

OWNER'S NAME:

DOG'S NAME: **Maine Aim's Rapunzel**

TEST DATE: July 3rd, 2017

This certifies the authenticity of **Maine Aim's Rapunzel's** canine genetic background as determined following careful analysis of more than 200,000 genetic markers.

Welcome to the
Embarc family!



53.3% Pomeranian

WOLFINESS **7.1% HIGH**

MATERNAL HAPLOTYPE **A29a**



46.7% Siberian Husky



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CHIEF SCIENCE OFFICER



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CHIEF EXECUTIVE OFFICER

MAINE AIM'S RAPUNZEL



DNA Test Report

Test Date: July 3rd, 2017

embk.me/maineaimsrapunzel

BREED MIX

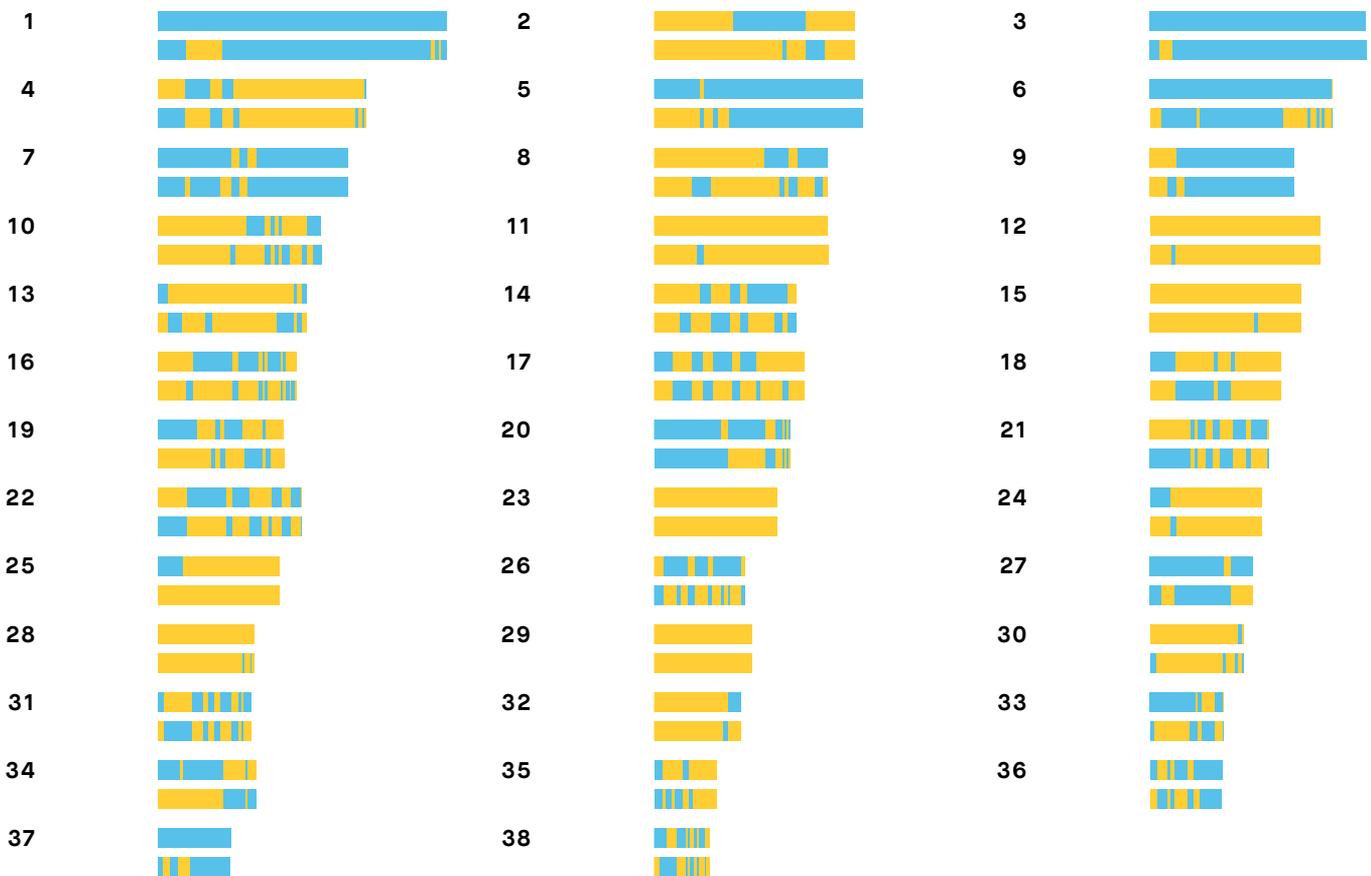


GENETIC STATS

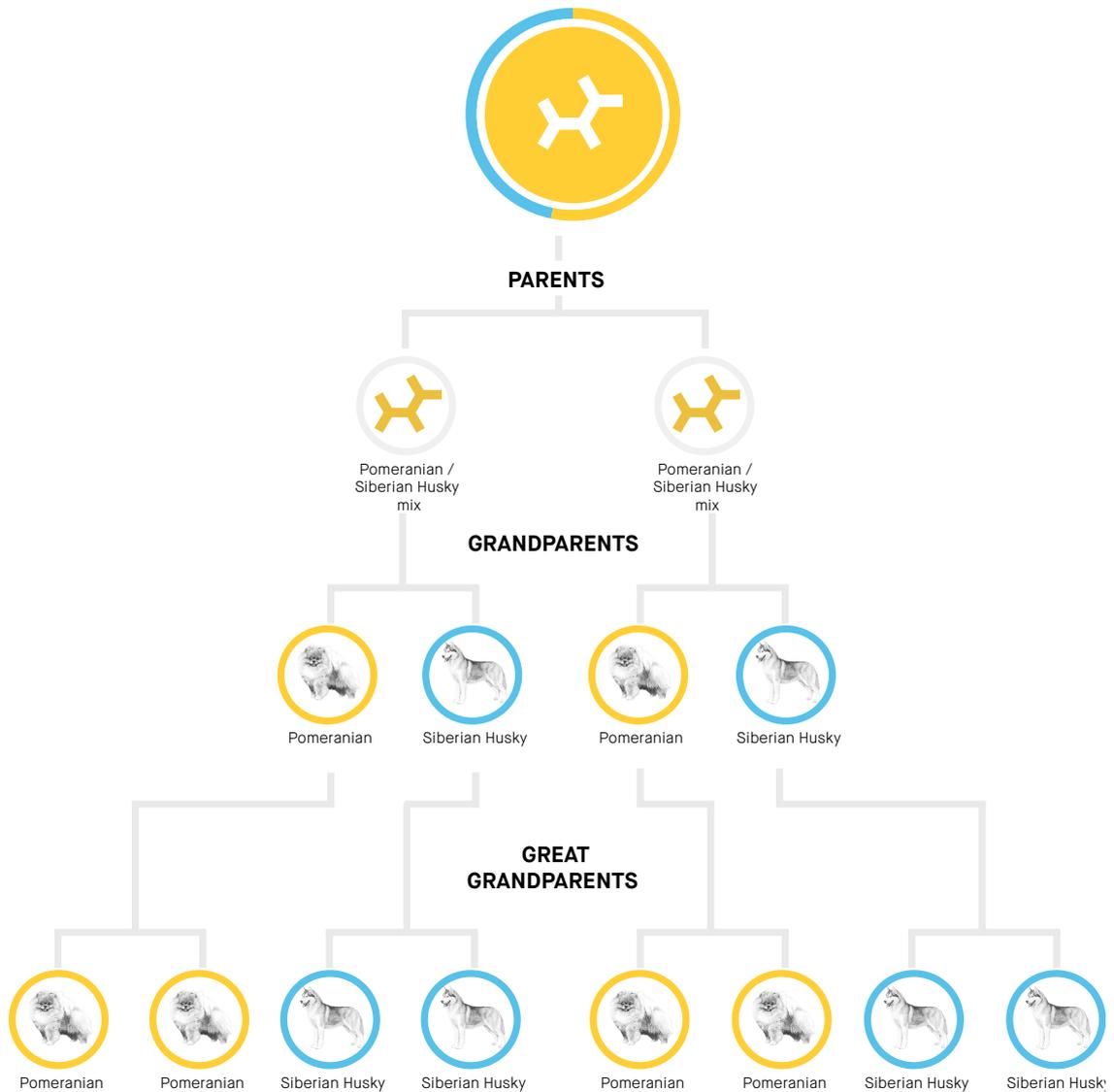
Wolfiness: 7.1 % **HIGH**
Predicted adult weight: **31 lbs**
Genetic age: **11 human years**

BREED MIX BY CHROMOSOME

Our advanced test identifies from where Maine Aim's Rapunzel inherited every part of the chromosome pairs in her genome.



FAMILY TREE



Our algorithms predict this is the most likely family tree to explain Maine Aim's Rapunzel's breed mix, but this family tree may not be the only possible one.

POMERANIAN



Alternative Names

Pom, Pom Pom, Deutsche Spitze, Zwergspitz, Spitz Nain, Spitz Enano, Zwers

Fun Fact

Pomeranians boast one of the widest variety of color options in one breed. The American Kennel Club lists 23 accepted colors

Cute, feisty and furry, Poms are intelligent and loyal to their families. Don't let their cuteness fool you, however. These independent, bold dogs have minds of their own. They are alert and curious about the world around them. Unfortunately, in their minds, they are much larger than they really are, which can sometimes lead them to harass and even attack much larger dogs. Luckily, if they are properly socialized with other dogs and animals, they generally get along quite well with them.

Poms take their name from the province of Pomerania, in Germany. They became especially popular when Queen Victoria allowed some of her Pomeranians to be shown in a conformation show, the first Pomeranians ever to be shown.

Pomeranians make excellent pets for older people and those who are busy, because they aren't an overly dependent breed. They are also good for apartment dwellers or homes that don't have a backyard. Because of their small size, they aren't recommended for families with small children who might injure them accidentally. While Poms are good with children, they are not a good choice for very young or highly active children because of their small size. Never let your small children and your Pom play without supervision.

Because they are so small, Poms can be perceived as prey by owls, eagles, hawks, coyotes, and other wild animals. Never leave them outside unattended, and be watchful if there are predatory birds in your location. If this is the case, stay close to your Pom to discourage birds from trying to carry them off!

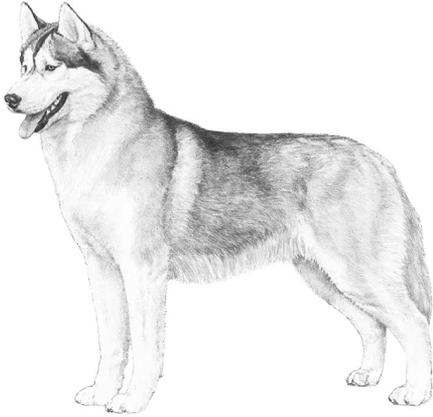
RELATED BREEDS



American Eskimo Dog

Cousin breed

SIBERIAN HUSKY



The Siberian Husky originated from the extreme north east of Siberia. They were initially domesticated by the Chukchi -an ancient population that thrived by herding reindeer and moving with each season to new grazing regions. They came to America in 1909 and found their place in the Alaskan wilderness. They love to be out in cold weather and are known to be the ideal sled dog. They have strong insulated paws that are perfect for traction in the snow. The Siberian Husky also has two layers in their coat that protects them from Arctic winters.

Alternative Names

Chukcha, Chuksha, Husky, Icee, Sibe

Fun Fact

In 1925 a team of Siberian Huskies saved Nome, Alaska by carrying the serum to cure diphtheria a considerable distance by sled. The run was done in the middle of a blizzard and in conditions below -23 degrees Fahrenheit. The run is remembered by the annual Iditarod Trail Sled Race, and Balto, the famous sled dog who led his team through the final leg.

RELATED BREEDS



Alaskan Malamute
Sibling breed



Greenland Sledge Dog
Sibling breed



Samoyed
Cousin breed

MATERNAL LINE



Through Maine Aim's Rapunzel'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: A2

A2 is a very ancient maternal line. Most likely it was one of the major female lines that contributed to the very first domesticated dogs in Central Asia about 15,000 years ago. Some of the line stayed in Central Asia to the present day, and frequently appear as Tibetan Mastiffs and Akitas. Those that escaped the mountains of Central Asia sought out other cold spots, and are now found among Alaskan Malamutes and Siberian Huskies. This lineage is also occasionally found in several common Western breeds, such as German Shepherds and Labrador Retrievers. Curiously, all New Guinea Singing Dogs descend from this line. These are an ancient and very interesting breed found in the mountains of Papua New Guinea. Unfortunately, they are now endangered. They are closely related to the Australian dingo, so you could say its cousins are dingos! This line is also common in village dogs in Southeast and East Asia. Unlike many other lineages, A2 did not spread across the whole world, probably because it did not have the opportunity to hitch its wagon to European colonialism - or because these dogs just prefer

HAPLOTYPE: A29a

Part of the A2 haplogroup, this haplotype occurs most commonly in Siberian Huskies, Alaskan Malamutes, Labrador Retrievers, and village dogs from Alaska.

TRAITS

Coat Color

E Locus (Mask/Grizzle/Red)	Ee
K Locus (Dominant Black)	k^Yk^Y
A Locus (Agouti)	a^ta^t
D Locus (Dilute)	DD
B Locus (Brown/Chocolate/Liver)	bb

Other Coat Traits

Furnishings / Improper Coat (RSP02)	II
Long Haircoat (FGF5)	GT
Shedding (MC5R)	CC
Curly Coat (KRT71)	CC

Body Size

IGF1	II
IGF1R	GG
STC2	AA
GHR (E195K)	GA
GHR (P177L)	CT

Genetic Diversity

Inbreeding Coefficient	5%
MHC Class II - DLA DRB1	High Diversity
MHC Class II - DLA DQA1 and DQB1	High Diversity

Other Body Features

Brachycephaly (BMP3)	AC
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

Maine Aim's Rapunzel has one copy of a mutation associated with reduced ALT activity as measured on veterinary blood chemistry panels. Please inform your veterinarian that Maine Aim's Rapunzel has this genotype, as ALT is often used as an indicator of liver health and Maine Aim's Rapunzel is likely to have a lower than average resting ALT activity. As such, an increase in Maine Aim's Rapunzel'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! Maine Aim's Rapunzel 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 Maine Aim's Rapunzel 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 Maine Aim's Rapunzel'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! Maine Aim's Rapunzel tested clear for 5 genetic conditions that are common in her breed mix.

- Multidrug Sensitivity (MDR1)
- Progressive Retinal Atrophy (PRA) Rod-cone dysplasia, rcd3 (PDE6A)
- Hyperuricosuria and Hyperuricemia or Urolithiasis (SLC2A9)
- Degenerative Myelopathy (SOD1 Exon 2)
- Hereditary Vitamin D-Resistant Rickets (VDR)

FULL TEST PANEL

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

Maine Aim's Rapunzel is also clear of 155 other genetic diseases that Embark tests for.