

GENETIC STATS

Wolfiness: 0.6 % **LOW**

Predicted adult weight: **71 lbs**

Genetic age: **12 human years**

MATERNAL LINE



Through Emma's mitochondrial DNA we can trace her mother's ancestry back to where dogs and people first became friends. This map helps you visualize the routes that her ancestors took to your home. Their story is described below the map.

HAPLOGROUP: B1

B1 is the second most common maternal lineage in breeds of European or American origin. It is the female line of the majority of Golden Retrievers, Basset Hounds, and Shih Tzus, and about half of Beagles, Pekingese and Toy Poodles. This lineage is also somewhat common among village dogs that carry distinct ancestry from these breeds. We know this is a result of B1 dogs being common amongst the European dogs that their conquering owners brought around the world, because nowhere on earth is it a very common lineage in village dogs. It even enables us to trace the path of (human) colonization: Because most Bichons are B1 and Bichons are popular in Spanish culture, B1 is now fairly common among village dogs in Latin America.

HAPLOTYPE: B49

Part of the large B1 haplogroup, this haplotype occurs most commonly in Poodles. It's a rare find!

TRAITS

Coat Color

E Locus (Mask/Grizzle/Red)	ee
K Locus (Dominant Black)	K^{BK}B
A Locus (Agouti)	a^ta^t
D Locus (Dilute)	DD
B Locus (Brown/Chocolate/Liver)	BB

Other Coat Traits

Furnishings / Improper Coat (RSP02)	FF
Long Haircoat (FGF5)	TT
Shedding (MC5R)	CC
Curly Coat (KRT71)	TT

Body Size

IGF1	NN
IGF1R	GG
STC2	TT
GHR (E195K)	GG
GHR (P177L)	CC

Genetic Diversity

Inbreeding Coefficient	23%
MHC Class II - DLA DRB1	No Diversity
MHC Class II - DLA DQA1 and DQB1	No Diversity

Other Body Features

Brachycephaly (BMP3)	CC
Natural Bobtail (T)	CC
Hind Dewclaws (LMBR1)	CC

Performance

Altitude Adaptation (EPAS1)	GG
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CLINICAL TRAITS

These clinical genetic traits can inform clinical decisions and diagnoses. These traits do not predict a disease state or increased risk for disease. We currently assess one clinical trait: Alanine Aminotransferase Activity.

Alanine Aminotransferase Activity result: Low Normal

Emma has one copy of a mutation associated with reduced ALT activity as measured on veterinary blood chemistry panels. Please inform your veterinarian that Emma has this genotype, as ALT is often used as an indicator of liver health and Emma is likely to have a lower than average resting ALT activity. As such, an increase in Emma's ALT activity could be evidence of liver damage, even if it is within normal limits by standard ALT reference ranges.

More information on Alanine Aminotransferase Activity:

Known to be highly expressed in liver cells, activity levels of alanine aminotransferase, or ALT, is a common value on most blood chemistry panels and is known to be a sensitive measure of liver health. Dogs with two ancestral G alleles show "normal" activity. Dogs that have one or two copies of the derived A allele may have lower resting levels of ALT activity, known as "low normal". If your dog's result is "low normal" then when a blood chemistry panel is being interpreted the values that you and your veterinarian consider "normal" may need to be adjusted. Please note that neither a "normal" nor a "low normal" result for this predicts a disease state or increased risk for liver disease. Moreover, this mutation does not associate with increased levels of ALT: If your dog has high ALT levels, please consult your veterinarian.

HEALTH

Good news! Emma did not test positive for any of the genetic diseases that Embark screens for. Read on to learn more about the conditions we test for, but rest assured that Emma does not have the mutations known to cause them.

It is still important to let your veterinarian know these results because they could help guide Emma's diagnosis and treatment if she gets sick in the future. Many other diseases caused by environmental factors or undiscovered genetic variants can cause symptoms similar to diseases we test for. By ruling out these mutations, your veterinarian will be able to find the true cause more quickly. Your veterinarian will also know they can safely prescribe medications some dogs are sensitive to.

0**AT RISK****0****CARRIER****160****CLEAR**

OTHER CONDITIONS

Good news! Emma tested clear for 8 other common genetic diseases that Embark tests for.

- Multidrug Sensitivity (MDR1)
- Progressive Retinal Atrophy (PRA)
Progressive rod-cone degeneration (PRCD Exon 1)
- Hyperuricosuria and Hyperuricemia or Urolithiasis (SLC2A9)
- Dilated Cardiomyopathy (PDK4)
- Von Willebrand Disease Type II (VWF Exon 28)
- Primary Lens Luxation (ADAMTS17)
- Degenerative Myelopathy (SOD1 Exon 2)
- Exercise-Induced Collapse (DNM1)

FULL TEST PANEL

To help ensure healthy breeds, every test includes analysis of our full panel of over 160 genetic diseases.

Emma is also clear of 152 other genetic diseases that Embark tests for.