutations. However, we identified one mutant copy of the DNA sequence for *ATP7A* on the X chromosome. Thus, this dog carries one copy of the protective mutation for Copper Toxicosis (Labrador Retriever Type) ATP7A.

Recommendations:

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 the 17 deleterious, disease-associated 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.

This dog was also tested for a genetic mutation of the canine *ATP7A* gene which partially protects against copper toxicosis in dogs that have inherited the *ATP7B* mutation described above. This dog carries one copy of the *ATP7A* gene mutation. The *ATP7A* gene mutation is more effective at decreasing the risk of copper toxicosis in male dogs than females. However, since multiple factors (both genetic and environmental) play a role in causing copper toxicosis, the *ATP7A* mutation is not completely protective in either sex. Note: The *ATP7A* mutation is located on the X-chromosome. Since males only have a single X chromosome they can only inherit a single copy of this mutation.

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



Casey R Carl, DVM
Associate 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.