UCDAVIS VETERINARY MEDICINE
Veterinary Genetics Laboratory

DOG COAT COLOR / NATURAL BOBTAIL TEST REPORT

Provided Information:		*Case:*	**NCD217383**
Name:	**WOODLANDS MILLIE**	***Date Received:***	04-Apr-2023
Registration:	**NP79553001**	***Report Issue Date:***	10-Jan-2025
		Report ID:	4890-0647-8555-9060
		Reissue of:	0873-3132-4849-0124
		Verify report at vgl.ucdavis.edu/verify	

DOB: **09/13/2022** *Sex:* **Female** *Breed:* **French Bulldog**

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**	2 copies of brown present - black pigment (if present) is diluted to brown, red/yellow dogs have brown noses and foot pads.
DILUTE (D LOCUS)	**d^1/d^1**	Dilute, 2 copies of the dilution variants.
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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Client/Owner/Agent Information:	*Case:* **NCD217383**
RONNIE COBLENTZ 6827 COUNTY ROAD 672 MILLERSBURG, OH 44654	***Date Received:*** 04-Apr-2023 ***Report Issue Date:*** 10-Jan-2025 ***Report ID:*** 4890-0647-8555-9060 ***Reissue of:*** 0873-3132-4849-0124 Verify report at vgl.ucdavis.edu/verify

Name: **WOODLANDS MILLIE**

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

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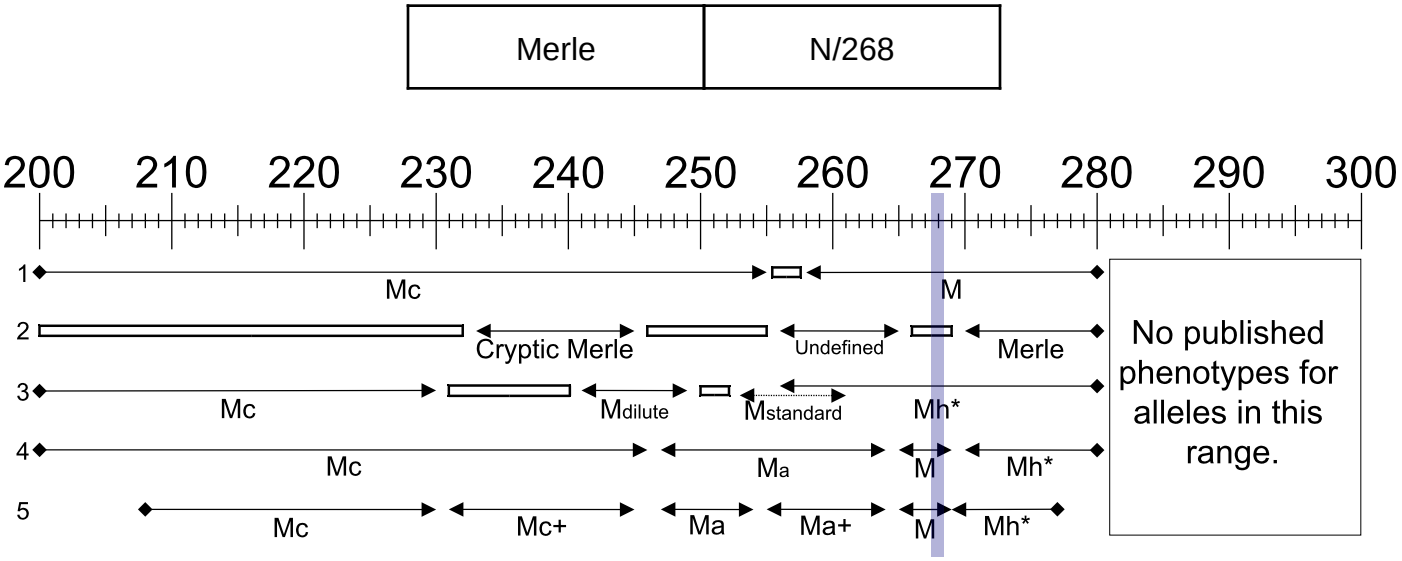
Several interpretations and nomenclatures for the Merle variant have been proposed. Below is a graphical display of the merle alleles detected and the publications that define these nomenclatures.



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