International Canine Association Inc.

Official Registration Certificate

NAME: Babe

REGISTRATION NUMBER: IL-ICA-2080898-001

Internet Access Code: IL7760977

BREED: CAVALIER KING CHARLES SPANIEL

WHELPED: 04/13/2022

COLORS: Ruby

SEX: Female

MICROCHIP: 900215006395059

CERTIFICATE ISSUE DATE: 08/22/2024

SIRE: Foundation Stock

DAM: Foundation Stock

CURRENT OWNER:
John W Helmuth
1785 CR 1400 E
Sullivan, IL 61951

INTERNATIONAL CANINE ASSOCIATION INC.
ICA
"Tracking your pets around the world"
OFFICIAL SEAL

ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

BABE
registered name

CAVALIER KING CHARLES SPANIEL
breed

film/test/lab #

900215006395059
tattoo/microchip/DNA profile

2639261
application number

07/10/2025
date of report

ILICA2080898001
registration no.

F
sex

04/13/2022
date of birth

38
age at evaluation in months

A Not-For-Profit Organization

KCS-EL1690F38-P-VPI
O.F.A. NUMBER

This number issued with the right to correct or revoke by the Orthopedic Foundation for Animals.

RESULTS:

The elbows are normal. No radiographic evidence of elbow dysplasia is present.

NORMAL

owner
WILLARD R. HELMUTH
CAROL HELMUTH
579 N CR 100 E
ARTHUR IL 61911

OFA eCert

Verify QR scan

G.G. KELLER, DVM, MS, DACVR
CHIEF OF VETERINARY SERVICES

www.ofa.org

This electronic OFA certificate was generated on: 07/10/2025

This certification can be verified on the OFA website by entering the dog's registration number into the orange search box located at the top of the page or by scanning the QR code above.

If there are any errors on this certificate, please email CORRECTIONS@OFA.ORG to request a correction.

Orthopedic Foundation for Animals, Inc.
2300 E. Nifong Blvd.
Columbia, MO 65201-3806

OFA website: www.ofa.org
E-mail address: ofa@ofa.org
Phone number: 573-442-0418
Fax number: 573-875-5073

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KCS-10130E38F-P-VPI
O.F.A. NUMBER

This number issued with the right to correct or revoke by the Orthopedic Foundation for Animals.

RESULTS:

No radiographic evidence of hip dysplasia is present. The consensus evaluation is: EXCELLENT

owner
WILLARD R. HELMUTH
CAROL HELMUTH
579 N CR 100 E
ARTHUR IL 61911

OFA eCert

Verify QR scan

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A Not-For-Profit Organization

KCS-LP745/38F-VPI
O.F.A. NUMBER

This number issued with the right to correct or revoke by the Orthopedic Foundation for Animals.

RESULTS:

Based upon the radiograph submitted, no phenotypic evidence of Legg-Calve-Perthes disease was recognized.

NORMAL

owner
WILLARD R. HELMUTH
CAROL HELMUTH
579 N CR 100 E
ARTHUR IL 61911

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ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

BABE
registered name

CAVALIER KING CHARLES SPANIEL
breed

film/test/lab #

900215006395059
tattoo/microchip/DNA profile

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application number

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ILICA2080898001
registration no.

F
sex

04/13/2022
date of birth

38
age at evaluation in months

A Not-For-Profit Organization

KCS-BCA6955/38F/P-VPI
O.F.A. NUMBER

This number issued with the right to correct or revoke by the Orthopedic Foundation for Animals.

RESULTS:

Normal cardiovascular examination via auscultation - No evidence of congenital or acquired heart disease was noted. Since acquired heart disease may develop later, these evaluation results remain valid for one year, and annual examinations are recommended to continue to monitor cardiac health.

NORMAL/CLEAR - PRACTITIONER

owner
WILLARD R. HELMUTH
CAROL HELMUTH
579 N CR 100 E
ARTHUR IL 61911

OFA eCert

Verify QR scan

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CHIEF OF VETERINARY SERVICES

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ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

BABE
registered name

ILICA2080898001
registration no.

CAVALIER KING CHARLES SPANIEL
breed

F
sex

film/test/lab #

04/13/2022
date of birth

900215006395059
tattoo/microchip/DNA profile

38
age at evaluation in months

A Not-For-Profit Organization

2639261
application number

KCS-PA14197/38F/P-VPI
O.F.A. NUMBER

This number issued with the right to correct or revoke by the Orthopedic Foundation for Animals.

07/03/2025
date of report

RESULTS:

The results of the examination submitted to OFA indicate that no evidence of patellar luxation was recognized.

NORMAL - PRACTITIONER

owner
WILLARD R. HELMUTH
CAROL HELMUTH
579 N CR 100 E
ARTHUR IL 61911

OFA eCert

Verify QR scan

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BABE

DNA Test Report | Test Date: November 3rd, 2025 | embk.me/babe186

BREED ANCESTRY

Cavalier King Charles Spaniel : 100.0%

GENETIC STATS

Predicted adult weight: **17 lbs**

TEST DETAILS

Kit number: EM-25087767
Swab number: 31241260204477

Registration: International Canine Association (ICA)

BABE

HEALTH REPORT

How to interpret Babe's genetic health results:

If Babe 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 Babe 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 274 genetic health risks we analyzed, we found 4 results that you should learn about.

Increased risk results (1)

Intervertebral Disc Disease (Type I)

Notable results (3)

Copper Toxicosis (Accumulating)

Medium-Chain Acyl-CoA Dehydrogenase Deficiency, MCADD

Proportionate Dwarfism

Clear results

Breed-relevant (4)

Other (265)

BABE

DNA Test Report | Test Date: November 3rd, 2025 | embk.me/babe186

BREED-RELEVANT RESULTS

Research studies indicate that these results are more relevant to dogs like Babe, and may influence her chances of developing certain health conditions.

Intervertebral Disc Disease (Type I) (FGF4 retrogene - CFA12)	Increased risk
Medium-Chain Acyl-CoA Dehydrogenase Deficiency, MCADD (ACADM, Cavalier King Charles Spaniel Variant)	Notable
Degenerative Myelopathy, DM (SOD1A)	Clear
Dry Eye Curly Coat Syndrome (FAM83H Exon 5)	Clear
Episodic Falling Syndrome (BCAN)	Clear
Muscular Dystrophy (DMD, Cavalier King Charles Spaniel Variant 1)	Clear

Registration: International Canine Association (ICA)

BABE

HEALTH REPORT

Increased risk result

Intervertebral Disc Disease (Type I)

Babe inherited both copies of the variant we tested for Chondrodystrophy and Intervertebral Disc Disease, CDDY/IVDD, Type I IVDD
Babe is at increased risk for Type I IVDD

How to interpret this result
Babe has two copies of an FGF4 retrogene on chromosome 12. In some breeds such as Beagles, Cocker Spaniels, and Dachshunds (among others) this variant is found in nearly all dogs. While those breeds are known to have an elevated risk of IVDD, many dogs in those breeds never develop IVDD. For mixed breed dogs and purebreds of other breeds where this variant is not as common, risk for Type I IVDD is greater for individuals with this variant than for similar dogs.

What is Chondrodystrophy and Intervertebral Disc Disease, CDDY/IVDD, Type I IVDD?
Type I Intervertebral Disc Disease (IVDD) is a back/spine issue that refers to a health condition affecting the discs that act as cushions between vertebrae. With Type I IVDD, affected dogs can have a disc event where it ruptures or herniates towards the spinal cord. This pressure on the spinal cord causes neurologic signs which can range from a wobbly gait to impairment of movement. Chondrodystrophy (CDDY) refers to the relative proportion between a dog's legs and body, wherein the legs are shorter and the body longer. There are multiple different variants that can cause a markedly chondrodystrophic appearance as observed in Dachshunds and Corgis. However, this particular variant is the only one known to also increase the risk for IVDD.

When signs & symptoms develop in affected dogs
Signs of CDDY are recognized in puppies as it affects body shape. IVDD is usually first recognized in adult dogs, with breed specific differences in age of onset.

Signs & symptoms
Research indicates that dogs with one or two copies of this variant have a similar risk of developing IVDD. However, there are some breeds (e.g. Beagles and Cocker Spaniels, among others) where this variant has been passed down to nearly all dogs of the breed and most do not show overt clinical signs of the disorder. This suggests that there are other genetic and environmental factors (such as weight, mobility, and family history) that contribute to an individual dog's risk of developing clinical IVDD. Signs of IVDD include neck or back pain, a change in your dog's walking pattern (including dragging of the hind limbs), and paralysis. These signs can be mild to severe, and if your dog starts exhibiting these signs, you should schedule an appointment with your veterinarian for a diagnosis.

How vets diagnose this condition
For CDDY, dogs with one copy of this variant may have mild proportional differences in their leg length. Dogs with two copies of this variant will often have visually longer bodies and shorter legs. For IVDD, a neurological exam will be performed on any dog showing suspicious signs. Based on the result of this exam, radiographs to detect the presence of calcified discs or advanced imaging (MRI/CT) to detect a disc rupture may be recommended.

How this condition is treated
IVDD is treated differently based on the severity of the disease. Mild cases often respond to medical management which includes

BABE

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HEALTH REPORT

Notable result

Copper Toxicosis (Accumulating)

Babe inherited one copy of the variant we tested for Copper Toxicosis (Accumulating)
Babe is not known to be at increased risk for Copper Toxicosis (Accumulating)

What does this result mean?
We do not know whether this increases the risk that Babe will develop Copper Toxicosis (Accumulating).

Scientific Basis
Research studies for this variant have been based on dogs of other breeds. Not enough dogs with Babe's breed have been studied to know whether or not this variant will increase Babe's risk of developing this disease.

Impact on Breeding
Research into the clinical impact of this variant is ongoing. We recommend tracking this genetic result and incidence of Copper Toxicosis (Accumulating) in your breeding program and related dogs.

What is Copper Toxicosis (Accumulating)?
Copper toxicosis is a condition in which affected dogs have difficulty excreting excess copper from their liver. The liver accumulates more copper until it eventually begins failing. Multiple genetic and environmental factors contribute to the development of this condition.

When signs & symptoms develop in affected dogs
Signs typically develop in adults.

How vets diagnose this condition
Genetic testing, blood work, abdominal ultrasound, and surgical biopsy are all used to diagnose this condition.

How this condition is treated
Treatment includes a low copper diet and medical management to help bind excess copper. Antioxidant supplements may also be considered.

Actions to take if your dog is affected

- Talk to your vet about your dog's copper toxicosis result so you can discuss if dietary management or monitoring is indicated.
- Copper is an essential nutrient, but amounts can vary widely among commercial diets, so your vet may recommend a specific food or periodic testing to maintain safe levels.
- Many dogs with this result never develop clinical disease. Watch for signs that may indicate high copper levels, such as decreased appetite, vomiting, lethargy, or jaundice.
- Learn more about how the three variants for Copper Toxicosis are inherited and, if applicable, how results can be used in a breeding program here (https://embarkvet.com/resources/embark-adds-copper-toxicosis-dna-test/).

BABE

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HEALTH REPORT

Notable result

Medium-Chain Acyl-CoA Dehydrogenase Deficiency, MCADD

Babe inherited one copy of the variant we tested for Medium-Chain Acyl-CoA Dehydrogenase Deficiency, MCADD

What does this result mean?
This variant should not impact Babe's health. This variant is inherited in an autosomal recessive manner, meaning a dog needs two copies of the variant to show signs of this condition. Babe is unlikely to develop this condition due to this variant because she only has one copy of the variant.

Impact on Breeding
Your dog carries this variant and will pass it on to ~50% of her offspring. You can email breeders@embarkvet.com to discuss with a genetic counselor how the genotype results should be applied to a breeding program.

What is Medium-Chain Acyl-CoA Dehydrogenase Deficiency, MCADD?
Medium-Chain Acyl-CoA Dehydrogenase Deficiency (MCADD) affects the body's ability to break down certain fats for energy. This can lead to lethargy and seizures in affected dogs.

When signs & symptoms develop in affected dogs
The age of diagnosis can vary, but signs typically first appear in young dogs.

How vets diagnose this condition
A combination of physical examination, blood tests, and genetic testing can be used to diagnose MCADD.

How this condition is treated
Treatment consists of frequent feeding of low-fat diets. Anti-convulsant therapy may be indicated in some cases.

Actions to take if your dog is affected

- Talk to your vet about your dog's MCADD result so you can discuss a feeding schedule and diet that help prevent low blood sugar.
- Provide frequent, regular meals and avoid prolonged fasting, as affected dogs have trouble using fat for energy between meals.
- Keep a small, easily digestible snack on hand for times when meals may be delayed or if your dog seems weak or lethargic.
- If your dog shows signs of low energy, wobbliness, or collapse, offer a small meal or a bit of a sugar source like honey on the gums and contact your vet.

BABE

DNA Test Report | Test Date: November 3rd, 2025 | embk.me/babe186

HEALTH REPORT

Notable result

Proportionate Dwarfism

Babe inherited one copy of the variant we tested for Proportionate Dwarfism

What does this result mean?
This variant should not impact Babe's health. This variant is inherited in an autosomal recessive manner, meaning that a dog needs two copies of the variant to show signs of this condition. Babe is unlikely to develop this condition due to this variant because she only has one copy of the variant.

Impact on Breeding
Your dog carries this variant and will pass it on to ~50% of her offspring. You can email breeders@embarkvet.com to discuss with a genetic counselor how the genotype results should be applied to a breeding program.

What is Proportionate Dwarfism?
Embark's data suggests that this variant in the GH1 gene may contribute to a smaller body size. The original publication predicts this is due to a growth hormone (GH) deficiency. However, adult body size is influenced by several different genetic variants. Other changes noted by the publication, including retained baby teeth, persistent puppy-like coats, and low blood sugar have been occasionally reported by owners of dogs with two copies of this variant. These changes may or may not be associated with this variant.

When signs & symptoms develop in affected dogs
Dogs with this variant may never show clinical signs. Smaller stature may be noticeable if the puppy grows at a different rate than littermates without this variant. Low blood sugar is a potential issue common to most toy breeds but could persist beyond four months of age. Retained puppy teeth and puppy-like coats can only be noted at more than six months of age.

How vets diagnose this condition
Clinical history, genetic testing, and laboratory testing can be used to diagnose this form of Proportionate Dwarfism. Further research is needed to determine the full effects of this variant.

How this condition is treated
Our internal data suggests that most dogs with two copies of this variant will not require additional care than other toy breed puppies. If a complication occurs, your veterinarian may recommend various treatments, including correcting blood sugar or extracting retained baby teeth.

Actions to take if your dog is affected

- Talk to your vet about your dog's proportionate dwarfism result so you can discuss any monitoring that may be helpful as your dog grows.
- Most dogs with this result live normal, healthy lives, but puppies may occasionally experience low blood sugar, especially if they miss a meal or overexert themselves.
- Watch for signs of hypoglycemia such as unusual tiredness, weakness, or wobbliness. If this happens, offer a small meal or a bit

BABE

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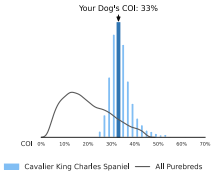
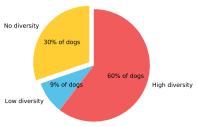
INBREEDING AND DIVERSITY

CATEGORY	RESULT
Coefficient Of Inbreeding Our genetic COI measures the proportion of your dog's genome where the genes on the mother's side are identical by descent to those on the father's side.	**33%** 
MHC Class II - DLA DRB1 A Dog Leukocyte Antigen (DLA) gene, DRB1 encodes a major histocompatibility complex (MHC) protein involved in the immune response. Some studies have shown associations between certain DRB1 haplotypes and autoimmune diseases such as Addison's disease (hypoadrenocorticism) in certain dog breeds, but these findings have yet to be scientifically validated.	**No Diversity** How common is this amount of diversity in purebreds: 
MHC Class II - DLA DQA1 and DQB1 DQA1 and DQB1 are two tightly linked DLA genes that code for MHC proteins involved in the immune response. A number of studies have shown correlations of DQA-DQB1 haplotypes and certain autoimmune diseases; however, these have not yet been scientifically validated.	**No Diversity** How common is this amount of diversity in purebreds: