

OWNER'S NAME: Anna Davidovics

DOG'S NAME: Chewbacca-Dusche-Vendetta

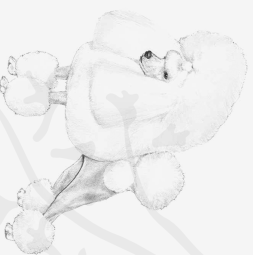
TEST DATE: June 2nd, 2018

This certifies the authenticity of **Chewbacca-Dusche-Vendetta's** canine genetic background as determined following careful analysis of more than 200,000 genetic markers.

POODLE

Welcome to the **Embark** family!

50.0% Poodle (Standard)



WOLFINESS **0.8% MEDIUM**

MATERNAL HAPLOTYPE **B1b**

PATERNAL HAPLOTYPE **Ha.7**



50.0% Poodle (Small)



Adam Boyko, Ph.D.
CHIEF SCIENCE OFFICER



Ryan Boyko
CHIEF EXECUTIVE OFFICER

CHEWBACCA-DUSCHE-VENDETTA



DNA Test Report

Test Date: June 2nd, 2018

embk.me/chewbaccaduschevendetta

BREED MIX



GENETIC STATS

Wolfiness: 0.8 % **MEDIUM**
Predicted adult weight: **25 lbs**
Genetic age: **24 human years**

TEST DETAILS

Kit number: EM-3151786
Swab number: 31001801033321

BREED MIX BY CHROMOSOME

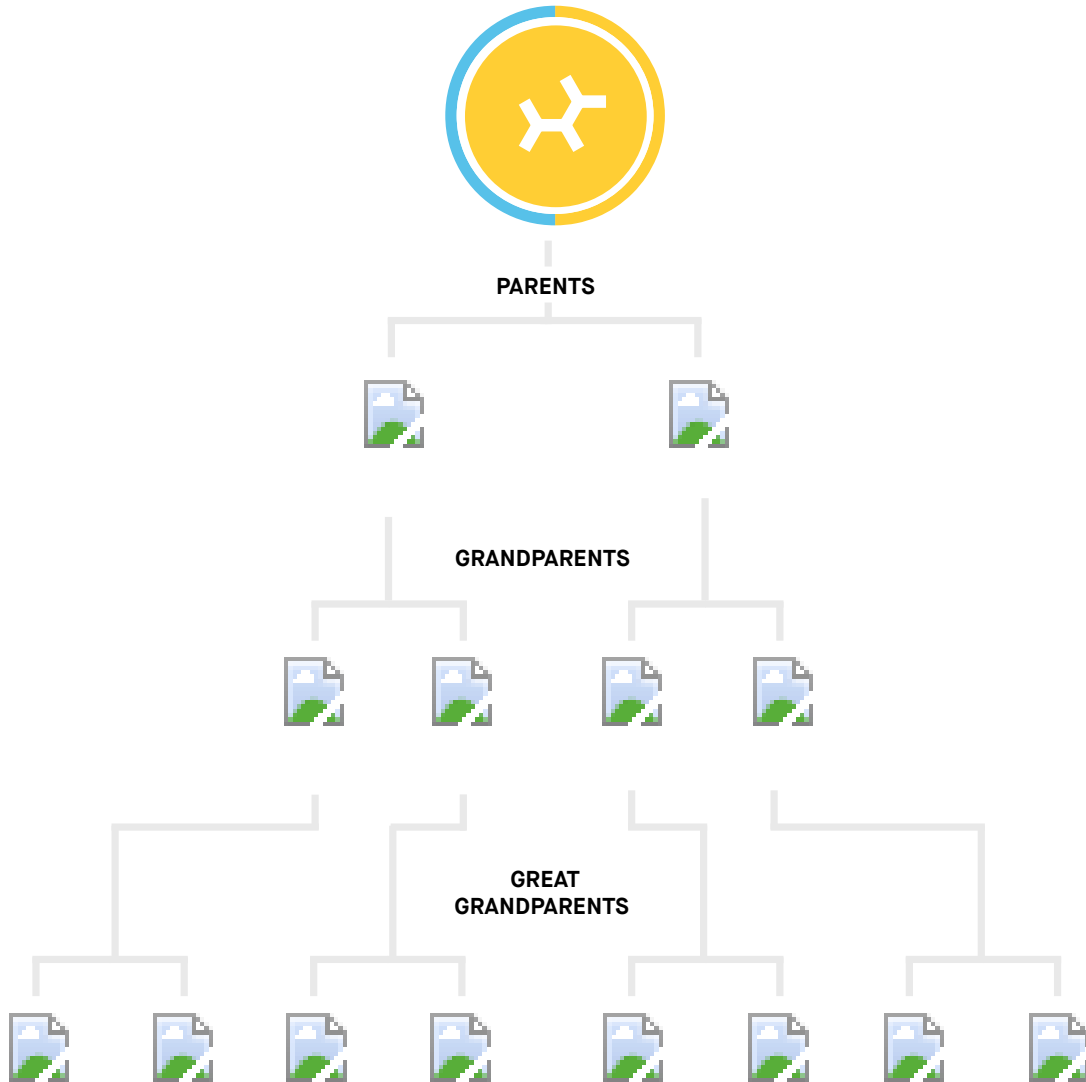
Our advanced test identifies from where Chewbacca-Dusche-Vendetta inherited every part of the chromosome pairs in his genome.



Registration: AKC PR19377302



FAMILY TREE



Our algorithms predict this is the most likely family tree to explain Chewbacca-Dusche-Vendetta's breed mix, but this family tree may not be the only possible one.

MATERNAL LINE



Through Chewbacca-Dusche-Vendetta's mitochondrial DNA we can trace his mother's ancestry back to where dogs and people first became friends. This map helps you visualize the routes that his 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: B1b

Part of the large B1 haplogroup, we see this haplotype in village dogs across the world, including those from Central America, the Middle East, South Asia, and the French Polynesian Islands. Among the 31 breed dogs we see it in, we see it in Poodles, Otterhounds, and Labrador Retrievers. It is also our most commonly-sampled Golden Retriever haplotype!

PATERNAL LINE



Through Chewbacca-Dusche-Vendetta's Y chromosome we can trace his father's ancestry back to where dogs and people first became friends. This map helps you visualize the routes that his ancestors took to your home. Their story is described below the map.

HAPLOGROUP: A1b

For most of dog history, this haplogroup was probably quite rare. However, a couple hundred years ago it seems to have found its way into a prized male guard dog in Europe who had many offspring, including the ancestors of many European guard breeds such as Doberman Pinchers, St. Bernards, and Great Danes. Despite being rare, many of the most imposing dogs on Earth have it; strangely, so do many Pomeranians! Perhaps this explains why some Poms are so tough, acting like they're ten times their actual size! This lineage is most commonly found in working dogs, in particular guard dogs. With origins in Europe, it spread widely across other regions as Europeans took their dogs across the world.

HAPLOTYPE: Ha.7

Part of the A1b haplogroup, this haplotype is found in village dogs from Lebanon and Indonesia. Among breeds, it is also found in Miniature Schnauzer and Toy Poodle.

TRAITS

Coat Color

E Locus (Mask, Grizzle, Recessive Red)	ee
K Locus (Dominant Black)	K^BK^B
A Locus (Agouti, Sable)	a^ta^t
D Locus (Dilute, Blue, Fawn)	DD
B Locus (Brown, Chocolate, Liver, Red)	Bb

Other Coat Traits

Furnishings / Improper Coat (RSPO2)	FF
Long Haircoat (FGF5)	TT
Shedding (MC5R)	CT
Curly Coat (KRT71)	TT

Body Size

Body Size - IGF1	NI
Body Size - IGF1R	AA
Body Size - STC2	TT
Body Size - GHR (E195K)	GA
Body Size - GHR (P177L)	CC

Other Body Features

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

Performance

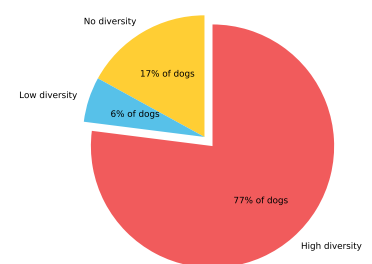
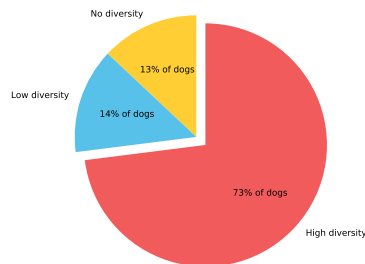
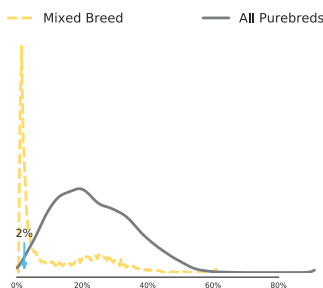
Altitude Adaptation (EPAS1)	GG
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Genetic Diversity

Inbreeding Coefficient **2%**

MHC Class II - DLA DRB1
High Diversity

MHC Class II - DLA DQA1 and DQB1
High Diversity



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: Normal

Chewbacca-Dusche-Vendetta has two normal alleles at ALT.

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.

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HEALTH

Good news! Chewbacca-Dusche-Vendetta did not test positive for any of the genetic diseases that Embark screens for.

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AT RISK

0

CARRIER

Registration: AKC PR19377302



OTHER CONDITIONS

Good news! Chewbacca-Dusche-Vendetta tested clear for 9 genetic conditions that are common in his breed mix.

- Von Willebrand Disease Type II (VWF Exon 28)
- Congenital Macrothrombocytopenia (TUBB1 Exon 1, Cavalier King Charles Spaniel Variant)
- GM2 Gangliosidosis (HEXB, Poodle Variant)
- Neonatal Encephalopathy with Seizures (NEWS) (ATF2)
- Von Willebrand Disease Type I (VWF)
- Progressive Retinal Atrophy - prcd
Progressive rod-cone degeneration (PRCD Exon 1)
- Degenerative Myelopathy (SOD1A)
- Malignant Hyperthermia (RYR1)
- Osteochondrodysplasia, Skeletal Dwarfism (SLC13A1)

FULL TEST PANEL

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

Chewbacca-Dusche-Vendetta is also clear of 156 other genetic diseases that Embark tests for.