AMERICAN KENNEL CLUB

NAME
CVP DAISY

NUMBER
TS51575204

BREED
CAVALIER KING CHARLES SPANIEL

SEX
FEMALE

COLOR
RUBY

DATE OF BIRTH
JULY 20, 2021

SIRE
SAWYER FORD
TS40620801 09-20 (OFA24G AKC DNA #V935829)

DAM
MARVELLOUS MACIE
TS33568502 09-20 (OFA31F)

BREEDER
WILLARD R HELMUTH

OWNER

WILLARD R HELMUTH
579 N CR 100 E
ARTHUR IL 61911-6265

AMERICAN KENNEL CLUB®

CERTIFICATE ISSUED
DECEMBER 10, 2021

This certificate invalidates all previous certificates issued.

If a date appears after the name and number of the sire and dam, it indicates the issue of the Stud Book Register in which the sire or dam is published.

For Transfer Instructions, see back of Certificate.

This Certificate issued with the right to correct or revoke by the American Kennel Club.

REGISTRATION CERTIFICATE

AMERICAN KENNEL CLUB · FOUNDED 1884

Certified Pedigree

CVP DAISY
TS51575204
CAVALIER KING CHARLES SPANIEL FEMALE RBY
Date Whelped: 07/20/2021
Breeder: WILLARD R HELMUTH

Sire **SAWYER FORD**
TS40620801 (09-20) OFA24G RBY (USA) AKC DNA #V935829

- **LTO AVERY**
  TS20931403 (11-15) BLK & TN AKC DNA #V854193
  - **KATHY'S LITTLE RASCAL II**
    TR65061102 (08-08) BHEIM AKC DNA #V531013
  - **LTO FALA**
    TR86146806 (11-11) BLK & TN
- **LTO WHISKEY LULL A BYE**
  TS28281301 (03-19) BHEIM
  - **CH SYMBOL OF ROYALTY**
    TR84403001 (08-10) BHEIM AKC DNA #V580447
  - **LTO EVADNE**
    TS20932305 (07-15) BHEIM

Dam **MARVELLOUS MACIE**
TS33568502 (09-20) OFA31F BLK & WH TN MKGS

- **SUPER SOLOMAN**
  TS27904102 (06-17) BLK & WH TN MKGS AKC DNA #V854080
  - **WOODED ACRES CAPTAIN**
    TR23629902 (11-05) BLK & WH TN MKGS AKC DNA #V478324
  - **CHESTNUT GROVE DOLLY**
    TS19024102 (04-15) BLK & WH TN MKGS
- **LIL MISS MOLLY MAE**
  TS21339202 (12-16) BHEIM AKC DNA #V795770
  - **PEPPERS PONCHO**
    TS11534802 (08-14) BLK & TN
  - **DIANA'S TWINKLE**
    TS20443801 (08-14) BHEIM (USA)

AMERICAN KENNEL CLUB®

Gina DiNardo
Executive Secretary

The Seal of The American Kennel Club affixed hereto certifies that this pedigree was compiled from official Stud Book records on April 25, 2023.

ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

CVP DAISY
registered name

CAVALIER KING CHARLES SPANIEL
breed

film/test/lab #

900215002437090
tattoo/microchip/DNA profile

2550491
application number

06/07/2024
date of report

TS51575204
registration no.

F
sex

07/20/2021
date of birth

33
age at evaluation in months

A Not-For-Profit Organization

KCS-EL1550F33-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
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: 06/07/2024

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@OFFA.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@offa.org
Phone number: 573-442-0418
Fax number: 573-875-5073

ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

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age at evaluation in months

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application number

A Not-For-Profit Organization

06/07/2024
date of report

KCS-9566G33F-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: GOOD

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

OFA eCert

Verify QR scan

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age at evaluation in months

A Not-For-Profit Organization

KCS-LP704/33F-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
579 N CR 100 E
ARTHUR IL 61911

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CAVALIER KING CHARLES SPANIEL
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registration no.

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sex

07/20/2021
date of birth

33
age at evaluation in months

A Not-For-Profit Organization

KCS-BCA5635/33F/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
579 N CR 100 E
ARTHUR IL 61911

OFA eCert

Verify QR scan

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

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breed

film/test/lab #

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tattoo/microchip/DNA profile

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application number

05/31/2024
date of report

TS51575204
registration no.

F
sex

07/20/2021
date of birth

33
age at evaluation in months

A Not-For-Profit Organization

KCS-PA12874/33F/P-VPI
O.F.A. NUMBER

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

RESULTS:

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

NORMAL - PRACTITIONER

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

OFA eCert

Verify QR scan

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

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Fax number: 573-875-5073

DAISY

DNA Test Report | Test Date: September 25th, 2025 | embk.me/daisy18129

BREED ANCESTRY

Cavalier King Charles Spaniel : 100.0%

GENETIC STATS

Predicted adult weight: **14 lbs**

TEST DETAILS

Kit number: EM-29351191
Swab number: 31241260209125

DAISY

HEALTH REPORT

How to interpret Daisy's genetic health results:

If Daisy 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 Daisy 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)

ALT Activity

Copper Toxicosis (Accumulating)

Degenerative Myelopathy, DM

Clear results

Breed-relevant (4)

Other (265)

DAISY

DNA Test Report | Test Date: September 25th, 2025 | embk.me/daisy18129

BREED-RELEVANT RESULTS

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

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

DAISY

HEALTH REPORT

Increased risk result

Intervertebral Disc Disease (Type I)

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

How to interpret this result
Daisy 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

DAISY

HEALTH REPORT

Notable result

ALT Activity

Daisy inherited one copy of the variant we tested for Alanine Aminotransferase Activity

Why is this important to your vet?
Daisy has one copy of a variant associated with reduced ALT activity as measured on veterinary blood chemistry panels. Please inform your veterinarian that Daisy has this genotype, as ALT is often used as an indicator of liver health and Daisy is likely to have a lower than average resting ALT activity. As such, an increase in Daisy's ALT activity could be evidence of liver damage, even if it is within normal limits by standard ALT reference ranges.

What is Alanine Aminotransferase Activity?
Alanine aminotransferase (ALT) is a clinical tool that can be used by veterinarians to better monitor liver health. This result is not associated with liver disease. ALT is one of several values veterinarians measure on routine blood work to evaluate the liver. It is a naturally occurring enzyme located in liver cells that helps break down protein. When the liver is damaged or inflamed, ALT is released into the bloodstream.

How vets diagnose this condition
Genetic testing is the only way to provide your veterinarian with this clinical tool.

How this condition is treated
Veterinarians may recommend blood work to establish a baseline ALT value for healthy dogs with one or two copies of this variant.

DAISY

HEALTH REPORT

Notable result

Copper Toxicosis (Accumulating)

Daisy inherited one copy of the variant we tested for Copper Toxicosis (Accumulating)
Daisy 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 Daisy will develop Copper Toxicosis (Accumulating).

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

- Please consult your veterinarian for dietary advice and follow their recommendations for monitoring.
- 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/)

DAISY

HEALTH REPORT

Notable result

Degenerative Myelopathy, DM

Daisy inherited one copy of the variant we tested for Degenerative Myelopathy, DM

What does this result mean?
This variant should not impact Daisy'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. Daisy 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 Degenerative Myelopathy, DM?
The dog equivalent of Amyotrophic Lateral Sclerosis, or Lou Gehrig's disease, DM is a progressive degenerative disorder of the spinal cord. Because the nerves that control the hind limbs are the first to degenerate, the most common clinical signs are back muscle wasting and gait abnormalities.

When signs & symptoms develop in affected dogs
Affected dogs do not usually show signs of DM until they are at least 8 years old.

How vets diagnose this condition
Definitive diagnosis requires microscopic analysis of the spinal cord after death. However, veterinarians use clues such as genetic testing, breed, age, and other diagnostics to determine if DM is the most likely cause of your dog's clinical signs.

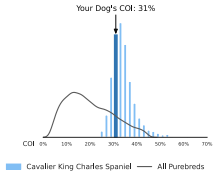
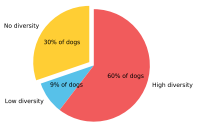
How this condition is treated
As dogs are seniors at the time of onset, the treatment for DM is aimed towards increasing their comfort through a combination of lifestyle changes, medication, and physical therapy.

Actions to take if your dog is affected
- Giving your dog the best quality of life for as long as possible is all you can do after receiving this diagnosis.

DAISY

DNA Test Report | Test Date: September 25th, 2025 | embk.me/daisy18129

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.	**31%** 
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: