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

4131 N. 48th St.
Lincoln, NE 68504
www.pawprintgenetics.com
(509) 483-5950

Laboratory Report

Laboratory #:	461377	**Call Name:**	DOMINICK
Order #:	207971	**Registered Name:**	CASER VOM ORTENBERG
Ordered By:	Amanda Trigo	**Breed:**	Labrador Retriever
Ordered:	Aug. 1, 2024	**Sex:**	Male
Received:	Aug. 9, 2024	**DOB:**	Dec. 2017
Reported:	Sept. 9, 2024	**Registration #:**	SS10961901
		Microchip #:	276094502073398

Results:

Disease	Gene	Genotype	Interpretation
Centronuclear Myopathy	*PTPLA*	WT/WT	Normal (Clear)
Chondrodystrophy with Intervertebral Disc Disease Risk Factor (CDDY with IVDD)	*CFA12 FGF4*	WT/WT	Normal (Clear) - No CDDY or Increased IVDD Risk
Cone Degeneration (Labrador Retriever Type)	*CNGA3*	WT/WT	Normal (Clear)
Congenital Myasthenic Syndrome (Labrador Retriever Type)	*COLQ*	WT/WT	Normal (Clear)
Copper Toxicosis (Labrador Retriever Type) ATP7A	*ATP7A*	M/Y	X-Linked Male Carrier
Copper Toxicosis (Labrador Retriever Type) ATP7B	*ATP7B*	WT/WT	Normal (Clear)
Cystinuria (Labrador Retriever Type)	*SLC3A1*	WT/WT	Normal (Clear)
Degenerative Myelopathy (Common Variant)	*SOD1*	WT/WT	Normal (Clear)
Ehlers-Danlos Syndrome (Labrador Retriever Type), Variant 1	*COL5A1*	WT/WT	Normal (Clear)
Ehlers-Danlos Syndrome (Labrador Retriever Type), Variant 2	*COL5A1*	WT/WT	Normal (Clear)
Elliptocytosis	*SPTB*	WT/WT	Normal (Clear)
Exercise-Induced Collapse	*DNM1*	WT/WT	Normal (Clear)
Hereditary Nasal Parakeratosis (Labrador Retriever Type)	*SUV39H2*	WT/WT	Normal (Clear)
Hyperuricosuria	*SLC2A9*	WT/WT	Normal (Clear)
Ichthyosis (Golden Retriever Type 1)	*PNPLA1*	WT/WT	Normal (Clear)
Laryngeal Paralysis and Polyneuropathy (Leonberger Type 3)	*CNTNAP1*	WT/WT	Normal (Clear)
Macular Corneal Dystrophy (Labrador Retriever Type)	*CHST6*	WT/WT	Normal (Clear)
Myotonia Congenita (Labrador Retriever Type)	*CLCN1*	WT/WT	Normal (Clear)
Myotubular Myopathy 1 (Labrador Retriever Type)	*MTM1*	WT/Y	Normal/Clear Male
Narcolepsy (Labrador Retriever Type)	*HCRTR2*	WT/WT	Normal (Clear)
Progressive Retinal Atrophy, Cone-Rod Dystrophy 4	*RPGRIP1*	WT/WT	Normal (Clear)
Progressive Retinal Atrophy, Golden Retriever 2	*TTC8*	WT/WT	Normal (Clear)

Progressive Retinal Atrophy, Progressive Rod-Cone Degeneration	*PRCD*	WT/WT	Normal (Clear)
Pyruvate Kinase Deficiency (Labrador Retriever Type)	*PKLR*	WT/WT	Normal (Clear)
Retinal Dysplasia/Oculoskeletal Dysplasia 1	*COL9A3*	WT/WT	Normal (Clear)
Skeletal Dysplasia 2	*COL11A2*	WT/WT	Normal (Clear)
Stargardt Disease	*ABCA4*	WT/WT	Normal (Clear)
Ullrich Congenital Muscular Dystrophy (Labrador Retriever Type 1)	*COL6A3*	WT/WT	Normal (Clear)
Ullrich Congenital Muscular Dystrophy (Labrador Retriever Type 2)	*COL6A3*	WT/WT	Normal (Clear)

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

Interpretation:

Molecular genetic analysis was performed for 29 specific mutations reported to be associated with disease in dogs. We identified two normal copies of the DNA sequences in 28 mutations tested. Thus, this dog is not at an increased risk for the diseases associated with these 28 mutations.

In addition, 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 was 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. Therefore, this dog may have a lesser risk of copper toxicosis than the risk associated with the inheritance of the *ATP7B* gene mutation alone. 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. Dogs that did not inherit the *ATP7B* gene mutation are not affected positively or negatively when they inherit one or two copies of the *ATP7A* gene mutation. 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.