

GCHB FANTA'S BRAND DREAM ON AT PUN KOTZKY



DNA Test Report

Test Date: March 30th, 2018

embk.me/gchbfantasbranddreamonatpunkotzl

GENETIC STATS

Wolfiness: 0.8 % **MEDIUM**

Predicted adult weight: **28 lbs**

Genetic age: **35 human years**

TEST DETAILS

Kit number: EM-3053261

Swab number: 31001801020809

Registration: AKC HP48351201



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MATERNAL LINE



Through GCHB Fanta's Brand Dream On At Pun Kotzky'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!

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PATERNAL LINE



Through GCHB Fanta's Brand Dream On At Pun Kotzky'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: A1a

Some of the wolves that became the original dogs in Central Asia around 15,000 years ago came from this long and distinguished line of male dogs. After domestication, they followed their humans from Asia to Europe and then didn't stop there. They took root in Europe, eventually becoming the dogs that founded the Vizsla breed 1,000 years ago. The Vizsla is a Central European hunting dog, and all male Vizslas descend from this line. During the Age of Exploration, like their owners, these pooches went by the philosophy, "Have sail, will travel!" From the windy plains of Patagonia to the snug and homey towns of the American Midwest, the beaches of a Pacific paradise, and the broad expanse of the Australian outback, these dogs followed their masters to the outposts of empires. Whether through good fortune or superior genetics, dogs from the A1a lineage traveled the globe and took root across the world. Now you find village dogs from this line frolicking on Polynesian beaches, hanging out in villages across the

HAPLOTYPE: H1a.5

Part of the large A1a haplogroup, this haplotype occurs most commonly in Beagles.

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TRAITS

Coat Color

E Locus (Mask, Grizzle, Recessive Red)	EE
K Locus (Dominant Black)	k^Yk^Y
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)	II
Long Haircoat (FGF5)	GG
Shedding (MC5R)	CT
Curly Coat (KRT71)	CC

Body Size

Body Size - IGF1	II
Body Size - IGF1R	GG
Body Size - STC2	TT
Body Size - GHR (E195K)	AA
Body Size - GHR (P177L)	CC

Other Body Features

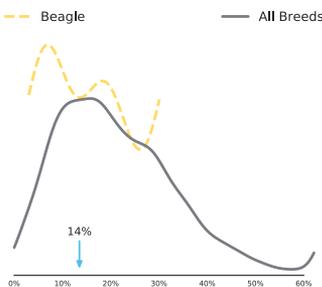
Brachycephaly (BMP3)	CC
Natural Bobtail (T)	CC
Hind Dewclaws (LMBR1)	CC

Performance

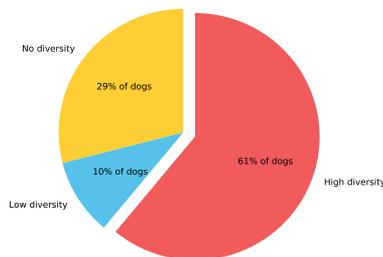
Altitude Adaptation (EPAS1)	GG
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Genetic Diversity

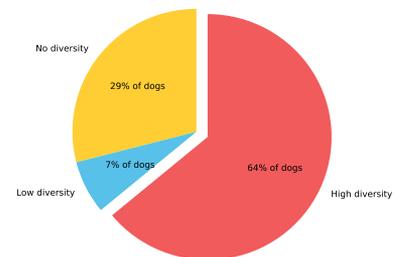
Inbreeding Coefficient **14%**



MHC Class II - DLA DRB1
High Diversity



MHC Class II - DLA DQA1 and DQB1
High Diversity



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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

GCHB Fanta's Brand Dream On At Pun Kotzky has one copy of a mutation associated with reduced ALT activity as measured on veterinary blood chemistry panels. Please inform your veterinarian that GCHB Fanta's Brand Dream On At Pun Kotzky has this genotype, as ALT is often used as an indicator of liver health and GCHB Fanta's Brand Dream On At Pun Kotzky is likely to have a lower than average resting ALT activity. As such, an increase in GCHB Fanta's Brand Dream On At Pun Kotzky'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.

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HEALTH

Good news! GCHB Fanta's Brand Dream On At Pun Kotzky did not test positive for any of the genetic diseases that Embark screens for.

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AT RISK

1
CARRIER

CARRIER CONDITIONS

CARRIER status: This indicates the dog has inherited a recessive allele for a genetic trait or mutation. This is not enough to cause symptoms of the disease, but is important to bear in mind if the dog ever has offspring.

 Carrier

System: **Hematologic**

Condition: **Factor VII Deficiency (F7 Exon 5)**

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FACTOR VII DEFICIENCY

(F7 Exon 5)

Carrier



F7 Exon 5

GENE NAME

GG

CLEAR

GA

CARRIER

AA

AT RISK

GCHB Fanta's Brand Dream On At Pun Kotzky is a carrier for a mutation in the F7 gene. GCHB Fanta's Brand Dream On At Pun Kotzky is unlikely to show any signs of F7 deficiency; if you choose to breed GCHB Fanta's Brand Dream On At Pun Kotzky, be aware that he or she will pass this mutation on to half of his or her puppies. Breeding to another carrier should be avoided as this could produce affected puppies.

DESCRIPTION

Coagulopathies represent a broad category of diseases that affect blood clotting, which can lead to symptoms such as easy bruising or bleeding. Dogs with coagulopathies are often at risk for excessive bleeding during surgical procedures; your veterinarian should be informed so that appropriate blood products are at hand in case a transfusion is required. Affected dogs may also require special measures during routine veterinary procedures, and close monitoring during their daily lives. If informed of your dog's condition early, you and your veterinarian can begin taking precautionary measures now. Embark screens for 10 different mutations associated with coagulopathies. These include Hemophilia A and B and von Willebrand Disease, three of the most common inherited coagulopathies in dogs. As well as the precautionary methods described above, an emerging potential treatment for some coagulopathies include protein replacement therapy and gene therapy for a number of coagulopathies.

Factor VII deficiency is characterized by mild to moderate bleeding (generally less severe than that caused by deficiencies in other clotting factors such as as Factors VIII or IX). In fact, a subset of dogs that test positive for Factor VII deficiency appear perfectly normal and the deficiency is only noted during routine blood panels. When dogs do show symptoms they are characteristic of a factor deficiency, with prolonged clotting times and bleeding in the chest, abdomen, and joints after trauma. Affected dogs do have a risk of surgical complications due to uncontrollable bleeding and may require blood transfusions during surgical procedures.

CITATIONS

Callan et al 2006 (<http://www.ncbi.nlm.nih.gov/pubmed/16961583>), Donner et al 2016 (<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0161005#pone-0161005-t001>)

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OTHER CONDITIONS

Good news! GCHB Fanta's Brand Dream On At Pun Kotzky tested clear for 8 other common genetic diseases that Embark tests for.

- MDR1 Drug Sensitivity (MDR1)
- Progressive Retinal Atrophy - prcd
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 (SOD1A)
- Exercise-Induced Collapse (DNM1)

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FULL TEST PANEL

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

GCHB Fanta's Brand Dream On At Pun Kotzky is also clear of 156 other genetic diseases that Embark tests for.