



# HORSE COAT COLOR / PATTERN TEST REPORT

<b>Provided Information:</b>		<b>Case:</b>	<b>NQ134968</b>
<b>Name:</b>	<b>NCH BIG SKY</b>	<b>Date Received:</b>	10-Mar-2026
<b>Registration:</b>	<b>6439129</b>	<b>Report Issue Date:</b>	22-Mar-2026
		<b>Report ID:</b>	2577-2844-5152-6160
Verify report at <a href="http://vgl.ucdavis.edu/verify">vgl.ucdavis.edu/verify</a>			
<b>DOB: 02/22/2025 Sex: Mare Breed: Quarter Horse</b>			

RESULT		INTERPRETATION	RESULT		INTERPRETATION
RED FACTOR	<b>e/e</b>	Only red factor detected. Basic color is red in the absence of modifying genes.	SPLASHED WHITE (SW1, SW3, SW5, SW6, SW7, SW8)	<b>N/N</b>	No copies of MITF Splashed White detected.
AGOUTI	<b>a/a</b>	If present, black pigment is distributed uniformly over the body.	SPLASHED WHITE (SW2, SW4)	<b>N/N</b>	No copies of PAX3 Splashed White detected.
CREAM	<b>N/N</b>	No copies of Cream dilution detected.	TOBIANO	<b>N/N</b>	No copies of Tobiano detected.
PEARL	<b>N/N</b>	No copies of Pearl dilution detected.	LEOPARD	<b>N/N</b>	No copies of Leopard Complex detected.
SILVER	<b>N/N</b>	No copies of Silver dilution detected.	PATTERN-1	<b>N/N</b>	No copies of PATN1 detected.*
DUN	<b>nd2/nd2</b>	Horse is not Dun dilute. Primitive markings are absent.	BRINDLE 1		Not requested.
CHAMPAGNE	<b>N/N</b>	No copies of Champagne dilution detected.	TIGER EYE		Not requested.
LETHAL WHITE OVERO	<b>N/N</b>	No copies of lethal white overo detected.	MUSHROOM (SHETLAND PONY)		Not requested.
SABINO 1	<b>N/N</b>	No copies of Sabino 1 detected.	GRAY PRESENCE OR ABSENCE	<b>Absent</b>	Gray variants were not detected. Horse will not gray.
DOMINANT WHITE (W5, W10, W13, W20, W22)	<b>N/N</b>	No copies of W5, W10, W13, W20 or W22 detected.	ROAN	<b>Rn/Rn</b>	2 copies of classic Roan detected.

<b>Client/Owner/Agent Information:</b> JEFFREY NEIDHART 4144 CRISTO REY ST FARMINGTON, NM 87401	<b>Case:</b> <b>NQ134968</b> <b>Date Received:</b> 10-Mar-2026 <b>Report Issue Date:</b> 22-Mar-2026 <b>Report ID:</b> 2577-2844-5152-6160  Verify report at <a href="http://vgl.ucdavis.edu/verify">vgl.ucdavis.edu/verify</a>
<b>Name:</b> <b>NCH BIG SKY</b>	

### 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 Coat Color test results, please visit our website at:  
[vgl.ucdavis.edu/resources/horse-coat-color](http://vgl.ucdavis.edu/resources/horse-coat-color)

\*Pattern-1: In order for high levels of white spotting to be visible on horses that inherit PATN1, LP must also be present.

### License Information

Tests for Tobiano are performed under license.

For terms and conditions of testing, please see [vgl.ucdavis.edu/about/terms-and-conditions](http://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**

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Horse coat color depends on many genes. There are two known genes that contribute to a horse's base color, namely Agouti (also known as Agouti Signaling Protein or *ASIP* for short) and Red Factor (also known as extension or *MC1R*).

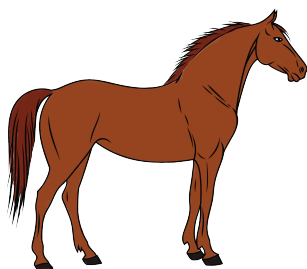
Genetic variation at the Agouti and Red Factor loci work together to determine the base coat color as well as the color of a horse's points (mane, tail, lower legs, and ear rims). Together these genes determine if a horse is chestnut/sorrel (shade of red body and red points), bay (shade of red body with black points), or black (black body and black points).

**Agouti** controls the distribution of black pigment, and alleles of this gene determine whether a horse will have a bay or black base coat color. The dominant **A** allele restricts black to the points. To read more about Agouti, visit <https://vgl.ucdavis.edu/test/agouti-horse>.

**Red factor** is responsible for determining whether a horse will have a chestnut base coat color or not. Horses with two recessive alleles (*e* or *e<sup>a</sup>*) will be chestnut regardless of the genotype at the agouti locus. Horses with at least one dominant allele (*E*) will not be chestnut, and whether they are bay or black is dependent on the genotype at the agouti locus. To read more about Red Factor, visit <https://vgl.ucdavis.edu/test/red-factor-horse>.

Genotype results for Agouti and Red Factor can be helpful in predicting breeding outcomes.

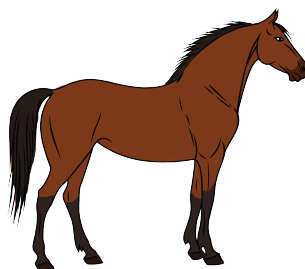
Please note that additional known and yet unknown genes influence shade, dilution, and white patterning, and ultimately the overall coat color phenotype observed.



Chestnut or Sorrel

Possible genotypes:

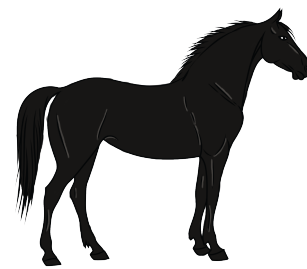
*e/e A/a*  
*e/e A/A*  
*e/e a/a*



Bay

Possible genotypes:

*E/e A/a*  
*E/e A/A*  
*E/E A/a*  
*E/E A/A*



Black

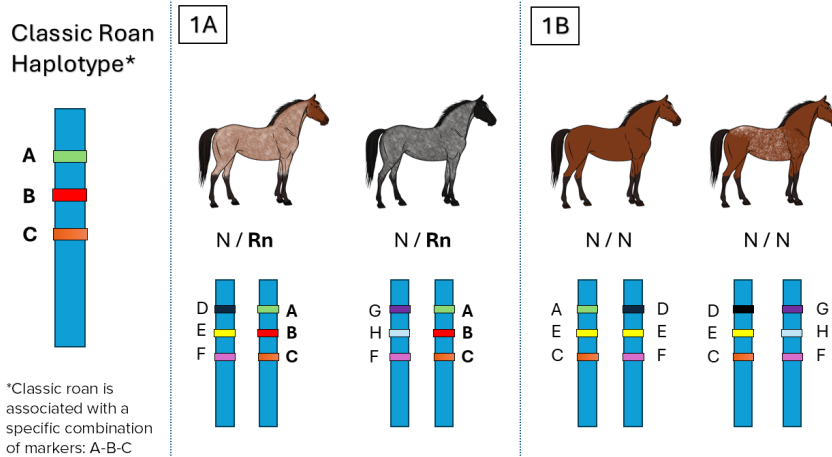
Possible genotypes:

*E/e a/a*  
*E/E a/a*

For more on horse coat color visit. <https://vgl.ucdavis.edu/resources/horse-coat-color>.

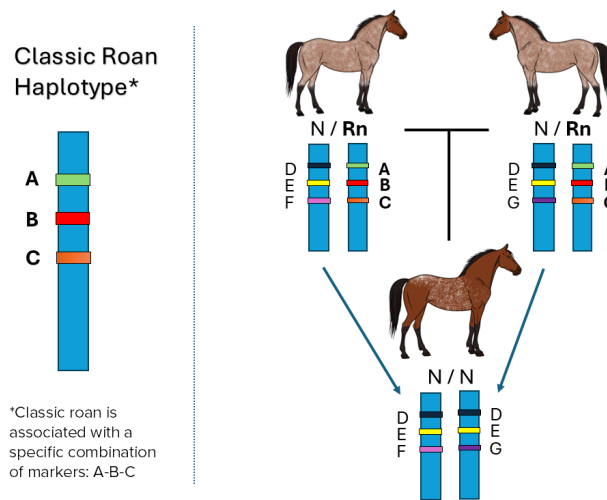
Classic roan is a specific white coat patterning in horses characterized by intermixed white and pigmented hairs in the body, while the head, lower legs, mane and tail typically remain fully pigmented. The white and pigmented hairs are often evenly distributed in horses that inherit classic roan, which can differentiate this pattern from several patterns that look similar and are also referred to as roaning.

Research at the VGL identified a haplotype, meaning a combination of DNA markers, that is associated specifically with the classic roan coat pattern (Figure 1). Given the existence of other white spotting patterns that also display roaning, it is possible for a horse to have what appears to be a roan phenotype but not have the classic roan haplotype tested by the VGL.



**Figure 1:** An illustrated and simplified example of our classic roan haplotype test. Figure 1A shows classic roan horses that are heterozygous for the classic roan haplotype (haplotype A-B-C). These horses are reported as N/Rn. Figure 1B shows horses without the classic roan haplotype. These horses are reported as N/N and may or may not display roaning in the coat. Roaning that is not explained by the classic roan haplotype (i.e., a horse with roan in the coat but with a roan genetic marker report of N/N) is likely caused by some other genetic variant that is currently unknown.

Please note that it is possible for two classic roan horses, who are heterozygous for roan (N/Rn), to produce a horse that may have a roan-like coat pattern but not have the classic roan haplotype (Figure 2). The cause of a horse such as the one displayed in Figure 2 is still not known.



**Figure 2:** Illustration of a simplified version of our roan haplotype test to show how two roan parents can produce a foal without the classic roan haplotype. In this case, each parent is heterozygous for classic roan (N/Rn) and passed on the non-roan haplotype to the offspring. The foal, despite having a roan-like phenotype does not have the classic roan haplotype. The foal's white pattern is most likely explained by some other, yet unknown, DNA variant impacting white patterning that one or both parents may also have.

Read more about the Roan Zygoticity Test at <https://vgl.ucdavis.edu/test/roan>