

Coat Color and Trait Certificate

Call Name:	Money Boy	Laboratory #:	312342
Registered Name:	Money Boy	Registration #:	-
Breed:	French Bulldog	Microchip #:	440078999007569
Sex:	Male	Certificate Date:	June 30, 2022
DOB:	Oct. 2021		

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

Coat Color/Trait Test	Gene	Genotype	Interpretation
A Locus (Agouti)	<i>ASIP</i>	a^t/a^t	Tricolor, black and tan
B Locus (Brown)	<i>TYRP1</i>	B/b or b/b	Black or brown coat, nose and foot pads (carries at least one copy of brown)
Co Locus (Cocoa, French Bulldog Type)	<i>HPS3</i>	co/co	Cocoa coat, nose and foot pads (carries two copies of cocoa)
D Locus (Dilute)	<i>MLPH</i>	d/d	Dilute (carries two copies of dilute)
E Locus - E^m (Melanistic Mask)	<i>MC1R</i>	N/N	No melanistic mask
E Locus - e (Apricot/Cream/Red/Yellow, Common Variant Found in Many Breeds)	<i>MC1R</i>	e/e	Yellow/red
I Locus (Intensity)	<i>MFSD12</i>	I/i	Normal intensity (carrier)
K Locus (Dominant Black)	<i>CBD103</i>	k^Y/k^Y	Agouti expression allowed
L Locus (Long Hair/Fluffy) - Lh^1 (Common Variant Found in Many Breeds)	<i>FGF5</i>	Sh/Sh	Shorthaired (does not carry long hair)
L Locus (Long Hair/Fluffy) - Lh^4 (Afghan Hound, Eurasier, French Bulldog Type)	<i>FGF5</i>	Lh/Lh	Longhaired (carries two copies of long hair)
M Locus (Merle)	<i>PMEL</i>	m/m	Non merle
S Locus (White Spotting, Parti, or Piebald)	<i>MITF</i>	S/S	No white spotting, flash, 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 or more copies of the four possible b mutations and has a B locus genotype of **B/b** or **b/b** that cannot be distinguished without additional testing of parental samples or by examining the coat, nose and footpad color of the dog. Dogs inherit two copies of the B locus, one from each parent. Because there are four different B locus mutations that can potentially be identified, as well as some limitations inherent to genetic

testing methodologies currently available, a result of "B/b or b/b" means that it cannot be determined if the b mutations identified in this dog are present on the same copy of the B locus inherited from one parent or if they occur on separate copies of the B locus inherited from each of the parents. If the mutations identified are all present on the same copy of the B locus, this dog will have a **B/b** genotype and typically will have a black coat, nose and footpads. If the mutations identified are present on different copies of the B locus, this dog will have a **b/b** genotype and may have a brown coat, and will typically have a brown nose and footpads. Depending on the breed, b/b dogs may be referred to as brown, chocolate, liver or red. However, this dog's coat color is dependent on the genotypes of many other genes. The B locus genotype for this dog can be inferred without the need for parental testing by evaluating the color of this dog's nose. If this dog's nose is brown, the B locus genotype of this dog must be **b/b** and this dog will pass one copy of **b** to 100% of its offspring. If this dog's nose is black, the final B locus genotype of this dog must be **B/b** and this dog will pass one copy of **B** to 50% of its offspring and one copy of **b** to 50% of its offspring. In either case, this dog carries at least one copy of **b** and can produce b/b offspring if bred to a dog that is also a carrier of a b mutation (B/b or b/b).

This dog carries two copies of the co (cocoa) mutation and has a Co Locus genotype of **co/co**. Thus, this dog typically will have a cocoa colored coat, nose and foot pads. Depending on the breed, co/co dogs may be referred to as cocoa, brown or chocolate. However, this dog's coat color is dependent on the genotypes of many other genes. This dog will pass one copy of **co** to 100% of its offspring. This dog can produce co/co (cocoa) offspring if bred to a dog that is also a carrier of co (CO/co or co/co).

This dog carries two copies of the same d mutation and has a D locus genotype of **d/d** which results in the "dilution" or lightening of the pigments that produce the dog's coat color. This dog will pass one copy of **d** to 100% of its offspring. This dog can produce d/d offspring if bred to a dog that is also a carrier of a d mutation (D/d or d/d).

This dog carries two copies of **e** which inhibits production of black pigment. The coat color of this dog will be yellow/red (including shades of white, cream, yellow, apricot or red). This dog will pass **e** on to 100% of its offspring.

This dog carries two copies of **N** which does not result in a melanistic mask on the muzzle of the dog. This dog will pass on **N** to 100% of its offspring.

This dog carries one 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 50% of its offspring and one copy of **i** to 50% of its offspring. This dog can produce i/i offspring if bred to a dog that is also a carrier of an i mutation (I/i or i/i).

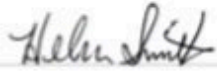
This dog carries two copies of **k^y** which allows for the expression of the agouti gene (A locus) which can result in a variety of coat colors including sable/fawn, tricolor, tan points, black or brown. However, this dog's coat color is dependent on its genotypes at the E, A and B genes. This dog will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

This dog carries two copies of **Lh⁴** which results in long hair. This dog will pass one copy of **Lh⁴** to 100% of its offspring.

This dog carries two copies of **m**, the non-merle, wild-type allele of the *PMEL* gene, and, therefore, does not have a merle coat color/pattern. This dog will pass on one copy of the **m** allele to 100% of its offspring.

This dog carries two copies of **S** which results in a solid coat with no white spotting, flash, parti, or piebald coat color. This dog will pass on one copy of **S** 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.



Helen F Smith, PhD
Associate Laboratory 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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**Canine Genetic Health Certificate™**

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Registered Name:	Money Boy	Registration #:	-
Breed:	French Bulldog	Microchip #:	440078999007569
Sex:	Male	Certificate Date:	June 30, 2022
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This canine's DNA showed the following genotype(s):

Disease	Gene	Genotype	Interpretation
Cystinuria Type 3 (Bulldog Type Risk Factor) - Variant 3	SLC7A9	WT/WT	Normal (clear)
Hereditary Cataracts	HSF4	WT/WT	Normal (clear)
Multifocal Retinopathy 1	BEST1	WT/WT	Normal (clear)
Progressive Retinal Atrophy, Cone-Rod Dystrophy 4	RPGRIP1	WT/WT	Normal (clear)

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

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