UCDAVIS VETERINARY MEDICINE
Veterinary Genetics Laboratory

DOG COAT COLOR / NATURAL BOBTAIL TEST REPORT

Provided Information:	***Case:*** **NCD249078**
Name: **ZADIE**	***Date Received:*** 17-Jan-2025
Registration:	***Report Issue Date:*** 24-Jan-2025
	Report ID: 3778-5251-5660-9017
	Verify report at vgl.ucdavis.edu/verify

DOB: **12/03/2021** *Sex:* **Female** *Breed:* **French Bulldog**

Sire: ACE	*Dam:* PEBBLES
Reg:	*Reg:*
Microchip:	*Microchip:*

RESULT		INTERPRETATION
MC1R (E LOCUS)	**E^m/e^1**	1 copy of mask and 1 copy of red/yellow/cream.
BROWN (B LOCUS)	**B/B**	Does not carry brown - cannot have brown offspring.
DILUTE (D LOCUS)	**D/d^1**	Carries 1 copy of the dilution variant.
DOMINANT BLACK (K LOCUS)	**N/N**	Dog does not have the dominant black mutation.
LEGACY AGOUTI	**a^t/a**	Dog has black-and-tan and carries recessive black.
AGOUTI (A LOCUS)	**$ASIP^{BB1}/ASIP^a$**	One copy of black back 1 and one copy of recessive black.
MERLE	**N/268**	One copy of the merle associated SINE insertion. See attachment (last page) for additional information.
PIEBALD (S LOCUS)	**N/N**	Dog has no copies of piebald.
INTENSITY DILUTION	**In/In**	2 copies of intensity dilution. Red pigment is likely to be diluted to cream or white.
ALBINISM (LHASA APSO TYPE)	**N/N**	No copies of the variant associated with the albinism first identified in the Lhasa Apso.
COCOA	**co/co**	2 copies of the cocoa variant.

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RONNIE COBLENTZ 6827 COUNTY ROAD 672 MILLERSBURG, OH 44654	***Date Received:*** 17-Jan-2025 ***Report Issue Date:*** 24-Jan-2025 ***Report ID:*** 3778-5251-5660-9017 Verify report at vgl.ucdavis.edu/verify

Name: **ZADIE**

Additional Information

If testing for a disease or a disorder was performed and results indicate the animal is affected or at risk, we recommend contacting your veterinarian for further clinical evaluation and for additional information on disease and management.

For more detailed information on Dog Coat Color test results, please visit our website at:
vgl.ucdavis.edu/resources/dog-coat-color

Agouti research is ongoing, and additional variation beyond the resolution of this test may exist.

Results are determined using PCR-based methods. The results relate only to the sample tested as identified by the submitter (for example, identity and/or breed).

Report authorized by Dr. Rebecca Bellone, VGL Director

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ADDITIONAL INFORMATION FOR MERLE RESULTS

Provided Information:	***Case:*** **NCD249078**
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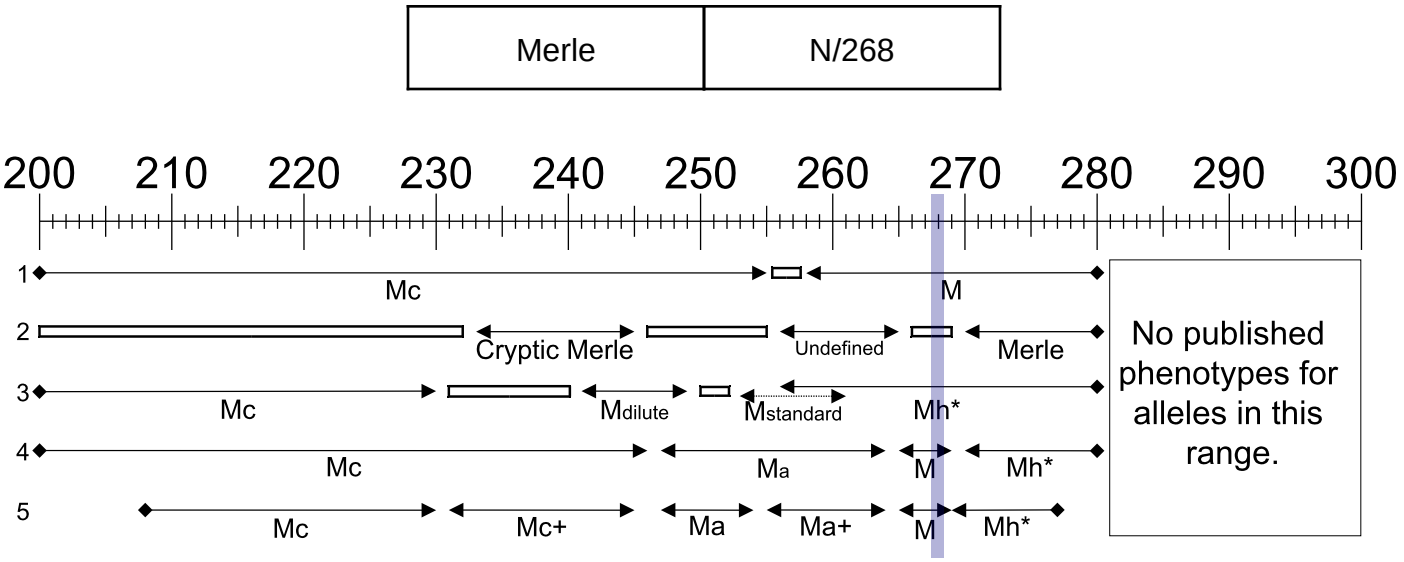
Sire: ACE	*Dam:* PEBBLES
Reg:	*Reg:*
Microchip:	*Microchip:*

Several interpretations and nomenclatures for the Merle variant have been proposed. Below is a graphical display of the merle alleles detected and the publications that define these nomenclatures.



Open boxes represent unassigned size variants within a specific naming system.

[1]Previous merle pattern result reported by the VGL.
Mc=200-255, M=258-280

[2]Merle pattern nomenclature defined by Clark et al. 2006.

[3]Merle pattern nomenclature defined by Murphy et al. 2018.
Mc=200-230, Mdilute=241-249, Mstandard=253-261, Mh=256-280

[4]Merle pattern nomenclature defined by Ballif et al. 2018.
Mc=200-246, Ma=247-264, M=265-269, Mh=270-280

[5]Merle pattern nomenclature defined by Langevin et al. 2018.
Mc=208-230, Mc+=231-245, Ma=247-254, Ma+=255-264, M=265-269, Mh=269-277

* Mh “harlequin” is not the true Great Dane Harlequin (H) identified by Clark et al. 2008.

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Agouti: the ASIP (A) locus

The Agouti gene, also referred to as the **A locus** or **ASIP locus**, is a gene that controls where and when eumelanin (i.e. black/brown pigment) or phaeomelanin (i.e. red/yellow/tan pigment) is produced in the coat of dogs and other mammals. The old Agouti test (now referred to as Legacy Agouti) identified four alleles at the Agouti locus, but these alleles did not fully explain the different coat color phenotypes controlled by this gene. Recent research by Dr. Bannasch and colleagues has uncovered more of the complexity of dog coat color as it relates to the ASIP locus, allowing our laboratory to offer a more complete test to our clients.

The new Agouti test allows for the identification of eight haplotype combinations, and their correspondence to the Legacy Agouti alleles is shown below.

Note: The illustrations below portray examples of adult coat patterns. Puppy coats typically exhibit more eumelanin (black/brown pigment). For example, in puppies, the Black Saddle coloration looks like Black Back and Shaded Yellow can look very similar to Agouti.

	PHENOTYPE NAME	COMMON NAMES	*ASIP* HAPLOTYPE COMBINATION	OLD ALLELE Legacy Agouti
	Dominant Yellow	fawn, sable, red, cream, tan	***ASIP*** ^{DY}	a^y
	Shaded Yellow	shaded sable, shaded fawn, fawn, sable, red, cream, tan	***ASIP*** ^{SY}	
	Agouti	wolf sable, sable, grey, agouti	***ASIP*** ^{AG}	a^w *
	Black Saddle	saddle back, saddle tan, black and tan, hound	***ASIP*** ^{BS}	a^t
	Black Back	black and tan, bicolor, tan points, pointed	***ASIP*** ^{BB1} ***ASIP*** ^{BB2} ***ASIP*** ^{BB3}	
	Recessive Black	black	***ASIP*** ^{a}	a

most dominant ↓ *least dominant*

Eumelanin (black/brown pigment)
Appearance of pigment will depend on other genes, e.g. Brown (B locus), Dilute (D locus), *MC1R* (E locus), and Dominant Black (K locus)

Phaeomelanin (yellow/red/tan pigment)
Appearance of pigment will depend on other genes, e.g. Dilute (D locus), Intensity (In), and *KITLG*

* In some cases, the **a^w** Legacy Agouti allele can correspond to the new ***ASIP*** ^{BB3} haplotype combination.

For more detailed information about the new Agouti test, please visit our website at https://vgl.ucdavis.edu/test/agouti-dog

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FRENCH BULLDOG GENETIC HEALTH PANEL TEST REPORT

Provided Information:	***Case:*** **NCD249078**
Name: **ZADIE**	***Date Received:*** 17-Jan-2025
Registration:	***Report Issue Date:*** 23-Jan-2025
	Report ID: 7284-0845-6897-0017
	Verify report at vgl.ucdavis.edu/verify

DOB: **12/03/2021** *Sex:* **Female** *Breed:* **French Bulldog**

Sire: ACE	*Dam:* PEBBLES
Reg:	*Reg:*
Microchip:	*Microchip:*

RESULT		INTERPRETATION
Canine Multifocal Retinopathy (CMR1)	**N/N**	Normal - no copies of the CMR1 mutation.
Degenerative Myelopathy (DM)	**N/N**	No copies of the DM mutation.
Juvenile Hereditary Cataract (JHC)	**N/N**	No copies of JHC mutation. Cataracts may however develop because of other genetic and environmental factors.
Hyperuricosuria (HUU)	**N/N**	No copies of the hyperuricosuria mutation detected. Dog is normal.

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RONNIE COBLENTZ 6827 COUNTY ROAD 672 MILLERSBURG, OH 44654	***Date Received:*** 17-Jan-2025 ***Report Issue Date:*** 23-Jan-2025 ***Report ID:*** 7284-0845-6897-0017 Verify report at vgl.ucdavis.edu/verify

Name: **ZADIE**

Additional Information

If testing for a disease or a disorder was performed and results indicate the animal is affected or at risk, we recommend contacting your veterinarian for further clinical evaluation and for additional information on disease and management.

For more detailed information on French Bulldog Genetic test results, please visit our website at:
vgl.ucdavis.edu/panel/french-bulldog-health-panel-1

For terms and conditions of testing, please see vgl.ucdavis.edu/about/terms-and-conditions

Results are determined using PCR-based methods. The results relate only to the sample tested as identified by the submitter (for example, identity and/or breed).

Report authorized by Dr. Rebecca Bellone, VGL Director

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 TESTING LABORATORY

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Degenerative Myelopathy

Degenerative Myelopathy is associated with a genetic variant in the *SOD1* gene (c.118G>A). We therefore denote this associated allele as DM on our reports.

Many dog breeds carry the *SOD1* allele associated with Degenerative Myelopathy. The following breeds have been reported as having **clinically-affected** individuals with two copies of the *SOD1* associated variant (denoted on our report as **DM/DM**): American Eskimo Dog, Australian Shepherd, Bernese Mountain Dog, Bloodhound, Borzoi, Boxer, Cardigan Welsh Corgi, Cavalier King Charles Spaniel, Chesapeake Bay Retriever, Czech Wolfdog, English Springer Spaniel, German Shepherd, Golden Retriever, Hovawart, Kerry Blue Terrier, Labrador Retriever, Pembroke Welsh Corgi, Pug, Rhodesian Ridgeback, Rough Collie, Soft Coated Wheaten Terrier, Standard Poodle, and Wire Fox Terrier. Testing is advisable for these breeds.

There have also been reports of crossbred dogs with two copies of the SOD1 allele that were clinically affected by degenerative myelopathy.

What do the results mean for my dog?

Within clinically-affected breeds, dogs with two copies of DM (**DM/DM**) are considered at higher risk for developing clinical signs of DM. However, not all dogs that are DM/DM will develop clinical signs of disease, and not all cases of degenerative myelopathy are explained by the DM/DM result.

Why some DM/DM dogs display symptoms of disease and others do not, is not yet known, but one hypothesis is that there are other genetic modifiers that contribute to risk. This is still under investigation.

Dogs with one copy of DM (**N/DM**) are not expected to develop clinical signs of degenerative myelopathy. They are considered carriers, because they carry the allele associated with disease.

Dogs with **N/N** genotype do not have this *SOD1* variant associated with degenerative myelopathy.

Please note that there may be other causes for degenerative myelopathy in the dog that are not explained by the *SOD1* variant (c.118G>A) tested by the VGL.

What about breeding my dog?

Dogs with a DM/DM genotype will pass on the DM allele to all of their offspring.

Dogs with an N/DM genotype may pass on the DM allele to ~50% of their offspring. If bred to another N/DM dog, 25% of puppies will be expected to have a DM/DM genotype and be at increased risk for developing DM.

For more detailed information about DM, visit https://vgl.ucdavis.edu/test/degenerative-myelopathy

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COAT LENGTH TEST REPORT

Provided Information:	***Case:*** **NCD249078**
Name: **ZADIE**	***Date Received:*** 17-Jan-2025
Registration:	***Report Issue Date:*** 23-Jan-2025
	Report ID: 1322-9011-3649-1013
	Verify report at vgl.ucdavis.edu/verify

DOB: **12/03/2021** *Sex:* **Female** *Breed:* **French Bulldog**

Sire: ACE	*Dam:* PEBBLES
Reg:	*Reg:*
Microchip:	*Microchip:*

RESULT		INTERPRETATION
COAT LENGTH	**S/S**	No copies of these alleles associated with long hair detected.

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COAT LENGTH TEST REPORT

Client/Owner/Agent Information:	*Case:* **NCD249078**
RONNIE COBLENTZ 6827 COUNTY ROAD 672 MILLERSBURG, OH 44654	***Date Received:*** 17-Jan-2025 ***Report Issue Date:*** 23-Jan-2025 ***Report ID:*** 1322-9011-3649-1013 Verify report at vgl.ucdavis.edu/verify

Name: **ZADIE**

Additional Information

If testing for a disease or a disorder was performed and results indicate the animal is affected or at risk, we recommend contacting your veterinarian for further clinical evaluation and for additional information on disease and management.

For more detailed information on Dog Coat Type test results, please visit our website at:
vgl.ucdavis.edu/services/dog/coat-length-curl-furnishings

Results are determined using PCR-based methods. The results relate only to the sample tested as identified by the submitter (for example, identity and/or breed).

Report authorized by Dr. Rebecca Bellone, VGL Director

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 TESTING LABORATORY