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

Coat Color and Trait Certificate

Call Name:	Patsy	**Laboratory #:**	328290
Registered Name:	Martha "Patsy" Jefferson of IGPK	**Registration #:**	TLM05402839
Breed:	Goldendoodle	**Microchip #:**	981020041626768
Sex:	Female	**Certificate Date:**	Feb. 15, 2023
DOB:	June 2021		

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^h 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)
Chondrodysplasia (CDPA)	*CFA18 FGF4*	cd/cd	No Leg Shortening Associated with CDPA
Cu Locus (Curly Hair)	*KRT71*	Cu/Cu^C	*Wavy*/Curly coat (carrier)
D Locus (Dilute)	*MLPH*	D/D	Non-dilute (does not carry dilute)
E Locus - E^m (Melanistic Mask)	*MC1R*	E^m/N	Melanistic mask (carrier)
E Locus - e (Apricot/Cream/Red/Yellow, Common Variant Found in Many Breeds)	*MC1R*	E/e	Black (carries yellow/red)
I Locus (Intensity)	*MFSD12*	I/I	Normal intensity (carrier)
IC Locus (Improper Coat/Furnishings)	*RSPO2*	F/IC	Furnishings (improper coat carrier)
K Locus (Dominant Black)	*CBD103*	K^B/k^y	No agouti expression allowed (carrier)
L Locus (Long Hair/Fluffy) - Lh^1 (Common Variant Found in Many Breeds)	*FGF5*	Lh/Lh	Longhaired (carries two copies of long hair)
M Locus (Merle)	*PMEL*	m/M268	*See detailed interpretation
S Locus (White Spotting, Parti, or Piebald)	*MITF*	S/S	No white spotting, flash, parti, or piebald
SD Locus (Shedding)	*MC5R*	sd/SD	Moderate shedding

Interpretation:

This dog carries two copies of $\mathbf{a^t}$ 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 $\mathbf{a^t}$ 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.

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Laboratory Report

Laboratory #:	328290	**Call Name:**	Patsy
Order #:	147643	**Registered Name:**	Martha "Patsy" Jefferson of IGPK
Ordered By:	Kristine Probst	**Breed:**	Goldendoodle
Ordered:	Sept. 22, 2022	**Sex:**	Female
Received:	Feb. 7, 2023	**DOB:**	June 2021
Reported:	Feb. 15, 2023	**Registration #:**	TLM05402839
		Microchip #:	981020041626768

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
Congenital Methemoglobinemia	*CYB5R3*	WT/WT	Normal (clear)
Degenerative Myelopathy	*SOD1*	WT/WT	Normal (clear)
Hereditary Cataracts	*HSF4*	WT/WT	Normal (clear)
Ichthyosis (Golden Retriever Type 1)	*PNPLA1*	WT/WT	Normal (clear)
Ichthyosis (Golden Retriever Type 2)	*ABHD5*	WT/WT	Normal (clear)
Multidrug Resistance 1	*ABCB1*	WT/WT	Normal (clear)
Muscular Dystrophy (Golden Retriever Type)	*DMD*	WT/WT	Normal/Clear Female
Neonatal Encephalopathy with Seizures	*ATF2*	WT/WT	Normal (clear)
Neuronal Ceroid Lipofuscinosis 5 (Golden Retriever Type)	*CLN5*	WT/WT	Normal (clear)
Osteochondrodysplasia	*SLC13A1*	WT/WT	Normal (clear)
Osteogenesis Imperfecta (Golden Retriever Type)	*COL1A1*	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Golden Retriever 1	*SLC4A3*	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)
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 17 specific mutations reported to be associated with disease in dogs. We identified two normal copies of the DNA sequences in 17 mutations tested. Thus, this dog is not at an increased risk for the diseases associated with these 17 mutations.

Recommendations: