

## Certificate of Breed

OWNER'S NAME: North America Doodles

DOG'S NAME: Cavapoos 3 :16 "s Reba

TEST DATE: September 6th, 2023

This certifies the authenticity of **Cavapoos 3 :16 "s Reba**'s canine genetic background as determined following careful analysis of more than 200,000 genetic markers. Welcome to the **Embark** family!

WOLFINESS 0.9% MEDIUM

MATERNAL **A224** HAPLOTYPE

# CAVALIER KING CHARLES SPANIEL



100.0% Cavalier King Charles Spaniel

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Ryan Boyko CHIEF EXECUTIVE OFFICER





Test Date: September 6th, 2023

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### **FAMILY TREE**









#### **Fun Fact**

The breed experienced two large bursts in popularity. The first is when Queen Victoria revived the dying breed. The second was when Charlotte, a popular character from the popular show Sex and the City adopted one on TV. Test Date: September 6th, 2023

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### **CAVALIER KING CHARLES SPANIEL**

The Cavalier King Charles Spaniel is one of the most popular dog breeds in the United States, and with good reason. Their affectionate personalities combined with their need to be close to their humans make them a lovely breed of choice for families. They tend to get along well with children and peaceably with other dogs and animals in the home (though as the breed used to be used for hunting, caution around small animals should be exercised). The Cavalier has an interesting history -- their ancestors were dogs of the British monarchy, but over time, the breed began to die out as dogs with shorter muzzles were favored in the 1800s. They were crossed with Pugs and some other breeds to change their appearance. However, Roswell Eldridge sought out King Charles Spaniels that had longer muzzles, and recreated the Cavalier as it used to be from those dogs.





English Springer Spaniel Cousin breed



English Cocker Spaniel Cousin breed



Cocker Spaniel Cousin breed



Sussex Spaniel Cousin breed

Rembark

**RELATED BREEDS** 





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### MATERNAL LINE



Through Cavapoos 3 :16 "s Reba'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: A1a

A1a is the most common maternal lineage among Western dogs. This lineage traveled from the site of dog domestication in Central Asia to Europe along with an early dog expansion perhaps 10,000 years ago. It hung around in European village dogs for many millennia. Then, about 300 years ago, some of the prized females in the line were chosen as the founding dogs for several dog breeds. That set in motion a huge expansion of this lineage. It's now the maternal lineage of the overwhelming majority of Mastiffs, Labrador Retrievers and Gordon Setters. About half of Boxers and less than half of Shar-Pei dogs descend from the A1a line. It is also common across the world among village dogs, a legacy of European colonialism.

#### HAPLOTYPE: A224

Part of the large A1a haplogroup, this haplotype is found in village dogs in Peru, Fiji, and Namibia. Among breeds, we see this haplotype most frequently in Cavalier King Charles Spaniels, Mastiffs, and Boston Terriers.





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RESULT

### TRAITS: BASE COAT COLOR

TRAIT

Dark or Light Fur | E (Extension) Locus | Gene: Melanocortin Receptor 1 (MC1R) | Genetic Result: ee

This gene helps determine whether a dog can produce dark (black or brown) hairs or lighter yellow or red hairs. Any result except for **ee** means that the dog can produce dark hairs. An **ee** result means that the dog does not produce dark hairs at all, and will have lighter yellow or red hairs over their entire body.

**Did You Know?** If a dog has a **ee** result then the fur's actual shade can range from a deep copper to yellow/gold to cream - the exact color cannot be predicted solely from this result, and will depend on other genetic factors.

#### Dark brown pigment | Cocoa | Gene: HPS3 | Genetic Result: NN

Dogs with the **coco** genotype will produce dark brown pigment instead of black in both their hair and skin. Dogs with the **Nco** genotype will produce black pigment, but can pass the **co** variant on to their puppies. Dogs that have the **coco** genotype as well as the **bb** genotype at the B locus are generally a lighter brown than dogs that have the **Bb** or **BB** genotypes at the B locus.

**Did You Know?** The **co** variant and the dark brown "cocoa" coat color have only been documented in French Bulldogs. Dogs with the cocoa coat color are sometimes born with light brown coats that darken as they reach maturity.

#### Red Pigment Intensity LINKAGE | I (Intensity) Loci | Genetic Result: Intense Red Pigmentation

Intensity refers to the concentration of red pigment in the coat. Dogs with more densely concentrated (intense) pigment will be a deeper red, while dogs with less concentrated (dilute) pigment will be tan, yellow, cream, or white. Five locations in the dog genome explain approximately 70% of red pigmentation intensity variation across all dogs. Because the locations we test may not directly cause differences in red pigmentation intensity, we consider this to be a linkage test.

**Did You Know?** One of the genes that influences pigment intensity in dogs, TYR, is also responsible for intensity variation in domestic mice, cats, cattle, rabbits, and llamas. In dogs and humans, more genes are involved.

Light colored fur (cream to red)

No impact on skin color

Any pigmented fur likely apricot or red





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### TRAITS: BASE COAT COLOR (CONTINUED)

#### TRAIT

Brown or Black Pigment | B (Brown) Locus | Gene: Tyrosinase Related Protein 1 (TYRP1) | Genetic Result: BB

This gene helps determine whether a dog produces brown or black pigments. Dogs with a **bb** result produce brown pigment instead of black in both their hair and skin, while dogs with a **Bb** or **BB** result produce black pigment. Dogs that have **ee** at the E (Extension) Locus and **bb** at this B (Brown) Locus are likely to have red or cream coats and brown noses, eye rims, and footpads, which is sometimes referred to as "Dudley Nose" in Labrador Retrievers.

**Did You Know?** "Liver" or "chocolate" is the preferred color term for brown in most breeds; in the Doberman Pinscher it is referred to as "red".

#### Color Dilution | D (Dilute) Locus | Gene: Melanophilin (MLPH) | Genetic Result: DD

This gene helps determine whether a dog has lighter "diluted" pigment. A dog with a **Dd** or **DD** result will not be dilute. A dog with a **dd** result will have all their black or brown pigment lightened ("diluted") to gray or light brown, and may lighten red pigment to cream. This affects their fur, skin, and sometimes eye color. The D locus result that we report is determined by two different genetic variants that can work together to cause diluted pigmentation. These are the common **d** allele, also known as "**d1**", and a less common allele known as "**d2**". Dogs with one **d1** allele and one **d2** allele are typically dilute. To view your dog's **d1** and **d2** test results, click the "SEE DETAILS" link in the upper right hand corner of the "Base Coat Color" section of the Traits page, and then click the "VIEW SUBLOCUS RESULTS" link at the bottom of the page.

**Did You Know?** There are many breed-specific names for these dilute colors, such as "blue", "charcoal", "fawn", "silver", and "Isabella". Dilute dogs, especially in certain breeds, have a higher incidence of Color Dilution Alopecia which causes hair loss in some patches.

Likely black colored

RESULT

nose/feet

Dark (non-dilute) skin





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RESULT

### **TRAITS: COAT COLOR MODIFIERS**

#### TRAIT

Hidden Patterning | K (Dominant Black) Locus | Gene: Canine Beta-Defensin 103 (CBD103) | Genetic Result: k<sup>y</sup>k<sup>y</sup>

This gene helps determine whether the dog has a black coat. Dogs with a k<sup>y</sup>k<sup>y</sup> result will show a coat color pattern based on the result they have at the A (Agouti) Locus. A K<sup>B</sup>K<sup>B</sup> or K<sup>B</sup>k<sup>y</sup> result means the dog is dominant black, which overrides the fur pattern that would otherwise be determined by the A (Agouti) Locus. These dogs will usually have solid black or brown coats, or if they have **ee** at the E (Extension) Locus then red/cream coats, regardless of their result at the A (Agouti) Locus. Dogs who test as K<sup>B</sup>k<sup>y</sup> may be brindle rather than black or brown.

**Did You Know?** Even if a dog is "dominant black" several other genes could still impact the dog's fur and cause other patterns, such as white spotting.

#### Body Pattern | A (Agouti) Locus | Gene: Agouti Signalling Protein (ASIP) | Genetic Result: a<sup>t</sup>a<sup>t</sup>

This gene is responsible for causing different coat patterns. It only affects the fur of dogs that do not have ee at the E (Extension) Locus and do have k<sup>y</sup>k<sup>y</sup> at the K (Dominant Black) Locus. It controls switching between black and red pigment in hair cells, which means that it can cause a dog to have hairs that have sections of black and sections of red/cream, or hairs with different colors on different parts of the dog's body. Sable or Fawn dogs have a mostly or entirely red coat with some interspersed black hairs. Agouti or Wolf Sable dogs have red hairs with black tips, mostly on their head and back. Black and tan dogs are mostly black or brown with lighter patches on their cheeks, eyebrows, chest, and legs. Recessive black dogs have solid-colored black or brown coats.

**Did You Know?** The ASIP gene causes interesting coat patterns in many other species of animals as well as dogs.

Facial Fur Pattern | E (Extension) Locus | Gene: Melanocortin Receptor 1 (MC1R) | Genetic Result: ee

In addition to determining if a dog can develop dark fur at all, this gene can give a dog a black "mask" or "widow's peak," unless the dog has overriding coat color genetic factors. Dogs with one or two copies of  $\mathbf{E}^{m}$  in their result will have a mask, which is dark facial fur as seen in the German Shepherd and Pug. Dogs with no  $\mathbf{E}^{m}$  in their result but one or two copies of  $\mathbf{E}^{g}$  will instead have a "widow's peak", which is dark forehead fur.

**Did You Know?** The widow's peak is seen in the Afghan Hound and Borzoi, where it is called either "grizzle" or "domino".

No impact on coat color

No impact on coat pattern

No dark fur anywhere



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### TRAITS: COAT COLOR MODIFIERS (CONTINUED)

CAVAPOOS 3 :16 "S REBA

#### TRAIT

Saddle Tan | Gene: RALY | Genetic Result: II

The "Saddle Tan" pattern causes the black hairs to recede into a "saddle" shape on the back, leaving a tan face, legs, and belly, as a dog ages. The Saddle Tan pattern is characteristic of breeds like the Corgi, Beagle, and German Shepherd. Dogs that have the **II** genotype at this locus are more likely to be mostly black with tan points on the eyebrows, muzzle, and legs as commonly seen in the Doberman Pinscher and the Rottweiler. This gene modifies the A Locus **a**<sup>t</sup> allele, so dogs that do not express **a**<sup>t</sup> are not influenced by this gene.

**Did You Know?** The Saddle Tan pattern is characteristic of breeds like the Corgi, Beagle, and German Shepherd.

#### White Spotting | S (White Spotting) Locus | Gene: MITF | Genetic Result: spsp

This gene is responsible for most of the white spotting observed in dogs. Dogs with a result of **spsp** will have a nearly white coat or large patches of white in their coat. Dogs with a result of **Ssp** will have more limited white spotting that is breed-dependent. A result of **Ss** means that a dog likely has no white or minimal white in their coat. The S Locus does not explain all white spotting patterns in dogs and other causes are currently being researched. Some dogs may have small amounts of white on the paws, chest, face, or tail regardless of their result at this gene.

**Did You Know?** Any dog can have white spotting regardless of coat color. The colored sections of the coat will reflect the dog's other genetic coat color results.

#### Roan LINKAGE | R (Roan) Locus | Gene: USH2A | Genetic Result: rr

This gene, along with the S Locus, regulates whether a dog will have roaning. Dogs with at least one copy of **R** will likely have roaning on otherwise uniformly unpigmented white areas created by the S Locus. Roan may not be visible if white spotting is limited to small areas, such as the paws, chest, face, or tail. The extent of roaning varies from uniform roaning to non-uniform roaning, and patchy, non-uniform roaning may look similar to ticking. Roan does not appear in white areas created by other genes, such as a combination of the E Locus and I Locus (for example, Samoyeds). The roan pattern can appear with or without ticking.

**Did You Know?** Roan, tick, and Dalmatians' spots become visible a few weeks after birth. The R Locus is probably involved in the development of Dalmatians' spots.

No impact on coat pattern

Likely to have large white areas in coat

Likely no impact on coat pattern



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RESULT



DNA Test Report





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No impact on coat

color

RESULT

### TRAITS: COAT COLOR MODIFIERS (CONTINUED)

#### TRAIT

Merle | M (Merle) Locus | Gene: PMEL | Genetic Result: mm

This gene is responsible for mottled or patchy coat color in some dogs. Dogs with an **M\*m** result are likely to appear merle or could be "non-expressing" merle, meaning that the merle pattern is very subtle or not at all evident in their coat. Dogs with an **M\*M\*** result are likely to have merle or double merle coat patterning. Dogs with an **mm** result are unlikely to have a merle coat pattern.

**Did You Know?** Merle coat patterning is common to several dog breeds including the Australian Shepherd, Catahoula Leopard Dog, and Shetland Sheepdog.

Harlequin | Gene: PSMB | Genetic Result: hh

This gene, along with the M Locus, determines whether a dog will have harlequin patterning. This pattern is recognized in Great Danes and causes dogs to have a white coat with patches of darker pigment. A dog with an **Hh** result will be harlequin if they are also **M\*m** or **M\*M\*** at the M Locus and are not **ee** at the E locus. Dogs with a result of **hh** will not be harlequin.

No impact on coat pattern

**Did You Know?** While many harlequin dogs are white with black patches, some dogs have grey, sable, or brindle patches of color, depending on their genotypes at other coat color genes.





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### TRAITS: OTHER COAT TRAITS

TRAIT

Furnishings LINKAGE | Gene: RSPO2 | Genetic Result: II

This gene is responsible for "furnishings", which is another name for the mustache, beard, and eyebrows that are characteristic of breeds like the Schnauzer, Scottish Terrier, and Wire Haired Dachshund. A dog with an **FF** or **FI** result is likely to have furnishings. A dog with an **II** result will not have furnishings. We measure this result using a linkage test.

**Did You Know?** In breeds that are expected to have furnishings, dogs without furnishings are the exception - this is sometimes called an "improper coat".

Coat Length | Gene: FGF5 | Genetic Result: TT

This gene is known to affect hair/fur length in many different species, including cats, dogs, mice, and humans. In dogs, a **TT** result means the dog is likely to have a long, silky coat as seen in the Yorkshire Terrier and the Long Haired Whippet. A **GG** or **GT** result is likely to mean a shorter coat, like in the Boxer or the American Staffordshire Terrier.

Did You Know? In certain breeds, such as Corgi, the long coat is described as "fluff."

Shedding | Gene: MC5R | Genetic Result: TT

This gene affects how much a dog sheds. Dogs with furnishings or wire-haired coats tend to be low shedders regardless of their result for this gene. In other dogs, a **CC** or **CT** result indicates heavy or seasonal shedding, like many Labradors and German Shepherd Dogs. Dogs with a **TT** result tend to be lighter shedders, like Boxers, Shih Tzus and Chihuahuas.

Coat Texture | Gene: KRT71 | Genetic Result: CC

For dogs with long fur, dogs with a **TT** or **CT** result will likely have a wavy or curly coat like the coat of Poodles and Bichon Frises. Dogs with a **CC** result will likely have a straight coat—unless the dog has a "Likely Furnished" result for the Furnishings trait, since this can also make the coat more curly.

Did You Know? Dogs with short coats may have straight coats, whatever result they have for this gene.

Hairlessness (Xolo type) LINKAGE | Gene: FOXI3 | Genetic Result: NN

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Likely unfurnished (no mustache, beard, and/or eyebrows)

RESULT

Likely long coat

Likely light shedding

Likely straight coat





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### TRAITS: OTHER COAT TRAITS (CONTINUED)

#### TRAIT

Hairlessness (Terrier type) | Gene: SGK3 | Genetic Result: NN

This gene is responsible for Hairlessness in the American Hairless Terrier. Dogs with the **DD** result are likely to be hairless. Dogs with the **ND** genotype will have a normal coat, but can pass the **D** variant on to their offspring.

#### Oculocutaneous Albinism Type 2 LINKAGE | Gene: SLC45A2 | Genetic Result: NN

This gene causes oculocutaneous albinism (OCA), also known as Doberman Z Factor Albinism. Dogs with a **DD** result will have OCA. Effects include severely reduced or absent pigment in the eyes, skin, and hair, and sometimes vision problems due to lack of eye pigment (which helps direct and absorb ambient light) and are prone to sunburn. Dogs with a **ND** result will not be affected, but can pass the mutation on to their offspring. We measure this result using a linkage test.

**Did You Know?** This particular mutation can be traced back to a single white Doberman Pinscher born in 1976, and it has only been observed in dogs descended from this individual.

RESULT

Very unlikely to be hairless

Likely not albino





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### TRAITS: OTHER BODY FEATURES

TRAIT

Muzzle Length | Gene: BMP3 | Genetic Result: CC

This gene affects muzzle length. A dog with a **AC** or **CC** result is likely to have a medium-length muzzle like a Staffordshire Terrier or Labrador, or a long muzzle like a Whippet or Collie. A dog with a **AA** result is likely to have a short muzzle, like an English Bulldog, Pug, or Pekingese.

**Did You Know?** At least five different genes affect snout length in dogs, with BMP3 being the only one with a known causal mutation. For example, the muzzle length of some breeds, including the long-snouted Scottish Terrier or the short-snouted Japanese Chin, appear to be caused by other genes. This means your dog may have a long or short snout due to other genetic factors. Embark is working to figure out what these might be.

#### Tail Length | Gene: T | Genetic Result: CC

This is one of the genes that can cause a short bobtail. Most dogs have a **CC** result and a long tail. Dogs with a **CG** result are likely to have a bobtail, which is an unusually short or absent tail. This can be seen in many "natural bobtail" breeds including the Pembroke Welsh Corgi, the Australian Shepherd, and the Brittany Spaniel. Dogs with **GG** genotypes have not been observed, suggesting that dogs with such a result do not survive to birth.

**Did You Know?** While certain lineages of Boston Terrier, English Bulldog, Rottweiler, Miniature Schnauzer, Cavalier King Charles Spaniel, and Parson Russell Terrier, and Dobermans are born with a natural bobtail, it is not always caused by this gene. This suggests that other unknown genetic effects can also lead to a natural bobtail.

Hind Dew Claws | Gene: LMBR1 | Genetic Result: CC

This is one of the genes that can cause hind dew claws, which are extra, nonfunctional digits located midway between a dog's paw and hock. Dogs with a **CT** or **TT** result have about a 50% chance of having hind dewclaws. Hind dew claws can also be caused by other, still unknown, genes. Embark is working to figure those out.

Did You Know? Hind dew claws are commonly found in certain breeds such as the Saint Bernard.

Likely medium or long muzzle

RESULT

Likely normal-length tail

Unlikely to have hind dew claws





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### **TRAITS: OTHER BODY FEATURES (CONTINUED)**

#### TRAIT

Back Muscling & Bulk (Large Breed) | Gene: ACSL4 | Genetic Result: CC

This gene can cause heavy muscling along the back and trunk in characteristically "bulky" large-breed dogs including the Saint Bernard, Bernese Mountain Dog, Greater Swiss Mountain Dog, and Rottweiler. A dog with the **TT** result is likely to have heavy muscling. Leaner-shaped large breed dogs like the Great Dane, Irish Wolfhound, and Scottish Deerhound generally have a **CC** result. The **TC** result also indicates likely normal muscling.

**Did You Know?** This gene does not seem to affect muscling in small or even mid-sized dog breeds with lots of back muscling, including the American Staffordshire Terrier, Boston Terrier, and the English Bulldog.

Eye Color LINKAGE | Gene: ALX4 | Genetic Result: NN

This gene is associated with blue eyes in Arctic breeds like Siberian Husky as well as tri-colored (nonmerle) Australian Shepherds. Dogs with a **DupDup** or **NDup** result are more likely to have blue eyes, although some dogs may have only one blue eye or may not have blue eyes at all; nevertheless, they can still pass blue eyes to their offspring. Dogs with a **NN** result may have blue eyes due to other factors, such as merle or white spotting. We measure this result using a linkage test.

**Did You Know?** Embark researchers discovered this gene by studying data from dogs like yours. Who knows what we will be able to discover next? Answer the questions on our research surveys to contribute to future discoveries!

Likely normal muscling

RESULT

Less likely to have blue eyes





| DNA Test Report  | Test Date: September 6th, 2023   | embk.me/cavapoos316sreba |
|--|--|--------------------------|
| TRAITS: BODY SIZE  |  |                          |
| TRAIT  |  | RESULT                   |
| Body Size 1   Gene: IGF1   Genetic Result: II  |  |                          |
| This is one of several genes that influence smaller body size. A result of <b>NN</b> is associat       | the size of a dog. A result of <b>II</b> for this gene is associated wit<br>ted with larger body size. | h Smaller                |
| Body Size 2   Gene: IGFR1   Genetic Result: (  | GG   |                          |
| This is one of several genes that influence t<br>smaller body size. A result of <b>GG</b> is associat  | the size of a dog. A result of <b>AA</b> for this gene is associated w<br>red with larger body size.   | ith Larger               |
| Body Size 3   Gene: STC2   Genetic Result: A   | ΔΑ   |                          |
| This is one of several genes that influence t<br>smaller body size. A result of <b>TT</b> is associate | the size of a dog. A result of <b>AA</b> for this gene is associated w<br>ed with larger body size.    | ith Smaller              |
| Body Size 4   Gene: GHR - E191K   Genetic Re   | esult: AA  |                          |
| This is one of several genes that influence t<br>smaller body size. A result of <b>GG</b> is associat  | the size of a dog. A result of <b>AA</b> for this gene is associated w<br>red with larger body size.   | ith Smaller              |
| Body Size 5   Gene: GHR - P177L   Genetic Re   | esult: <b>TT</b>   |                          |
| This is one of several genes that influence t<br>smaller body size. A result of <b>CC</b> is associat  | the size of a dog. A result of <b>TT</b> for this gene is associated wi<br>ed with larger body size.   | th Smaller               |





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RESULT

### **TRAITS: PERFORMANCE**

TRAIT

Altitude Adaptation | Gene: EPAS1 | Genetic Result: GG

This gene causes dogs to be especially tolerant of low oxygen environments, such as those found at high elevations. Dogs with a **AA** or **GA** result will be less susceptible to "altitude sickness."

**Did You Know?** This gene was originally identified in breeds from high altitude areas such as the Tibetan Mastiff.

Appetite LINKAGE | Gene: POMC | Genetic Result: NN

This gene influences eating behavior. An **ND** or **DD** result would predict higher food motivation compared to **NN** result, increasing the likelihood to eat excessively, have higher body fat percentage, and be more prone to obesity. Read more about the genetics of POMC, and learn how you can contribute to research, in our blog post (https://embarkvet.com/resources/blog/pomc-dogs/). We measure this result using a linkage test.

**Did You Know?** POMC is actually short for "proopiomelanocortin," and is a large protein that is broken up into several smaller proteins that have biological activity. The smaller proteins generated from POMC control, among other things, distribution of pigment to the hair and skin cells, appetite, and energy expenditure.

Normal altitude tolerance

Normal food motivation





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### **HEALTH REPORT**

#### How to interpret Cavapoos 3 :16 "s Reba's genetic health results:

If Cavapoos 3:16 "s Reba inherited any of the variants that we tested, they will be listed at the top of the Health Report section, along with a description of how to interpret this result. We also include all of the variants that we tested Cavapoos 3:16 "s Reba for that we did not detect the risk variant for.

#### A genetic test is not a diagnosis

This genetic test does not diagnose a disease. Please talk to your vet about your dog's genetic results, or if you think that your pet may have a health condition or disease.

#### Summary

Of the 254 genetic health risks we analyzed, we found 2 results that you should learn about.

Intervertebral Disc Disease (Type I)

Notable results (1)

**Proportionate Dwarfism** 

✓ Clear results

Breed-relevant (3)

**Other** (249)





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### **OTHER RESULTS**

Research has not yet linked these conditions to dogs with similar breeds to Cavapoos 3 :16 "s Reba. Review any increased risk or notable results to understand her potential risk and recommendations.

| Θ         | Proportionate Dwarfism (GH1 Exon 5, Chihuahua Variant)                                    | Notable |
|-----------|---|---------|
| $\oslash$ | 2-DHA Kidney & Bladder Stones (APRT)  | Clear   |
| $\oslash$ | Acral Mutilation Syndrome (GDNF-AS, Spaniel and Pointer Variant)                          | Clear   |
| $\oslash$ | Alaskan Husky Encephalopathy (SLC19A3)  | Clear   |
| $\oslash$ | Alaskan Malamute Polyneuropathy, AMPN (NDRG1 SNP)   | Clear   |
| $\oslash$ | Alexander Disease (GFAP)  | Clear   |
| $\oslash$ | ALT Activity (GPT)  | Clear   |
| $\oslash$ | Anhidrotic Ectodermal Dysplasia (EDA Intron 8)  | Clear   |
| $\oslash$ | Autosomal Dominant Progressive Retinal Atrophy (RHO)                                      | Clear   |
| $\oslash$ | Bald Thigh Syndrome (IGFBP5)  | Clear   |
| $\oslash$ | Bernard-Soulier Syndrome, BSS (GP9, Cocker Spaniel Variant)                               | Clear   |
| $\oslash$ | Bully Whippet Syndrome (MSTN)   | Clear   |
| $\oslash$ | Canine Elliptocytosis (SPTB Exon 30)  | Clear   |
| $\oslash$ | Canine Fucosidosis (FUCA1)  | Clear   |
| $\oslash$ | Canine Leukocyte Adhesion Deficiency Type I, CLAD I (ITGB2, Setter Variant)               | Clear   |
| $\oslash$ | Canine Leukocyte Adhesion Deficiency Type III, CLAD III (FERMT3, German Shepherd Variant) | Clear   |
| $\oslash$ | Canine Multifocal Retinopathy, cmr1 (BEST1 Exon 2)  | Clear   |
| $\oslash$ | Canine Multifocal Retinopathy, cmr2 (BEST1 Exon 5, Coton de Tulear Variant)               | Clear   |





| DNA       | Test Report   | Test Date: September 6th, 2023                     | embk.me/cavapoos316sreba |
|-----------|---|--|--------------------------|
| ОТ        | HER RESULTS   |  |                          |
| $\oslash$ | Canine Multifocal Retinopathy, cmr3 (BES<br>Lapponian Herder Variant) | T1 Exon 10 Deletion, Finnish and Swedish Lapphund, | Clear                    |
| $\oslash$ | Canine Multiple System Degeneration (SE                               | ERAC1 Exon 4, Chinese Crested Variant)             | Clear                    |
| $\oslash$ | Canine Multiple System Degeneration (SE                               | ERAC1 Exon 15, Kerry Blue Terrier Variant)         | Clear                    |
| $\oslash$ | Cardiomyopathy and Juvenile Mortality (Y                              | (ARS2)   | Clear                    |
| $\oslash$ | Centronuclear Myopathy, CNM (PTPLA)                                   |  | Clear                    |
| $\oslash$ | Cerebellar Hypoplasia (VLDLR, Eurasier Va                             | ariant)  | Clear                    |
| $\oslash$ | Chondrodystrophy (ITGA10, Norwegian El                                | khound and Karelian Bear Dog Variant)              | Clear                    |
| $\oslash$ | Cleft Lip and/or Cleft Palate (ADAMTS20,                              | Nova Scotia Duck Tolling Retriever Variant)        | Clear                    |
| $\oslash$ | Cleft Palate, CP1 (DLX6 intron 2, Nova Sco                            | otia Duck Tolling Retriever Variant)               | Clear                    |
| $\oslash$ | Cobalamin Malabsorption (CUBN Exon 8,                                 | Beagle Variant)                                    | Clear                    |
| $\oslash$ | Cobalamin Malabsorption (CUBN Exon 53                                 | , Border Collie Variant)                           | Clear                    |
| $\oslash$ | Collie Eye Anomaly (NHEJ1)  |  | Clear                    |
| $\oslash$ | Complement 3 Deficiency, C3 Deficiency                                | (C3)   | Clear                    |
| $\oslash$ | Congenital Cornification Disorder (NSDHL                              | ., Chihuahua Variant)                              | Clear                    |
| $\oslash$ | Congenital Hypothyroidism (TPO, Rat, Toy                              | , Hairless Terrier Variant)                        | Clear                    |
| $\oslash$ | Congenital Hypothyroidism (TPO, Tenterfi                              | eld Terrier Variant)                               | Clear                    |
| $\oslash$ | Congenital Hypothyroidism with Goiter (T                              | PO Intron 13, French Bulldog Variant)              | Clear                    |
| $\oslash$ | Congenital Hypothyroidism with Goiter (S                              | SLC5A5, Shih Tzu Variant)                          | Clear                    |





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| от        | HER RESULTS                                 |  |                          |
| $\oslash$ | Congenital Macrothrombocytopenia (TUBE      | 1 Exon 1, Cairn and Norfolk Terrier Variant) | Clear                    |
| $\oslash$ | Congenital Myasthenic Syndrome, CMS (C      | DLQ, Labrador Retriever Variant)             | Clear                    |
| $\oslash$ | Congenital Myasthenic Syndrome, CMS (C      | DLQ, Golden Retriever Variant)               | Clear                    |
| $\oslash$ | Congenital Myasthenic Syndrome, CMS (C      | HAT, Old Danish Pointing Dog Variant)        | Clear                    |
| $\oslash$ | Congenital Myasthenic Syndrome, CMS (C      | HRNE, Jack Russell Terrier Variant)          | Clear                    |
| $\oslash$ | Congenital Stationary Night Blindness (LRI  | T3, Beagle Variant)                          | Clear                    |
| $\oslash$ | Congenital Stationary Night Blindness (RP   | E65, Briard Variant)                         | Clear                    |
| $\oslash$ | Craniomandibular Osteopathy, CMO (SLC3)     | 7A2)   | Clear                    |
| $\oslash$ | Craniomandibular Osteopathy, CMO (SLC3)     | 7A2 Intron 16, Basset Hound Variant)         | Clear                    |
| $\oslash$ | Cystinuria Type I-A (SLC3A1, Newfoundland   | d Variant)                                   | Clear                    |
| $\oslash$ | Cystinuria Type II-A (SLC3A1, Australian Ca | ttle Dog Variant)                            | Clear                    |
| $\oslash$ | Cystinuria Type II-B (SLC7A9, Miniature Pin | scher Variant)                               | Clear                    |
| $\oslash$ | Day Blindness (CNGB3 Deletion, Alaskan N    | alamute Variant)                             | Clear                    |
| $\oslash$ | Day Blindness (CNGA3 Exon 7, German She     | pherd Variant)                               | Clear                    |
| $\oslash$ | Day Blindness (CNGA3 Exon 7, Labrador Re    | triever Variant)                             | Clear                    |
| $\oslash$ | Day Blindness (CNGB3 Exon 6, German Sho     | orthaired Pointer Variant)                   | Clear                    |
| $\oslash$ | Deafness and Vestibular Syndrome of Dobe    | ermans, DVDob, DINGS (MYO7A)                 | Clear                    |
| $\oslash$ | Demyelinating Polyneuropathy (SBF2/MTR      | M13)   | Clear                    |





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| OTHER RESULTS                       |   |                          |
| O Dental-Skeletal-Retinal Anoma     | aly (MIA3, Cane Corso Variant)                                | Clear                    |
| Ø Diffuse Cystic Renal Dysplasia    | and Hepatic Fibrosis (INPP5E Intron 9, Norwich Terrier Varian | t) Clear                 |
| Dilated Cardiomyopathy, DCM (       | (RBM20, Schnauzer Variant)                                    | Clear                    |
| Oilated Cardiomyopathy, DCM1        | (PDK4, Doberman Pinscher Variant 1)                           | Clear                    |
| Dilated Cardiomyopathy, DCM2        | (TTN, Doberman Pinscher Variant 2)                            | Clear                    |
| O Disproportionate Dwarfism (PR     | KG2, Dogo Argentino Variant)                                  | Clear                    |
| O Dystrophic Epidermolysis Bullos   | sa (COL7A1, Central Asian Shepherd Dog Variant)               | Clear                    |
| O Dystrophic Epidermolysis Bullos   | sa (COL7A1, Golden Retriever Variant)                         | Clear                    |
| Sarly Bilateral Deafness (LOXHD     | 1 Exon 38, Rottweiler Variant)                                | Clear                    |
| Sarly Onset Adult Deafness, EOA     | AD (EPS8L2 Deletion, Rhodesian Ridgeback Variant)             | Clear                    |
| 🔗 Early Onset Cerebellar Ataxia (Sf | EL1L, Finnish Hound Variant)                                  | Clear                    |
| Ehlers Danlos (ADAMTS2, Dobern      | man Pinscher Variant)   | Clear                    |
| 🔗 Enamel Hypoplasia (ENAM Deleti    | ion, Italian Greyhound Variant)                               | Clear                    |
| Enamel Hypoplasia (ENAM SNP, F      | Parson Russell Terrier Variant)                               | Clear                    |
| Exercise-Induced Collapse, EIC (    | DNM1)   | Clear                    |
| Factor VII Deficiency (F7 Exon 5)   |   | Clear                    |
| Factor XI Deficiency (F11 Exon 7. k | (erry Blue Terrier Variant)                                   | Clear                    |
| Familial Nephropathy (COLAAA Ex     |   | Clear                    |
| C                                   | on o, oocker opaniel Variant)                                 | Clear                    |





| DN           | IA Test Report   | Test Date: September 6th, 2023                                   | embk.me/cavapoos316sreba |
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| 0            | THER RESULTS   |  |                          |
| 0            | Familial Nephropathy (COL4A4 Exor  | n 30, English Springer Spaniel Variant)                          | Clear                    |
| $\bigotimes$ | 🕑 Fanconi Syndrome (FAN1, Basenji V  | /ariant)   | Clear                    |
| $\oslash$    | Fetal-Onset Neonatal Neuroaxonal I   | Dystrophy (MFN2, Giant Schnauzer Variant)                        | Clear                    |
| $\oslash$    | ) Glanzmann's Thrombasthenia Type  | I (ITGA2B Exon 13, Great Pyrenees Variant)                       | Clear                    |
| $\oslash$    | ) Glanzmann's Thrombasthenia Type I  | I (ITGA2B Exon 12, Otterhound Variant)                           | Clear                    |
| $\oslash$    | ) Globoid Cell Leukodystrophy, Krabbe  | e disease (GALC Exon 5, Terrier Variant)                         | Clear                    |
| $\oslash$    | ) Glycogen Storage Disease Type IA, v  | /on Gierke Disease, GSD IA (G6PC, Maltese Variant)               | Clear                    |
| $\oslash$    | Glycogen Storage Disease Type IIIA,  | GSD IIIA (AGL, Curly Coated Retriever Variant)                   | Clear                    |
| $\oslash$    | Glycogen storage disease Type VII, P<br>and English Springer Spaniel Variant | Phosphofructokinase Deficiency, PFK Deficiency (PFKM, Whip<br>:) | opet Clear               |
| $\oslash$    | Glycogen storage disease Type VII, P<br>Wachtelhund Variant)                 | Phosphofructokinase Deficiency, PFK Deficiency (PFKM,            | Clear                    |
| $\oslash$    | GM1 Gangliosidosis (GLB1 Exon 2, Po  | rtuguese Water Dog Variant)                                      | Clear                    |
| $\oslash$    | GM1 Gangliosidosis (GLB1 Exon 15, Sł   | hiba Inu Variant)  | Clear                    |
| $\oslash$    | GM1 Gangliosidosis (GLB1 Exon 15, Ala  | askan Husky Variant)   | Clear                    |
| $\oslash$    | GM2 Gangliosidosis (HEXA, Japanese   | Chin Variant)  | Clear                    |
| $\oslash$    | GM2 Gangliosidosis (HEXB, Poodle Va  | iriant)  | Clear                    |
| $\oslash$    | Golden Retriever Progressive Retinal   | Atrophy 1, GR-PRA1 (SLC4A3)                                      | Clear                    |
| $\oslash$    | Golden Retriever Progressive Retinal A                                       | Atrophy 2, GR-PRA2 (TTC8)  | Clear                    |
| $\bigcirc$   | Goniodysgenesis and Glaucoma, Pecti  | inate Ligament Dysplasia, PLD (OLFM3)                            | Clear                    |





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| от        | HER RESULTS                                |  |                          |
| $\oslash$ | Hemophilia A (F8 Exon 11, German Shephe    | rd Variant 1)  | Clear                    |
| $\oslash$ | Hemophilia A (F8 Exon 1, German Shepher    | d Variant 2)   | Clear                    |
| $\oslash$ | Hemophilia A (F8 Exon 10, Boxer Variant)   |  | Clear                    |
| $\oslash$ | Hemophilia B (F9 Exon 7, Terrier Variant)  |  | Clear                    |
| $\oslash$ | Hemophilia B (F9 Exon 7, Rhodesian Ridge   | back Variant)  | Clear                    |
| $\oslash$ | Hereditary Ataxia, Cerebellar Degeneration | n (RAB24, Old English Sheepdog and Gordon Setter Var | iant) Clear              |
| $\oslash$ | Hereditary Cataracts (HSF4 Exon 9, Austra  | lian Shepherd Variant)                               | Clear                    |
| $\oslash$ | Hereditary Footpad Hyperkeratosis (FAM8    | 3G, Terrier and Kromfohrlander Variant)              | Clear                    |
| $\oslash$ | Hereditary Footpad Hyperkeratosis (DSG1,   | Rottweiler Variant)                                  | Clear                    |
| $\oslash$ | Hereditary Nasal Parakeratosis (SUV39H2    | Intron 4, Greyhound Variant)                         | Clear                    |
| $\oslash$ | Hereditary Nasal Parakeratosis, HNPK (SU)  | /39H2)   | Clear                    |
| $\oslash$ | Hereditary Vitamin D-Resistant Rickets (V  | DR)  | Clear                    |
| $\oslash$ | Hypocatalasia, Acatalasemia (CAT)          |  | Clear                    |
| $\oslash$ | Hypomyelination and Tremors (FNIP2, Wei    | maraner Variant)                                     | Clear                    |
| $\oslash$ | Hypophosphatasia (ALPL Exon 9, Karelian    | Bear Dog Variant)                                    | Clear                    |
| $\oslash$ | Ichthyosis (NIPAL4, American Bulldog Vari  | ant)   | Clear                    |
| $\oslash$ | Ichthyosis (ASPRV1 Exon 2, German Shept    | nerd Variant)  | Clear                    |
| $\oslash$ | Ichthyosis (SLC27A4, Great Dane Variant)   |  | Clear                    |





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| OTHER RESULTS                     |  |                          |
| ⊘ Ichthyosis, Epidermolytic Hyp   | erkeratosis (KRT10, Terrier Variant)                         | Clear                    |
| ⊘ Ichthyosis, ICH1 (PNPLA1, Gold  | den Retriever Variant)                                       | Clear                    |
| Inflammatory Myopathy (SLC2       | 5A12)  | Clear                    |
| Inherited Myopathy of Great D     | anes (BIN1)  | Clear                    |
| Inherited Selected Cobalamin      | Malabsorption with Proteinuria (CUBN, Komondor Variant)      | Clear                    |
| Intestinal Lipid Malabsorption    | (ACSL5, Australian Kelpie)                                   | Clear                    |
| Junctional Epidermolysis Bullo    | sa (LAMA3 Exon 66, Australian Cattle Dog Variant)            | Clear                    |
| Junctional Epidermolysis Bullos   | sa (LAMB3 Exon 11, Australian Shepherd Variant)              | Clear                    |
| Juvenile Epilepsy (LGI2)          |  | Clear                    |
| 🧭 Juvenile Laryngeal Paralysis an | d Polyneuropathy (RAB3GAP1, Rottweiler Variant)              | Clear                    |
| Juvenile Myoclonic Epilepsy (D    | IRAS1)   | Clear                    |
| ⊘ L-2-Hydroxyglutaricaciduria, L2 | HGA (L2HGDH, Staffordshire Bull Terrier Variant)             | Clear                    |
| Lagotto Storage Disease (ATG4)    | D)   | Clear                    |
| Laryngeal Paralysis (RAPGEF6, N   | Miniature Bull Terrier Variant)                              | Olean                    |
| Late Onset Spinocerebellar Atax   | kia (CAPN1)  | Clear                    |
| Late-Onset Neuronal Ceroid Lipo   | ofuscinosis, NCL 12 (ATP13A2, Australian Cattle Dog Variant) | Clear                    |
| Leonberger Polyneuropathy 1 (Ll)  | PN1, ARHGEF10)   | Clear                    |
| 🖉 Leonberger Polyneuropathy 2 (G  | (eAL   | Clear                    |
|                                   |  | Uleal                    |





| DN        | A Test Report  | Test Date: September 6th, 2023                     | embk.me/cavapoos316sreba |
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| 0         | THER RESULTS   |  |                          |
| 0         | ) Lethal Acrodermatitis, LAD (MKLN1)                               |  | Clear                    |
| $\oslash$ | ) Leukodystrophy (TSEN54 Exon 5, Standard                          | Schnauzer Variant)                                 | Clear                    |
| $\oslash$ | ) Ligneous Membranitis, LM (PLG)                                   |  | Clear                    |
| $\oslash$ | Limb Girdle Muscular Dystrophy (SGCD, Bos                          | ston Terrier Variant)                              | Clear                    |
| $\oslash$ | Limb-Girdle Muscular Dystrophy 2D (SGCA F                          | Exon 3, Miniature Dachshund Variant)               | Clear                    |
| $\oslash$ | Long QT Syndrome (KCNQ1)   |  | Clear                    |
| $\oslash$ | Lundehund Syndrome (LEPREL1)                                       |  | Clear                    |
| $\oslash$ | Macular Corneal Dystrophy, MCD (CHST6)                             |  | Clear                    |
| $\oslash$ | Malignant Hyperthermia (RYR1)                                      |  | Clear                    |
| $\oslash$ | May-Hegglin Anomaly (MYH9)   |  | Clear                    |
| $\oslash$ | Methemoglobinemia (CYB5R3, Pit Bull Terrie                         | er Variant)  | Clear                    |
| $\oslash$ | Methemoglobinemia (CYB5R3)   |  | Clear                    |
| $\oslash$ | Microphthalmia (RBP4 Exon 2, Soft Coated W                         | Vheaten Terrier Variant)                           | Clear                    |
| $\oslash$ | Mucopolysaccharidosis IIIB, Sanfilippo Syndr                       | rome Type B, MPS IIIB (NAGLU, Schipperke Variant)  | Clear                    |
| $\oslash$ | Mucopolysaccharidosis Type IIIA, Sanfilippo :<br>Variant)          | Syndrome Type A, MPS IIIA (SGSH Exon 6, Dachshund  | Clear                    |
| $\oslash$ | Mucopolysaccharidosis Type IIIA, Sanfilippo S<br>Huntaway Variant) | Syndrome Type A, MPS IIIA (SGSH Exon 6, New Zealar | ıd Clear                 |
| $\oslash$ | Mucopolysaccharidosis Type VI, Maroteaux-L<br>Variant)             | amy Syndrome, MPS VI (ARSB Exon 5, Miniature Pins. | cher Clear               |
| $\oslash$ | Mucopolysaccharidosis Type VII, Sly Syndrom                        | ne, MPS VII (GUSB Exon 3, German Shepherd Variant) | Clear                    |





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| от        | HER RESULTS                                 |   |                          |
| $\oslash$ | Mucopolysaccharidosis Type VII, Sly Synd    | rome, MPS VII (GUSB Exon 5, Terrier Brasileiro Variant) | Clear                    |
| $\oslash$ | Multiple Drug Sensitivity (ABCB1)           |   | Clear                    |
| $\oslash$ | Muscular Dystrophy (DMD, Golden Retriev     | er Variant)   | Clear                    |
| $\oslash$ | Musladin-Lueke Syndrome, MLS (ADAMTS        | L2)   | Clear                    |
| $\oslash$ | Myasthenia Gravis-Like Syndrome (CHRNE      | , Heideterrier Variant)                                 | Clear                    |
| $\oslash$ | Myotonia Congenita (CLCN1 Exon 23, Aust     | ralian Cattle Dog Variant)                              | Clear                    |
| $\oslash$ | Myotonia Congenita (CLCN1 Exon 7, Miniat    | ure Schnauzer Variant)                                  | Clear                    |
| $\oslash$ | Narcolepsy (HCRTR2 Exon 1, Dachshund Va     | ariant)   | Clear                    |
| $\oslash$ | Narcolepsy (HCRTR2 Intron 4, Doberman P     | inscher Variant)  | Clear                    |
| $\oslash$ | Narcolepsy (HCRTR2 Intron 6, Labrador Re    | triever Variant)  | Clear                    |
| $\oslash$ | Nemaline Myopathy (NEB, American Bulldo     | g Variant)  | Clear                    |
| $\oslash$ | Neonatal Cerebellar Cortical Degeneration   | (SPTBN2, Beagle Variant)                                | Clear                    |
| $\oslash$ | Neonatal Encephalopathy with Seizures, N    | EWS (ATF2)  | Clear                    |
| $\oslash$ | Neonatal Interstitial Lung Disease (LAMP3)  |   | Clear                    |
| $\oslash$ | Neuroaxonal Dystrophy, NAD (VPS11, Rottw    | eiler Variant)  | Clear                    |
| $\oslash$ | Neuroaxonal Dystrophy, NAD (TECPR2, Spa     | nish Water Dog Variant)                                 | Clear                    |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis 1, NCL 1 (PF | PT1 Exon 8, Dachshund Variant 1)                        | Clear                    |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis 10, NCL 10   | (CTSD Exon 5, American Bulldog Variant)                 | Clear                    |





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| от        | HER RESULTS                                       |  |                    |         |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis 2, NCL             | 2 (TPP1 Exon 4, Dachshund Variant 2)                     |                    | Clear   |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis 5, NCL             | 5 (CLN5 Exon 4 SNP, Border Collie Variant)               |                    | Clear   |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis 5, NCL             | 5 (CLN5 Exon 4 Deletion, Golden Retriever Variant)       |                    | Clear   |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis 6, NCL             | 6 (CLN6 Exon 7, Australian Shepherd Variant)             |                    | Clear   |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis 7, NCL             | 7 (MFSD8, Chihuahua and Chinese Crested Variant)         |                    | Clear   |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis 8, NCL             | 8 (CLN8, Australian Shepherd Variant)                    |                    | Clear   |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis 8, NCL             | 8 (CLN8 Exon 2, English Setter Variant)                  |                    | Clear   |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis 8, NCL             | 8 (CLN8 Insertion, Saluki Variant)                       |                    | Clear   |
| $\oslash$ | Neuronal Ceroid Lipofuscinosis, Cereb<br>Variant) | ellar Ataxia, NCL4A (ARSG Exon 2, American Staffordshire | > Terrier          | Clear   |
| $\oslash$ | Oculocutaneous Albinism, OCA (SLC45               | A2 Exon 6, Bullmastiff Variant)                          |                    | Clear   |
| $\oslash$ | Oculocutaneous Albinism, OCA (SLC45               | A2, Small Breed Variant)                                 |                    | Clear   |
| $\oslash$ | Oculoskeletal Dysplasia 2 (COL9A2, Sa             | moyed Variant)   |                    | Clear   |
| $\oslash$ | Osteochondrodysplasia (SLC13A1, Poo               | dle Variant)   |                    | Clear   |
| $\oslash$ | Osteogenesis Imperfecta (COL1A2, Bea              | agle Variant)  |                    | Clear   |
| $\oslash$ | Osteogenesis Imperfecta (SERPINH1, D              | Dachshund Variant)                                       |                    | Clear   |
| $\oslash$ | Osteogenesis Imperfecta (COL1A1, Gold             | den Retriever Variant)                                   |                    | Clear   |
| $\oslash$ | P2Y12 Receptor Platelet Disorder (P2Y             | 12)  |                    | Clear   |
| $\oslash$ | Pachyonychia Congenita (KRT16, Dogu               | e de Bordeaux Variant)                                   |                    | Clear   |

CAVAPOOS 3 :16 "S REBA



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| ΟΤ        | HER RESULTS   |  |                          |
| $\oslash$ | Paroxysmal Dyskinesia, PxD (PIGN)                   |  | Clear                    |
| $\oslash$ | Persistent Mullerian Duct Syndrome, PMDS            | G (AMHR2)  | Clear                    |
| $\oslash$ | Pituitary Dwarfism (POU1F1 Intron 4, Karelia        | an Bear Dog Variant)                               | Clear                    |
| $\oslash$ | Platelet Factor X Receptor Deficiency, Scot         | t Syndrome (TMEM16F)                               | Clear                    |
| $\oslash$ | Polycystic Kidney Disease, PKD (PKD1)               |  | Clear                    |
| $\oslash$ | Pompe's Disease (GAA, Finnish and Swedis            | sh Lapphund, Lapponian Herder Variant)             | Clear                    |
| $\oslash$ | Prekallikrein Deficiency (KLKB1 Exon 8)             |  | Clear                    |
| $\oslash$ | Primary Ciliary Dyskinesia, PCD (NME5, Alas         | skan Malamute Variant)                             | Clear                    |
| $\oslash$ | Primary Ciliary Dyskinesia, PCD (CCDC39 E           | xon 3, Old English Sheepdog Variant)               | Clear                    |
| $\oslash$ | Primary Hyperoxaluria (AGXT)                        |  | Clear                    |
| $\oslash$ | Primary Lens Luxation (ADAMTS17)                    |  | Clear                    |
| $\oslash$ | Primary Open Angle Glaucoma (ADAMTS17               | Exon 11, Basset Fauve de Bretagne Variant)         | Clear                    |
| $\oslash$ | Primary Open Angle Glaucoma (ADAMTS10               | Exon 17, Beagle Variant)                           | Clear                    |
| $\oslash$ | Primary Open Angle Glaucoma (ADAMTS10               | Exon 9, Norwegian Elkhound Variant)                | Clear                    |
| $\oslash$ | Primary Open Angle Glaucoma and Primary<br>Variant) | Lens Luxation (ADAMTS17 Exon 2, Chinese Shar-Pei   | Clear                    |
| $\oslash$ | Progressive Retinal Atrophy (SAG)                   |  | Clear                    |
| $\oslash$ | Progressive Retinal Atrophy (IFT122 Exon 2          | 26, Lapponian Herder Variant)                      | Clear                    |
| $\oslash$ | Progressive Retinal Atrophy, Bardet-Biedl S         | Syndrome (BBS2 Exon 11, Shetland Sheepdog Variant) | ) Clear                  |
|           |   |  |                          |





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| OTHER RESULTS                  |   |                          |
| Progressive Retinal Atrophy    | y, CNGA (CNGA1 Exon 9)                                  | Clear                    |
| Progressive Retinal Atrophy    | y, crd1 (PDE6B, American Staffordshire Terrier Variant) | Clear                    |
| Progressive Retinal Atrophy    | v, crd4/cord1 (RPGRIP1)                                 | Clear                    |
| Progressive Retinal Atrophy    | , PRA1 (CNGB1)  | Clear                    |
| Progressive Retinal Atrophy    | , PRA3 (FAM161A)  | Clear                    |
| Progressive Retinal Atrophy,   | prcd (PRCD Exon 1)                                      | Clear                    |
| Progressive Retinal Atrophy,   | rcd1 (PDE6B Exon 21, Irish Setter Variant)              | Clear                    |
| Progressive Retinal Atrophy,   | rcd3 (PDE6A)  | Clear                    |
| Protein Losing Nephropathy,    | PLN (NPHS1)   | Clear                    |
| Pyruvate Dehydrogenase Deh     | ficiency (PDP1, Spaniel Variant)                        | Clear                    |
| Pyruvate Kinase Deficiency (   | PKLR Exon 5, Basenji Variant)                           | Clear                    |
| Pyruvate Kinase Deficiency (I) | PKLR Exon 7, Beagle Variant)                            | Clear                    |
| Pyruvate Kinase Deficiency (F  | PKLR Exon 10, Terrier Variant)                          | Clear                    |
| Pyruvate Kinase Deficiency (F  | YKLR Exon 7, Labrador Retriever Variant)                | Clear                    |
| Pyruvate Kinase Deficiency (F  | KLR Exon 7, Pug Variant)                                | Clear                    |
| Raine Syndrome (FAM20C)        |   | Clear                    |
| Recurrent Inflammatory Pulmo   | onary Disease, RIPD (AKNA, Rough Colling Verient)       | Clear                    |
| Renal Cystadenocarcinoma ar    | d Nodular Dermatofibrosis (ELON Sugar Collie Variant)   | Clear                    |
|                                | (FLGN EXON /)   | Clear                    |





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| ОТ              | OTHER RESULTS                          |   |                          |  |  |  |
| $\oslash$       | Retina Dysplasia and/or Optic Nerve H  | ypoplasia (SIX6 Exon 1, Golden Retriever Variant) | Clear                    |  |  |  |
| $\oslash$       | Sensory Neuropathy (FAM134B, Borde     | r Collie Variant)                                 | Clear                    |  |  |  |
| $\oslash$       | Severe Combined Immunodeficiency,      | SCID (PRKDC, Terrier Variant)                     | Clear                    |  |  |  |
| $\oslash$       | Severe Combined Immunodeficiency,      | SCID (RAG1, Wetterhoun Variant)                   | Clear                    |  |  |  |
| $\oslash$       | Shaking Puppy Syndrome (PLP1, Englis   | sh Springer Spaniel Variant)                      | Clear                    |  |  |  |
| $\oslash$       | Shar-Pei Autoinflammatory Disease, SF  | PAID, Shar-Pei Fever (MTBP)                       | Clear                    |  |  |  |
| $\oslash$       | Skeletal Dysplasia 2, SD2 (COL11A2, La | brador Retriever Variant)                         | Clear                    |  |  |  |
| $\oslash$       | Skin Fragility Syndrome (PKP1, Chesap  | eake Bay Retriever Variant)                       | Clear                    |  |  |  |
| $\oslash$       | Spinocerebellar Ataxia (SCN8A, Alpine  | Dachsbracke Variant)                              | Clear                    |  |  |  |
| $\oslash$       | Spinocerebellar Ataxia with Myokymia   | and/or Seizures (KCNJ10)                          | Clear                    |  |  |  |
| $\oslash$       | Spongy Degeneration with Cerebellar    | Ataxia 1 (KCNJ10)                                 | Clear                    |  |  |  |
| $\oslash$       | Spongy Degeneration with Cerebellar    | Ataxia 2 (ATP1B2)                                 | Clear                    |  |  |  |
| $\oslash$       | Stargardt Disease (ABCA4 Exon 28, Lab  | prador Retriever Variant)                         | Clear                    |  |  |  |
| $\oslash$       | Succinic Semialdehyde Dehydrogenas     | e Deficiency (ALDH5A1 Exon 7, Saluki Variant)     | Clear                    |  |  |  |
| $\oslash$       | Thrombopathia (RASGRP1 Exon 5, Ame     | rican Eskimo Dog Variant)                         | Clear                    |  |  |  |
| $\oslash$       | Thrombopathia (RASGRP1 Exon 5, Bass    | et Hound Variant)                                 | Clear                    |  |  |  |
| $\oslash$       | Thrombopathia (RASGRP1 Exon 8, Land    | seer Variant)                                     | Clear                    |  |  |  |
| $\oslash$       | Trapped Neutrophil Syndrome, TNS (VP   | 'S13B)  | Clear                    |  |  |  |





| DNA       | Test Report                          | Test Date: September 6th, 2023                                | embk.me/cavapoos316sreba |
|-----------|--------------------------------------|---|--------------------------|
| от        | HER RESULTS                          |   |                          |
| $\oslash$ | Ullrich-like Congenital Muscular     | Dystrophy (COL6A3 Exon 10, Labrador Retriever Variant)        | Clear                    |
| $\oslash$ | Ullrich-like Congenital Muscular     | Dystrophy (COL6A1 Exon 3, Landseer Variant)                   | Clear                    |
| $\oslash$ | Unilateral Deafness and Vestibu      | lar Syndrome (PTPRQ Exon 39, Doberman Pinscher)               | Clear                    |
| $\oslash$ | Urate Kidney & Bladder Stones (      | SLC2A9)   | Clear                    |
| $\oslash$ | Von Willebrand Disease Type I, T     | ype I vWD (VWF)   | Clear                    |
| $\oslash$ | Von Willebrand Disease Type II,      | Type II vWD (VWF, Pointer Variant)                            | Clear                    |
| $\oslash$ | Von Willebrand Disease Type III,     | Type III vWD (VWF Exon 4, Terrier Variant)                    | Clear                    |
| $\oslash$ | Von Willebrand Disease Type III,     | Type III vWD (VWF Intron 16, Nederlandse Kooikerhondje Varian | nt) Clear                |
| $\oslash$ | Von Willebrand Disease Type III,     | Type III vWD (VWF Exon 7, Shetland Sheepdog Variant)          | Clear                    |
| $\oslash$ | X-Linked Hereditary Nephropath       | y, XLHN (COL4A5 Exon 35, Samoyed Variant 2)                   | Clear                    |
| $\oslash$ | X-Linked Myotubular Myopathy (       | MTM1, Labrador Retriever Variant)                             | Clear                    |
| $\oslash$ | X-Linked Progressive Retinal Atr     | ophy 1, XL-PRA1 (RPGR)  | Clear                    |
| $\oslash$ | X-linked Severe Combined Immu        | nodeficiency, X-SCID (IL2RG Exon 1, Basset Hound Variant)     | Clear                    |
| $\oslash$ | X-linked Severe Combined Immu        | nodeficiency, X-SCID (IL2RG, Corgi Variant)                   | Clear                    |
| $\oslash$ | Xanthine Urolithiasis (XDH, Mixed    | d Breed Variant)  | Clear                    |
| $\oslash$ | $\beta$ -Mannosidosis (MANBA Exon 16 | 6, Mixed-Breed Variant)                                       | Clear                    |