ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

MERCER'S RHONDA
registered name

CAVALIER KING CHARLES SPANIEL
breed

film/test/lab #

932001000668423
tattoo/microchip/DNA profile

2260429
application number

06/10/2024
date of report

TS50370401
registration no.

F
sex

12/30/2019
date of birth

52
age at evaluation in months

A Not-For-Profit Organization

KCS-EL1553F52-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: 06/10/2024

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.

MERCER'S RHONDA
registered name

CAVALIER KING CHARLES SPANIEL
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sex

12/30/2019
date of birth

52
age at evaluation in months

A Not-For-Profit Organization

KCS-9571G52F-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

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

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ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

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registered name

CAVALIER KING CHARLES SPANIEL
breed

film/test/lab #

932001000668423
tattoo/microchip/DNA profile

2260429
application number

05/31/2024
date of report

TS50370401
registration no.

F
sex

12/30/2019
date of birth

52
age at evaluation in months

A Not-For-Profit Organization

KCS-BCA1201/52F/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

www.ofa.org

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

This electronic OFA certificate was generated on: 05/31/2024

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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

AMERICA'S PET REGISTRY INCORPORATED

This certificate bears witness that

MERCER'S RHONDA

whose registration number is

B20-ZX-DV-32152D

is registered with America's Pet Registry

Breed: CAVALIER KING CHARLES SPANIEL
Sex: FEMALE
Color: TRI-COLOR
Birthdate: 12-30-2019

This dog is owned by:
WILLARD HELMUTH
579 N CR 100 E
ARTHUR
IL 61911

Sire: CHOO CHOOS REBAR
Sire's Reg. Number: I17-ZA-DV-31152T
Dam: MERCER'S MRS. TUCKER
Dam's Reg. Number: G18-AZ-DV-30795T

Issue Date: 02-04-2021

Breeder:
AMOS SCHWARTZ

pawprint of approval

B44198
16

QUALITY & INTEGRITY SINCE 1992

CERTIFICATE OF REGISTRATION

Form: RPL0708

Dennis B. Sprung
President and Chief Executive Officer

‡ Insurance is underwritten and issued by Independence American Insurance Company, rated A- (Excellent) by AM Best Company, with offices at 485 Madison Ave, NY, NY 10022 and in WA, by American Pet Insurance Company, 6100 4th Ave. S., Seattle, WA 98108. Insurance plans are offered and administered by PetPartners, Inc., a licensed agency. "American Kennel Club," "AKC" and the AKC logo are trademarks of The American Kennel Club, Inc.; used under license by PetPartners. "AKC Pet Insurance" is the name used by PetPartners to offer and administer insurance plans and is neither an American Kennel Club business nor an insurance company. American Kennel Club does not offer, administer, solicit, market or sell any insurance plans. For complete details refer to www.akcpetinsurance.com/sample-policies. Activation required for 30-day coverage to take effect. Eligibility restrictions apply. For more information, visit www.akcpetinsurance.com/certificate or call 866-725-2747.

Please separate below and keep for your records.

AMERICAN KENNEL CLUB

NAME
MERCER'S RHONDA

BREED
CAVALIER KING CHARLES SPANIEL
COLOR
BLACK & WHITE, TAN MARKINGS
SIRE
CHOO CHOOS REBAR
UR23278501
DAM
MERCER'S MRS. TUCKER
TS50370101
BREEDER
AMOS SCHWARTZ
OWNER

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

NUMBER
TS50370401

SEX
FEMALE

DATE OF BIRTH
DECEMBER 30, 2019

AMERICAN KENNEL CLUB®

CERTIFICATE ISSUED
APRIL 15, 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.

FDXB ISO 11784 & 11785
932001000668423

REGISTRATION CERTIFICATE

ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

MERCER'S RHONDA
registered name

CAVALIER KING CHARLES SPANIEL
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2260429
application number

06/23/2021
date of report

TS50370401
registration no.

F
sex

12/30/2019
date of birth

16
age at evaluation in months

A Not-For-Profit Organization

KCS-LP409/16F-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

OFA eCert

Verify certificate with QR scan

G.G.KELLER. D.V.M., M.S., DACVR
CHIEF OF VETERINARY SERVICES

www.ofa.org

HEALTH REPORT

How to interpret Rhonda's genetic health results:

If Rhonda 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 Rhonda 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 (2)

Degenerative Myelopathy, DM

Intervertebral Disc Disease (Type I)

Notable results (2)

Copper Toxicosis (Accumulating)

Proportionate Dwarfism

Clear results

Breed-relevant (10)

Other (259)

RHONDA

DNA Test Report | Test Date: March 17th, 2026 | embk.me/rhonda67

HEALTH REPORT

Increased risk result

Degenerative Myelopathy, DM

Rhonda inherited both copies of the variant we tested for Degenerative Myelopathy, DM
Rhonda is at increased risk for DM

How to interpret this result
Rhonda has two copies of a variant in SOD1 and is at risk for developing DM. As previously stated, this variant is incompletely penetrant, so while it predisposes Rhonda to developing DM, other genetic and environmental factors will determine whether Rhonda ultimately develops the disease. Please consult your veterinarian to discuss further diagnostic, monitoring, and supportive care options for Rhonda.'

What is Degenerative Myelopathy, DM?
This condition affects the spinal cord nerves involved in movement, most noticeably in the hind limbs. It is progressive, meaning symptoms worsen over time, including weakness, muscle loss, and changes in walking.

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

Signs & symptoms
You may notice your dog scuffing the tops of his or her hind paws, or walking with a hesitant, exaggerated gait. In advanced cases, it can lead to weakness or near-paralysis of all four legs and widespread muscle wasting.

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

- Talk to your vet about your dog's degenerative myelopathy result, as it may influence how they monitor your dog's mobility and overall health, especially in their senior years.
- Keep your dog active with regular, low-impact exercise to help them maintain a healthy weight and support their mobility.
- Watch for changes in movement, such as wobbling, reluctance to jump, or dragging their back paws, and consult your vet if you notice any of these signs.
- Provide good traction in your home with rugs or mats to help prevent slipping as your dog ages. If mobility becomes difficult, ask your vet about supportive devices such as harnesses or wheelchairs.

HEALTH REPORT

Increased risk result

Intervertebral Disc Disease (Type I)

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

How to interpret this result
Rhonda 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?
This condition is associated with differences in body proportions, such as a longer back and shorter legs, and may increase the risk of spinal disc problems. Disc disease can vary in severity, from mild discomfort to more serious movement changes.

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 cage rest and pain management, while severe cases are often treated with surgical intervention. Both conservative and surgical treatment should be followed up with rehabilitation and physical therapy.

Actions to take if your dog is affected

- Talk to your vet about your dog's chondrodystrophy and intervertebral disc disease result so you can discuss how it may influence their daily activities and lifestyle.
- This variant is very common in certain breeds, and many dogs with this result will not need any special accommodations because they are unlikely to develop symptoms. However, some breeds are at greater risk, and precautions may help reduce strain on the back and neck.
- Keep your dog fit with regular, low-impact exercise and maintain a healthy weight to support spinal health.

HEALTH REPORT

Notable result

Copper Toxicosis (Accumulating)

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

Scientific Basis
Research studies for this variant have been based on dogs of other breeds. Not enough dogs with Rhonda's breed have been studied to know whether or not this variant will increase Rhonda'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)?
This condition affects the liver's ability to remove excess copper. Over time, copper can build up in the liver and damage liver cells. Both genetic and environmental factors play a role in how the condition develops.

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/).

HEALTH REPORT

Notable result

Proportionate Dwarfism

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

What does this result mean?
This variant should not impact Rhonda'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. Rhonda 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?
This genetic variant may contribute to smaller adult size by affecting growth hormone activity. Other features, such as retained baby teeth, puppy-like coats, or low blood sugar, have been occasionally reported but can vary widely and may not be related.

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.

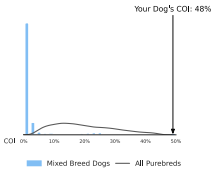
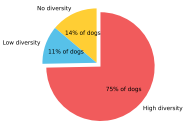
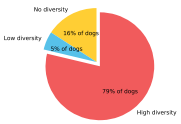
Actions to take if your dog is affected

- 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 of a sugar source like corn syrup or honey rubbed gently on the gums.
- If your dog does not improve within a few minutes or shows severe signs such as collapse, contact your vet right away.

RHONDA

DNA Test Report | Test Date: March 17th, 2026 | embk.me/rhonda67

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.	**48%** 
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.	**High Diversity** How common is this amount of diversity in mixed breed dogs: 
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.	**High Diversity** How common is this amount of diversity in mixed breed dogs: 

Registration: American Kennel Club (AKC)