# JFARMS Lord Sampson

**Just came in out of the rain, coat is wet (Photo (Age 14 Months)**

**Photos (Age 22 Months)**
**14 more months to grow**

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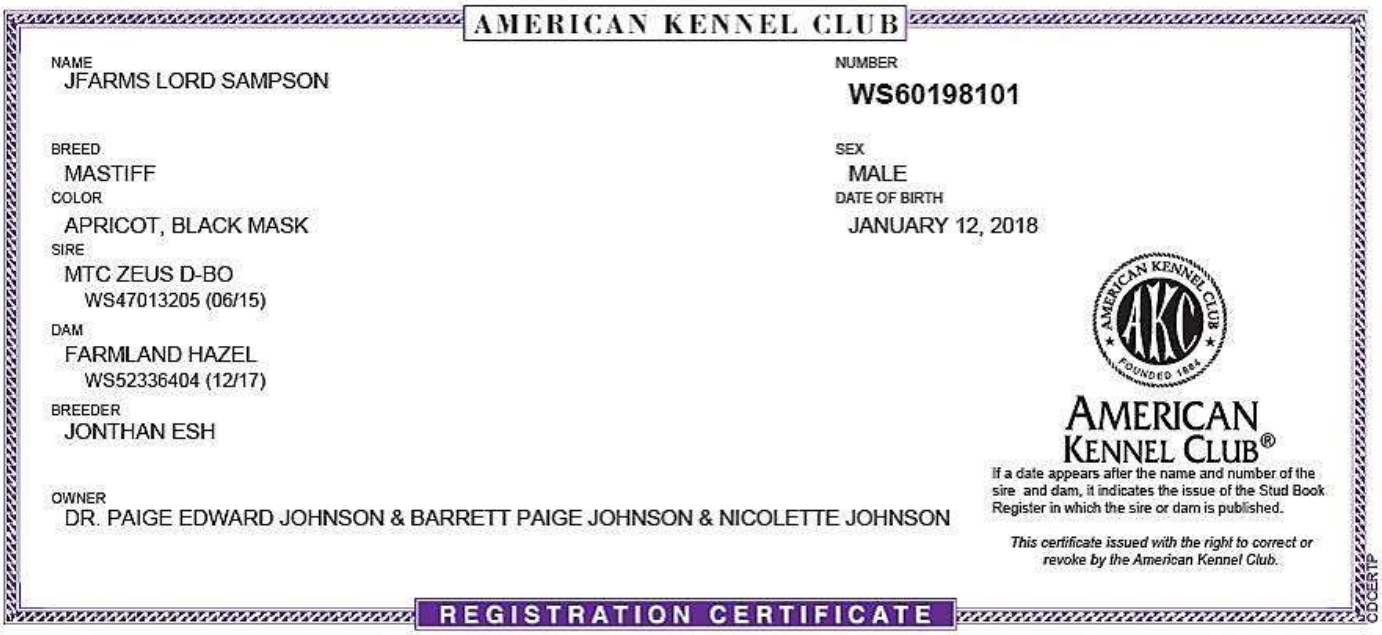

AMERICAN KENNEL CLUB

NAME
JFARMS LORD SAMPSON

NUMBER
WS60198101

BREED
MASTIFF

SEX
MALE

COLOR
APRICOT, BLACK MASK

DATE OF BIRTH
JANUARY 12, 2018

SIRE
MTC ZEUS D-BO
WS47013205 (06/15)

DAM
FARMLAND HAZEL
WS52336404 (12/17)

BREEDER
JONTHAN ESH

OWNER
DR. PAIGE EDWARD JOHNSON & BARRETT PAIGE JOHNSON & NICOLETTE JOHNSON

AMERICAN KENNEL CLUB®

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.

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

REGISTRATION CERTIFICATE

AMERICAN KENNEL CLUB · FOUNDED 1884

# Certified Pedigree

**JFARMS LORD SAMPSON**
WS60198101
MASTIFF MALE APCT BLK MSK
Microchip: 956000009655566
Date Whelped: 01/12/2018
Breeder: JONTHAN ESH

**Sire** **MTC ZEUS D-BO**
WS47013205 (06-15) BRDL BLK MSK AKC DNA #V765008

- **CH LAZYD'S SOMETHING'S GOTTA GIVE**
  WS40133505 (08-14) OFA24E OFEL24 BRDL BLK MSK AKC DNA #V693454
  - **GCHB CH THUNDER SKY'S CACHE OF GOLD BN RN**
    WS34086701 (06-12) OFA24G OFEL24 BRDL AKC DNA #V632177
    - CH THUNDER SKY'S AMERICAN TRADITION WS21116601 (01-09) OFA32F OFEL32 APCT BLK MSK AKC DNA #V603174
    - GROPPETTI'S DARK ANGEL WS16868709 (05-10) OFA48G OFEL48 BRDL BLK MSK
  - **CH LAZY D'S YELLOW ROSE OF TEXAS**
    WS32695901 (06-12) OFA24G OFEL24 FN BLK MSK AKC DNA #V598617
    - CH LAZYD'S FORTUNATE SON OF MARV WP90535701 (09-05) OFA24G OFEL24 FN BLK MSK AKC DNA #V84209
    - GCHG CH LAZY D'S BONNIE BLUE WS23652411 (04-11) OFA27E OFEL27 FN BLK MSK AKC DNA #V592782
- **MTC RAZZY'S RUBY IZA SUZIE TOO**
  WS35788101 (11-12) APCT BLK MSK
  - **MTC SEMPER FI ANGUS JUNIOR**
    WS27016407 (09-09) BRDL BLK MSK AKC DNA #V580771
    - CH ROYAL K'S SEMPER FI ANGUS WS05362707 (11-06) OFA35F BRDL BLK MSK AKC DNA #V422814
    - MTC HILLBILLY'S APRIL JANE WS11424804 (09-07) FN BLK MSK
  - **MTC SEMPER FI RAZZBERRY SIX**
    WS19983204 (06-09) APCT BLK MSK
    - CH ROYAL K'S SEMPER FI ANGUS WS05362707 (11-06) OFA35F BRDL BLK MSK AKC DNA #V422814
    - MTC SUZIE BEAR SIX WS05653401 (03-07) APCT BLK MSK

**Dam** **FARMLAND HAZEL**
WS52336404 (12-17) APCT BLK MSK

- **WELSH MOUNTIAN SIMBA THE LIONHEARTED**
  WS40088204 (05-13) FN BLK MSK AKC DNA #V696460
  - **PRINCE SAMSON III OF MEADOWS SPRINGS**
    WS31405908 (02-11) FN BLK MSK AKC DNA #V635854
    - DOZER VII WS07448810 (06-05) APCT BLK MSK AKC DNA #V538018
    - LUCY IX WS14864001 (09-08) FN BLK MSK
  - **MISS NALA OF MADISON**
    WS27033003 (01-12) APCT BLK MSK
    - SM SONOFA BOLLIN TAMARACK TWIN WS22784307 (11-08) OFA27G APCT BLK MSK AKC DNA #V546980
    - SM SILVER LACED BELLA WS16269503 (11-08) FN BLK MSK
- **WELSH MOUNTIAN MISS HOLLY**
  WS42504205 (10-14) APCT BLK MSK
  - **MCMONIGAL'S MAJESTIC MUMAK**
    WS24970408 (01-10) APCT BLK MSK AKC DNA #V612966
    - TAMARACK "THE DUKE" OF TWINOAK WS11991408 (09-06) APCT BLK MSK AKC DNA #V376441
    - BOLLINS GOLDEN LION OF TWINOAKS WS15280606 (05-04) FN BLK MSK
  - **MY FRIEND MARLA**
    WS30515303 (05-11) FN BLK MSK
    - WG OTIS WS03336205 (04-08) FN BLK MSK
    - HAMMOND ROAD MISTY WS13677202 (09-06) FN BLK MSK

AMERICAN KENNEL CLUB®

Executive Secretary

The Seal of The American Kennel Club affixed hereto certifies that this pedigree was compiled from official Stud Book records on August 27, 2019.

## ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

JFARMS LORD SAMPSON
*registered name*

MASTIFF
*breed*

956000009655566
*tattoo/microchip/DNA profile*

2092474
*application number*

2/24/2020
*date of report*

WS60198101
*registration no.*

M
*sex*

1/12/2018
*date of birth*

24
*age at evaluation in months*

MF-9817G24M-VPI
*O.F.A. NUMBER*

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

A Not-For-Profit Organization

*RESULTS:*
Based upon the radiograph submitted, the consensus was that no evidence of hip dysplasia was recognized. The hip joint conformation was evaluated as:

GOOD

OFA Certificate
Verify with QR Scan

owner
DR. PAIGE EDWARD JOHNSON
BARRETT PAIGE JOHNSON
PO BOX 125
LEONARDTOWN, MD 20650

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

www.ofa.org

## ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

JFARMS LORD SAMPSON
*registered name*

MASTIFF
*breed*

956000009655566
*tattoo/microchip/DNA profile*

2092474
*application number*

2/24/2020
*date of report*

WS60198101
*registration no.*

M
*sex*

1/12/2018
*date of birth*

24
*age at evaluation in months*

MF-EL6347M24-VPI
*O.F.A. NUMBER*

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

A Not-For-Profit Organization

*RESULTS:*
Based upon the radiograph submitted, the consensus was that no evidence of elbow dysplasia was recognized.

NORMAL

owner
DR. PAIGE EDWARD JOHNSON
BARRETT PAIGE JOHNSON
PO BOX 125
LEONARDTOWN, MD 20650

OFA Certificate
Verify with QR Scan

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

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**Johnson Farms recommends HARNESS be worn until Dog is 18-24 months old; & Dog Owner(s) hold harness to protect *(take some weight impact off)* Dog's Elbows & Shoulders when Dog tries to jump down from heights landing on Dog's front legs with most of Dog's weight on elbows & shoulders *(e.g. last few stairs, car, bed, etc.)*.**

## ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

JFARMS LORD SAMPSON
*registered name*

MASTIFF
*breed*

956000009655566
*tattoo/microchip/DNA profile*

2092474
*application number*

9/26/2019
*date of report*

WS60198101
*registration no.*

M
*sex*

1/12/2018
*date of birth*

20
*age at evaluation in months*

MF-PA3222/20M/P-VPI
*O.F.A. NUMBER*

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

A Not-For-Profit Organization

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

NORMAL - PRACTITIONER

owner
DR. PAIGE EDWARD JOHNSON
BARRETT PAIGE JOHNSON
NICOLETTE JOHNSON
PO BOX 125
LEONARDTOWN, MD 20650

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

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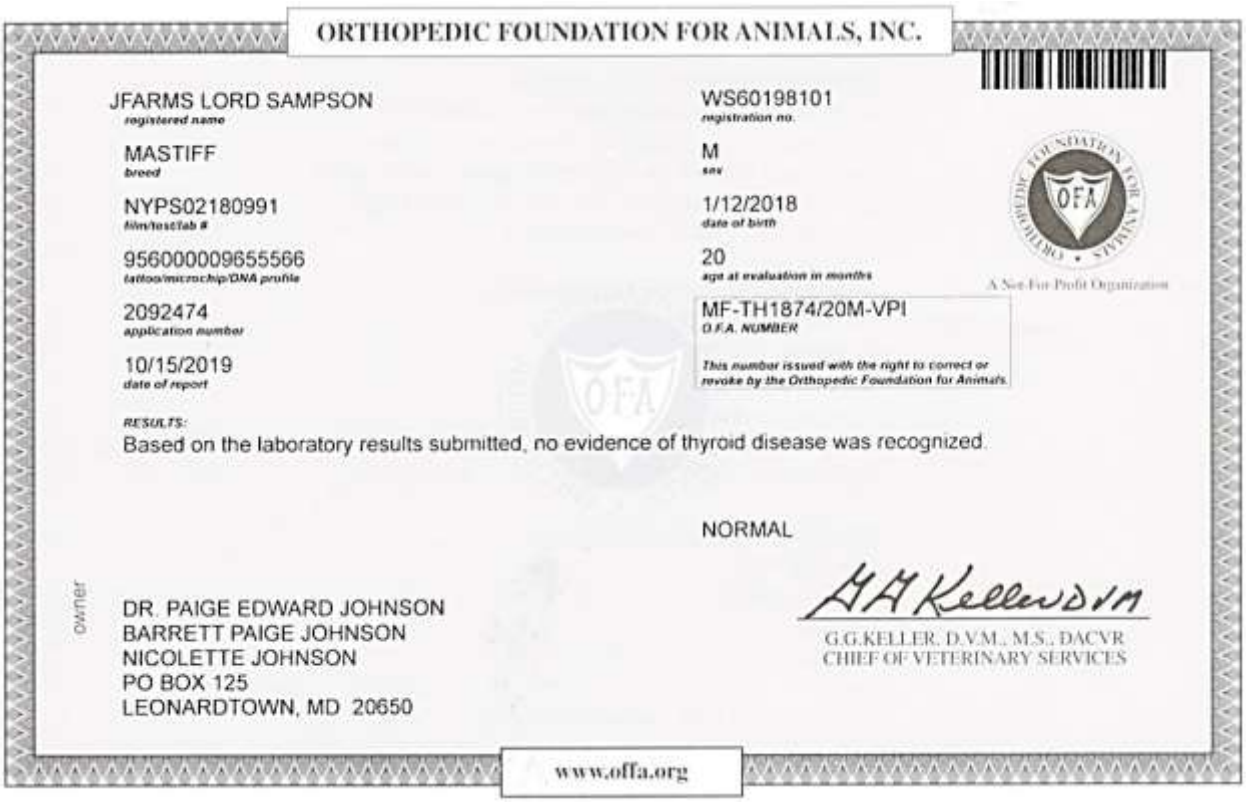


ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

JFARMS LORD SAMPSON
registered name

MASTIFF
breed

NYPS02180991
film/test/lab #

956000009655566
tattoo/microchip/DNA profile

2092474
application number

10/15/2019
date of report

WS60198101
registration no.

M
sex

1/12/2018
date of birth

20
age at evaluation in months

MF-TH1874/20M-VPI
O.F.A. NUMBER

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

A Not-For-Profit Organization

RESULTS:
Based on the laboratory results submitted, no evidence of thyroid disease was recognized.

NORMAL

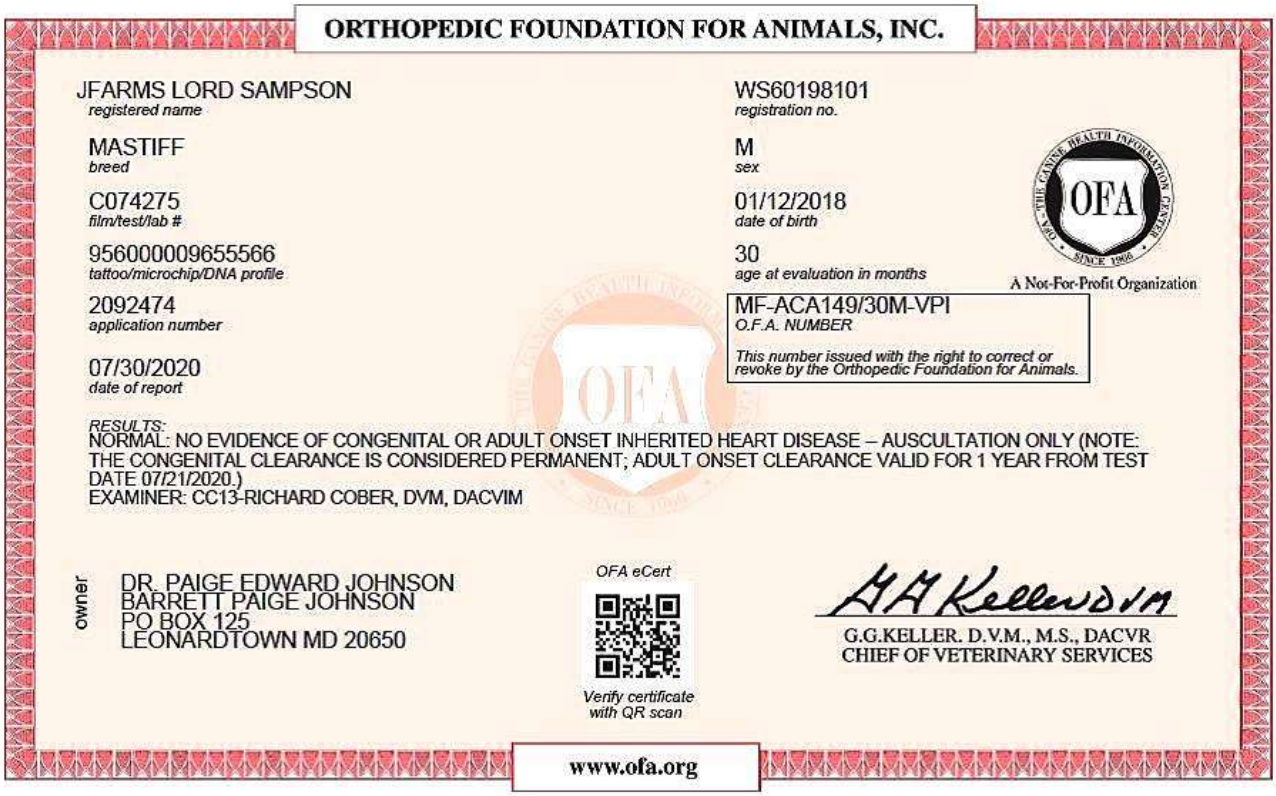
owner
DR. PAIGE EDWARD JOHNSON
BARRETT PAIGE JOHNSON
NICOLETTE JOHNSON
PO BOX 125
LEONARDTOWN, MD 20650

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

www.offa.org

## Thyroid Tests Not Required by OFA

**Johnson Farms Mastiffs Considers Thyroid Testing Essential / Mandatory for Mastiffs Because:**
**~12.2% Mastiffs OFA Tested through September 2022 were found abnormal as follows:**
**~2.6% had Idiopathic Hypothyroidism**
**~9.4% Mastiffs were found Equivocal**
**~0.2% had Autoimmune Thyroiditis**



ORTHOPEDIC FOUNDATION FOR ANIMALS, INC.

JFARMS LORD SAMPSON
*registered name*

MASTIFF
*breed*

C074275
*film/test/lab #*

956000009655566
*tattoo/microchip/DNA profile*

2092474
*application number*

07/30/2020
*date of report*

WS60198101
*registration no.*

M
*sex*

01/12/2018
*date of birth*

30
*age at evaluation in months*

MF-ACA149/30M-VPI
*O.F.A. NUMBER*

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

A Not-For-Profit Organization

*RESULTS:*
NORMAL: NO EVIDENCE OF CONGENITAL OR ADULT ONSET INHERITED HEART DISEASE – AUSCULTATION ONLY (NOTE: THE CONGENITAL CLEARANCE IS CONSIDERED PERMANENT; ADULT ONSET CLEARANCE VALID FOR 1 YEAR FROM TEST DATE 07/21/2020.)
EXAMINER: CC13-RICHARD COBER, DVM, DACVIM

owner
DR. PAIGE EDWARD JOHNSON
BARRETT PAIGE JOHNSON
PO BOX 125
LEONARDTOWN MD 20650

*OFA eCert*
*Verify certificate with QR scan*

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

www.ofa.org

Sampson has completed all OFA Tests required for CHIC Certification except for CAER *(eyes dilated and examined visually be Vet Ophthalmologist which has to be completed after he is 2 years of age.* Due to Covid-19, all Vet Ophthalmologist in a 200 mile radius will only see dogs for surgery, emergencies, and treatment – NOT well dogs for CAER Testing. However, **Sampson has passed the following 34 Eye (ocular) DNA Tests, well beyond the one (1) OFA required visual evaluation.**

Optimal Selection™
POWERED BY GENOSCOPER®

**BR10 195**
JFARMS LORD SAMPSON, Mastiff

**Ocular Disorders - page 1**

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Canine Multifocal Retinopathy 2, (CMR2); mutation originally found in Coton de Tulear | Autosomal Recessive | Clear |
| Canine Multifocal Retinopathy 3, (CMR3); mutation originally found in Lapponian Herder | Autosomal Recessive | Clear |
| Cone Degeneration, (CD) or Achromatopsia; mutation originally found in Alaskan Malamute | Autosomal Recessive | Clear |
| Cone Degeneration, (CD) or Achromatopsia; mutation originally found in German Shepherd Dog | Autosomal Recessive | Clear |
| Cone Degeneration, (CD) or Achromatopsia; mutation originally found in German Shorthaired Pointer | Autosomal Recessive | Clear |
| Cone-Rod Dystrophy 1, (crd1); mutation originally found in American Staffordshire Terrier | Autosomal Recessive | Clear |
| Cone-Rod Dystrophy 2, (crd2); mutation originally found in American Pit Bull Terrier | Autosomal Recessive | Clear |
| Cone-Rod Dystrophy, (cord1-PRA / crd4) | Autosomal Recessive (Incomplete Penetrance) | Clear |
| Cone-Rod Dystrophy, Standard Wirehaired Dachshund, (crd SWD) | Autosomal Recessive | Clear |
| Congenital Eye Disease; mutation originally found in Irish Soft-Coated Wheaten Terrier | Autosomal Recessive | Clear |
| Early Onset PRA (EOPRA); mutation originally found in Portuguese Water Dog | Autosomal Recessive | Clear |
| Early Retinal Degeneration, (erd); mutation originally found in Norwegian Elkhound | Autosomal Recessive | Clear |
| Generalized Progressive Retinal Atrophy | Autosomal Recessive | Clear |
| Golden Retriever Progressive Retinal Atrophy 1, (GR_PRA 1) | Autosomal Recessive | Clear |
| Goniodysgenesis and glaucoma; mutation originally found in Border Collie | Autosomal Recessive | Clear |
| Italian Greyhound Progressive Retinal Atrophy 1 (IG-PRA1) | Autosomal Recessive | Clear |
| Primary Hereditary Cataract, (PHC); mutation originally found in Australian Shepherd | Autosomal Dominant (Incomplete Penetrance) | Clear |
| Primary Lens Luxation, (PLL) | Autosomal Recessive | Clear |
| Primary Open Angle Glaucoma, (POAG); mutation originally found in Basset Fauve de Bretagne | Autosomal Recessive | Clear |
| Primary Open Angle Glaucoma, (POAG); mutation originally found in Beagle | Autosomal Recessive | Clear |
| Primary Open Angle Glaucoma, (POAG); mutation originally found in Norwegian Elkhound | Autosomal Recessive | Clear |

**Ocular Disorders - page 2**

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Primary Open Angle Glaucoma, (POAG); mutation originally found in Petit Basset Griffon Vendeen | Autosomal Recessive | Clear |
| Primary lens luxation (PLL) and glaucoma; mutation originally found in Shar Pei | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy (PRA4); mutation originally found in Lhasa Apso | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy Type III, (PRA type III); mutation originally found in Tibetan Spaniel and Tibetan Terrier | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy, (CNGA1-PRA); mutation originally found in Shetland Sheepdog | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy, (PAP1_PRA); mutation originally found in Papillon and Phalene | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy, (PRA); mutation originally found in Basenji | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy, (PRA); mutation originally found in Swedish Vallhund | Autosomal Recessive | Clear |
| Rod-Cone Dysplasia 1, (rcd1); mutation originally found in Irish Setter | Autosomal Recessive | Clear |
| Rod-Cone Dysplasia 1a, (rdc1a); mutation originally found in Sloughi | Autosomal Recessive | Clear |
| Rod-Cone Dysplasia 3, (rcd3) | Autosomal Recessive | Clear |
| X-Linked Progressive Retinal Atrophy 1, (XLPRA1) | X-linked Recessive | Clear |
| X-Linked Progressive Retinal Atrophy 2, (XLPRA2; Type A PRA) | X-linked Recessive | Clear |

**Registered Name:** JFARMS LORD SAMPSON
**Call Name:** Sampson
**Registration ID:** WS60198101
**Microchip:** 956000009655566
**Breed:** Mastiff
**Gender:** Male
**Owner:** Paige Johnson
**Country:** United States
**Testing date:** 2020/7/1

## Test results - Known disorders in the breed

| Disorder | Type | Mode of Inheritance | Result |
|---|---|---|---|
| Canine Multifocal Retinopathy 1, (CMR1); mutation originally found in Mastiff-related breeds | Ocular Disorders | Autosomal Recessive | Clear |
| Degenerative Myelopathy, (DM; SOD1A) | Neurological Disorders | Autosomal Recessive (Incomplete Penetrance) | Clear |
| Dominant Progressive Retinal Atrophy, (DPRA) | Ocular Disorders | Autosomal Dominant | Clear |

## Test results for pharmacogenetics

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Multi-Drug Resistance 1, (MDR1) or Ivermectin Sensitivity | Autosomal Dominant | Clear |

On behalf of Genoscoper Laboratories,

Jonas Donner
SIGNATURE

Jonas Donner, PhD, Head of Research and Development
at Genoscoper Laboratories





**CMR DNA Clear**
**DM DNA Clear**
**PRA DNA Clear**

**THESE 4 TESTS ARE ELIGIBLE TO BE POSTED ON THE OFA CHIC WEBSITE**

**Registered Name:** JFARMS LORD SAMPSON
**Call Name:** Sampson
**Registration ID:** WS60198101
**Microchip:** 956000009655566
**Breed:** Mastiff
**Gender:** Male
**Owner:** Paige Johnson
**Country:** United States
**Testing date:** 2020/7/1

## Test results - Traits - page 1

### Coat Type

| Trait | Genotype | Description |
|---|---|---|
| Coat Length | L/L | The dog is likely to have short-haired coat. |
| Furnishings / Improper Coat in Portuguese Water Dogs (marker test) | GG/TC | The dog is not genetically likely to express furnishings. |
| *KRT71* c.451C>T (p.Arg151Trp) | C/C | The dog does not carry any copies of the tested allele causing curly coat. The dog most likely has non-curly hair. |
| *MC5R* c.237A>T | T/T | The dog has two copies of the allele associated with low shedding. The dog is likely average or low shedder. |
| *SGK3* (p.Val96Glyfs) | I/I | The dog does not carry the tested hairlessness allele of the American Hairless Terrier. |
| *SGK3* c.137_138insT (p.Glu47Glyfs) | D/D | The dog does not carry the tested hairlessness allele of the Scottish Deerhound. |

On behalf of Genoscoper Laboratories,

Jonas Donner

SIGNATURE

Jonas Donner, PhD, Head of Research and Development
at Genoscoper Laboratories

**Registered Name:** JFARMS LORD SAMPSON
**Call Name:** Sampson
**Registration ID:** WS60198101
**Microchip:** 956000009655566
**Breed:** Mastiff
**Gender:** Male
**Owner:** Paige Johnson
**Country:** United States
**Testing date:** 2020/7/1

## Test results - Traits - page 2

### Coat Color

| Trait | Genotype | Description |
|---|---|---|
| Color Locus E - Extensions | Em/Em | The dog is likely to have a dark mask. |
| Color Locus B - Brown | B/B | The dog is not likely to have brown pigment. |
| Color Locus K - Dominant Black | ky/ky | The dog is likely to express the coat color defined by the color locus A. |
| Color Locus A - Agouti | ay/ay | The dog is genetically sable. |
| Color Locus S - Piebald or extreme white spotting | S/S | The dog is likely to have solid coat color with minimal white. |
| Color Locus H - Harlequin | h/h | The dog doesn't have harlequin pattern. |
| Dilution ($d^2$ allele) | D/D | The dog does not carry any copies of the rare d2 allele associated with dilution in Chow Chow, French Bulldog, Sloughi and Thai Ridgeback. |
| Merle (M allele) | m/m | The dog is genetically non-merle and does not carry a *SILV* gene SINE insertion. |
| Saddle Tan (*RALY* gene dupl.) | -/- | The dog may have saddle tan pattern if it has also tan point genotype at the A locus. |
| Albinism ($c^{ch}$-allele) | C/C | The dog does not carry the tested mutation for albinism. |

On behalf of Genoscoper Laboratories,

Jonas Donner
SIGNATURE

Jonas Donner, PhD, Head of Research and Development
at Genoscoper Laboratories

**Registered Name:** JFARMS LORD SAMPSON
**Call Name:** Sampson
**Registration ID:** WS60198101
**Microchip:** 956000009655566
**Breed:** Mastiff
**Gender:** Male
**Owner:** Paige Johnson
**Country:** United States
**Testing date:** 2020/7/1

## Test results - Traits - page 3

### Body Size

| Trait | Genotype | Description |
|---|---|---|
| *IGF1* (chr15:41221438) | G/G | The dog is homozygous for the ancestral allele typically associated with large body mass. |
| *IGF1R* c.611G>A (p.Arg204His) | G/G | The dog carries two ancestral alleles typically found in larger-sized breeds. |
| *ACSL4* chrX.82919525C>T | T/T | The dog has two copies of the allele associated with large skeletal size and heavy muscling with considerable back fat thickness. |
| *IGSF1* p.Asp768Glu | A/A | The dog has two copies of the allele associated with heavy muscling. |
| *IRS4* chrX:82296039 | A/A | The dog has two copies of the allele associated with large body size. |
| *FGF4* insertion | D/D | The dog is homozygous for the ancient allele. The dog is likely to have legs of normal length. |
| *STC2* (chr4:39182836) | T/T | The dog has two copies of the ancestral allele associated with larger body size. |
| Body size, GHR1 gene variant E191K | G/G | The dog has two copies of the ancestral allele associated with larger body size. |
| *GHR2* (p.Pro177Leu) | C/C | The dog has two copies of the ancestral allele associated with larger body size. |
| *HMGA2* | G/G | The dog has two copies of the ancestral allele associated with larger body size. |

On behalf of Genoscoper Laboratories,

SIGNATURE

Jonas Donner, PhD, Head of Research and Development
at Genoscoper Laboratories

**Registered Name:** JFARMS LORD SAMPSON
**Call Name:** Sampson
**Registration ID:** WS60198101
**Microchip:** 956000009655566
**Breed:** Mastiff
**Gender:** Male
**Owner:** Paige Johnson
**Country:** United States
**Testing date:** 2020/7/1

## Test results - Traits - page 4

### Morphology

| Trait | Genotype | Description |
|---|---|---|
| *BMP3* c.1344C>A (p.Phe448Leu) | C/C | The dog does not carry the tested allele typically associated with shortened head (brachycephaly). The dog is more likely to have an elongated head (dolichocephaly). |
| *SMOC2* | D/D | The dog does not carry the tested allele typically associated with shortened head (brachycephaly). The dog is more likely to have an elongated head (dolichocephaly). |
| chr10:11072007 | C/T | The dog carries one copy of an allele typically associated with floppy ears, and one copy of an allele typically associated with pricked ears. |
| *T* c.189C>G (p.Ile63Met) | C/C | The dog does not carry the tested bobtail-causing genetic variant. The dog is most likely long-tailed. |
| *EPAS1* (p.Gly305Ser) | G/G | The dog does not carry the tested variant associated with adaptation to high altitudes. |
| *LIMBR1* DC-1 | G/G | The dog does not carry the tested allele associated with hind dewclaws in Asian breeds. The dog is not likely to have hind dewclaws. |
| *LIMBR1* DC-2 | G/G | The dog does not carry the tested allele associated with hind dewclaws in western breeds. The dog is likely not to have hind dewclaws. |
| *AXL4* | D/D | The dog does not have the tested allele typically associated with blue eyes in Siberian Huskies. The dog is likely to have brown eyes. |

On behalf of Genoscoper Laboratories,

Jonas Donner
SIGNATURE

Jonas Donner, PhD, Head of Research and Development
at Genoscoper Laboratories

# Test results - Additional disorders found in other breeds - page 1

## Blood Disorders - page 1

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Bleeding disorder due to P2RY12 defect | Autosomal Recessive | Clear |
| Canine Cyclic Neutropenia, Cyclic Hematopoiesis, Grey Collie Syndrome, (CN) | Autosomal Recessive | Clear |
| Canine Leukocyte Adhesion Deficiency (CLAD), type III | Autosomal Recessive | Clear |
| Canine Scott Syndrome, (CSS) | Autosomal Recessive | Clear |
| Factor IX Deficiency or Hemophilia B; mutation Gly379Glu | X-linked Recessive | Clear |
| Factor IX Deficiency or Hemophilia B; mutation originally found in Airedale Terrier | X-linked Recessive | Clear |
| Factor IX Deficiency or Hemophilia B; mutation originally found in Lhasa Apso | X-linked Recessive | Clear |
| Factor VII Deficiency | Autosomal Recessive | Clear |
| Factor VIII Deficiency or Hemophilia A; mutation originally found in Boxer | X-linked Recessive | Clear |
| Factor VIII Deficiency or Hemophilia A; mutation originally found in German Shepherd Dog | X-linked Recessive | Clear |
| Factor VIII Deficiency or Hemophilia A; mutation originally found in Havanese | X-linked Recessive | Clear |
| Factor VIII Deficiency or Hemophilia A; mutation originally found in Old English Sheepdog | X-linked Recessive | Clear |
| Factor VIII Deficiency or Hemophilia A; p.Cys548Tyr mutation originally found in German Shepherd | X-linked Recessive | Clear |
| Factor XI Deficiency | Autosomal Dominant (Incomplete Penetrance) | Clear |
| Familial Congenital Methemoglobinemia; mutation originally found in Pomeranian | Autosomal Recessive | Clear |
| Glanzmann Thrombasthenia Type I, (GT); mutation originally found in Pyrenean Mountain Dog | Autosomal Recessive | Clear |
| Glanzmann Thrombasthenia Type I, (GT); mutation originally found in mixed breed dogs | Autosomal Recessive | Clear |
| Hereditary Elliptocytosis | | Clear |
| Hereditary Phosphofructokinase (PFK) Deficiency | Autosomal Recessive | Clear |
| Macrothrombocytopenia; disease-linked variant originally found in Norfolk and Cairn Terrier | Autosomal Recessive | Clear |
| May-Hegglin Anomaly (MHA) | Autosomal Dominant | Clear |

# Test results - Additional disorders found in other breeds - page 2

## Blood Disorders - page 2

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Prekallikrein Deficiency | Autosomal Recessive | Clear |
| Pyruvate Kinase Deficiency; mutation originally found in Basenji | Autosomal Recessive | Clear |
| Pyruvate Kinase Deficiency; mutation originally found in Beagle | Autosomal Recessive | Clear |
| Pyruvate Kinase Deficiency; mutation originally found in Pug | Autosomal Recessive | Clear |
| Pyruvate Kinase Deficiency; mutation originally found in West Highland White Terrier | Autosomal Recessive | Clear |
| Trapped Neutrophil Syndrome, (TNS) | Autosomal Recessive | Clear |
| Von Willebrand's Disease (vWD) Type 1 | Autosomal Recessive | Clear |
| Von Willebrand's Disease (vWD) Type 2 | Autosomal Recessive | Clear |
| Von Willebrand's Disease (vWD) Type 3; mutation originally found in Kooikerhondje | Autosomal Recessive | Clear |
| Von Willebrand's Disease (vWD) Type 3; mutation originally found in Scottish Terrier | Autosomal Recessive | Clear |
| Von Willebrand's Disease (vWD) Type 3; mutation originally found in Shetland Sheepdog | Autosomal Recessive | Clear |

## Test results - Additional disorders found in other breeds - page 3

### Ocular Disorders - page 1

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Canine Multifocal Retinopathy 2, (CMR2); mutation originally found in Coton de Tulear | Autosomal Recessive | Clear |
| Canine Multifocal Retinopathy 3, (CMR3); mutation originally found in Lapponian Herder | Autosomal Recessive | Clear |
| Cone Degeneration, (CD) or Achromatopsia; mutation originally found in Alaskan Malamute | Autosomal Recessive | Clear |
| Cone Degeneration, (CD) or Achromatopsia; mutation originally found in German Shepherd Dog | Autosomal Recessive | Clear |
| Cone Degeneration, (CD) or Achromatopsia; mutation originally found in German Shorthaired Pointer | Autosomal Recessive | Clear |
| Cone-Rod Dystrophy 1, (crd1); mutation originally found in American Staffordshire Terrier | Autosomal Recessive | Clear |
| Cone-Rod Dystrophy 2, (crd2); mutation originally found in American Pit Bull Terrier | Autosomal Recessive | Clear |
| Cone-Rod Dystrophy, (cord1-PRA / crd4) | Autosomal Recessive (Incomplete Penetrance) | Clear |
| Cone-Rod Dystrophy, Standard Wirehaired Dachshund, (crd SWD) | Autosomal Recessive | Clear |
| Congenital Eye Disease; mutation originally found in Irish Soft-Coated Wheaten Terrier | Autosomal Recessive | Clear |
| Early Onset PRA (EOPRA); mutation originally found in Portuguese Water Dog | Autosomal Recessive | Clear |
| Early Retinal Degeneration, (erd); mutation originally found in Norwegian Elkhound | Autosomal Recessive | Clear |
| Generalized Progressive Retinal Atrophy | Autosomal Recessive | Clear |
| Golden Retriever Progressive Retinal Atrophy 1, (GR_PRA 1) | Autosomal Recessive | Clear |
| Goniodysgenesis and glaucoma; mutation originally found in Border Collie | Autosomal Recessive | Clear |
| Italian Greyhound Progressive Retinal Atrophy 1 (IG-PRA1) | Autosomal Recessive | Clear |
| Primary Hereditary Cataract, (PHC); mutation originally found in Australian Shepherd | Autosomal Dominant (Incomplete Penetrance) | Clear |
| Primary Lens Luxation, (PLL) | Autosomal Recessive | Clear |
| Primary Open Angle Glaucoma, (POAG); mutation originally found in Basset Fauve de Bretagne | Autosomal Recessive | Clear |
| Primary Open Angle Glaucoma, (POAG); mutation originally found in Beagle | Autosomal Recessive | Clear |
| Primary Open Angle Glaucoma, (POAG); mutation originally found in Norwegian Elkhound | Autosomal Recessive | Clear |

# Test results - Additional disorders found in other breeds - page 4

## Ocular Disorders - page 2

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Primary Open Angle Glaucoma, (POAG); mutation originally found in Petit Basset Griffon Vendeen | Autosomal Recessive | Clear |
| Primary lens luxation (PLL) and glaucoma; mutation originally found in Shar Pei | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy (PRA4); mutation originally found in Lhasa Apso | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy Type III, (PRA type III); mutation originally found in Tibetan Spaniel and Tibetan Terrier | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy, (CNGA1-PRA); mutation originally found in Shetland Sheepdog | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy, (PAP1_PRA); mutation originally found in Papillon and Phalene | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy, (PRA); mutation originally found in Basenji | Autosomal Recessive | Clear |
| Progressive Retinal Atrophy, (PRA); mutation originally found in Swedish Vallhund | Autosomal Recessive | Clear |
| Rod-Cone Dysplasia 1, (rcd1); mutation originally found in Irish Setter | Autosomal Recessive | Clear |
| Rod-Cone Dysplasia 1a, (rdc1a); mutation originally found in Sloughi | Autosomal Recessive | Clear |
| Rod-Cone Dysplasia 3, (rcd3) | Autosomal Recessive | Clear |
| X-Linked Progressive Retinal Atrophy 1, (XLPRA1) | X-linked Recessive | Clear |
| X-Linked Progressive Retinal Atrophy 2, (XLPRA2; Type A PRA) | X-linked Recessive | Clear |

## Cardiac Disorders

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Dilated Cardiomyopathy, (DCM); mutation originally found in Schnauzer | Autosomal Recessive | Clear |
| QT Syndrome | Autosomal Dominant | Clear |

## Test results - Additional disorders found in other breeds - page 5

### Endocrine Disorders

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Congenital Dyshormonogenic Hypothyroidism with Goiter; mutation originally found in Shih Tzu | Autosomal Recessive | Clear |
| Congenital Hypothyroidism; mutation originally found in Tenterfield Terrier | Autosomal Recessive | Clear |
| Congenital Hypothyroidism; mutation originally found in Toy Fox and Rat Terrier | Autosomal Recessive | Clear |

### Immunological Disorders

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Autosomal Recessive Severe Combined Immunodeficiency, (ARSCID) | Autosomal Recessive | Clear |
| Complement 3 (C3) Deficiency | Autosomal Recessive | Clear |
| Myeloperoxidase Deficiency | Autosomal Recessive | Clear |
| Severe Combined Immunodeficiency in Frisian Water Dogs, (SCID) | Autosomal Recessive | Clear |
| X-Linked Severe Combined Immunodeficiency (XSCID); mutation originally found in Basset Hound | X-linked Recessive | Clear |
| X-Linked Severe Combined Immunodeficiency (XSCID); mutation originally found in Cardigan Welsh Corgi | X-linked Recessive | Clear |

## Test results - Additional disorders found in other breeds - page 6

### Renal Disorders

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| 2,8-Dihydroxyadenine (2,8-DHA) urolithiasis | Autosomal Recessive | Clear |
| Cystic Renal Dysplasia and Hepatic Fibrosis; mutation originally found in Norwich Terrier | Autosomal Recessive | Clear |
| Cystinuria Type I-A; mutation originally found in Newfoundland Dog | Autosomal Recessive | Clear |
| Cystinuria Type II-A; mutation originally found in Australian Cattle Dog | Autosomal Dominant | Clear |
| Fanconi Syndrome | Autosomal Recessive | Clear |
| Hyperuricosuria, (HUU) | Autosomal Recessive | Clear |
| Polycystic Kidney Disease in Bull Terriers, (BTPKD) | Autosomal Dominant | Clear |
| Primary Hyperoxaluria, (PH); mutation originally found in Coton de Tulear | Autosomal Recessive | Clear |
| Protein Losing Nephropathy, (PLN); NPHS1 gene variant | | Clear |
| Renal Cystadenocarcinoma and Nodular Dermatofibrosis, (RCND) | Autosomal Dominant | Clear |
| X-Linked Hereditary Nephropathy, (XLHN) | X-linked Recessive | Clear |
| X-Linked Hereditary Nephropathy, (XLHN); mutation originally found in Navasota Dog | X-linked Recessive | Clear |
| Xanthinuria, Type 1a; mutation originally found in mixed breed dogs | Autosomal Recessive | Clear |
| Xanthinuria, Type 2a; mutation originally found in Toy Manchester Terrier | Autosomal Recessive | Clear |
| Xanthinuria, Type 2b; mutation originally found in Cavalier King Charles Spaniel and English Cocker Spaniel | Autosomal Recessive | Clear |

## Test results - Additional disorders found in other breeds - page 7

### Metabolic Disorders

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Glycogen Storage Disease Type II or Pompe's Disease, (GSD II) | Autosomal Recessive | Clear |
| Glycogen Storage Disease Type IIIa, (GSD IIIa) | Autosomal Recessive | Clear |
| Glycogen Storage Disease Type Ia, (GSD Ia) | Autosomal Recessive | Clear |
| Hypocatalasia or Acatalasemia | Autosomal Recessive | Clear |
| Intestinal Cobalamin Malabsorption or Imerslund-Gräsbeck Syndrome, (IGS); mutation originally found in Beagle | Autosomal Recessive | Clear |
| Intestinal Cobalamin Malabsorption or Imerslund-Gräsbeck Syndrome, (IGS); mutation originally found in Border Collie | Autosomal Recessive | Clear |
| Mucopolysaccharidosis Type IIIA, (MPS IIIA); mutation originally found in Dachshund | Autosomal Recessive | Clear |
| Mucopolysaccharidosis Type IIIA, (MPS IIIA); mutation originally found in New Zealand Huntaway | Autosomal Recessive | Clear |
| Mucopolysaccharidosis Type VII, (MPS VII); mutation originally found in Brazilian Terrier | Autosomal Recessive | Clear |
| Mucopolysaccharidosis Type VII, (MPS VII); mutation originally found in German Shepherd | Autosomal Recessive | Clear |
| Pyruvate Dehydrogenase Phosphatase 1 (PDP1) Deficiency | Autosomal Recessive | Clear |

## Test results - Additional disorders found in other breeds - page 8

### Muscular Disorders

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Cavalier King Charles Spaniel Muscular Dystrophy, (CKCS-MD) | X-linked Recessive | Clear |
| Centronuclear Myopathy, (CNM); mutation originally found in Great Dane | Autosomal Recessive | Clear |
| Centronuclear Myopathy, (CNM); mutation originally found in Labrador Retriever | Autosomal Recessive | Clear |
| Duchenne or Dystrophin Muscular Dystrophy, (DMD); mutation originally found in Golden Retriever | X-linked Recessive | Clear |
| Duchenne or Dystrophin Muscular Dystrophy, (DMD); mutation originally found in Norfolk Terrier | X-linked Recessive | Clear |
| Muscular Dystrophy, Ullrich-type; mutation originally found in Landseer | Autosomal Recessive | Clear |
| Muscular Hypertrophy (Double Muscling) | Autosomal Recessive | Clear |
| Myotonia Congenita; mutation originally found in Australian Cattle Dog | Autosomal Recessive | Clear |
| Myotubular Myopathy; mutation originally found in Rottweiler | X-linked Recessive | Clear |
| Nemaline Myopathy; mutation originally found in American Bulldog | Autosomal Recessive | Clear |
| X-Linked Myotubular Myopathy | X-linked Recessive | Clear |

## Test results - Additional disorders found in other breeds - page 9

### Neurological Disorders - page 1

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Acral Mutilation Syndrome, (AMS) | Autosomal Recessive | Clear |
| Alaskan Husky Encephalopathy, (AHE) | Autosomal Recessive | Clear |
| Alexander Disease (AxD); mutation originally found in Labrador Retriever | Autosomal Dominant | Clear |
| Bandera's Neonatal Ataxia, (BNAt) | Autosomal Recessive | Clear |
| Benign Familial Juvenile Epilepsy or Remitting Focal Epilepsy | Autosomal Recessive | Clear |
| Cerebellar Cortical Degeneration, (CCD); mutation originally found in Vizsla | Autosomal Recessive | Clear |
| Cerebral Dysfunction; mutation originally found in Friesian Stabyhoun | Autosomal Recessive | Clear |
| Dandy-Walker-Like Malformation (DWLM); mutation originally found in Eurasier | Autosomal Recessive | Clear |
| Early-Onset Progressive Polyneuropathy; mutation originally found in Alaskan Malamute | Autosomal Recessive | Clear |
| Fetal Onset Neuroaxonal Dystrophy, (FNAD) | Autosomal Recessive | Clear |
| Hereditary Ataxia or Cerebellar Ataxia; mutation originally found in Old English Sheepdog and Gordon Setter | Autosomal Recessive | Clear |
| Hereditary Ataxia; mutation originally found in in Norwegian Buhund | Autosomal Recessive | Clear |
| Hyperekplexia or Startle Disease | Autosomal Recessive | Clear |
| Hypomyelination; mutation originally found in Weimaraner | Autosomal Recessive | Clear |
| Juvenile Myoclonic Epilepsy, (JME); mutation originally found in Rhodesian Ridgeback | Autosomal Recessive | Clear |
| Juvenile encephalopathy; mutation originally found in Parson Russell Terrier | Autosomal Recessive | Clear |
| L-2-Hydroxyglutaric aciduria, (L2HGA); mutation originally found in Staffordshire Bull Terrier | Autosomal Recessive | Clear |
| L-2-Hydroxyglutaric aciduria, (L2HGA); mutation originally found in West Highland White Terrier | Autosomal Recessive | Clear |
| Lagotto Storage Disease, (LSD) | Autosomal Recessive | Clear |
| Neonatal Cerebellar Cortical Degeneration or Cerebellar Abiotrophy, (NCCD) | Autosomal Recessive | Clear |
| Neonatal Encephalopathy with Seizures, (NEWS) | Autosomal Recessive | Clear |

## Test results - Additional disorders found in other breeds - page 10

### Neurological Disorders - page 2

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Neuroaxonal Dystrophy (NAD); mutation originally found in Rottweiler | Autosomal Recessive | Clear |
| Neuroaxonal Dystrophy (NAD); mutation originally found in Spanish Water Dog | Autosomal Recessive | Clear |
| Neuroaxonal Dystrophy, (NAD); mutation originally found in Papillon | Autosomal Recessive | Clear |
| Neuronal Ceroid Lipofuscinosis 1, (NCL1); mutation originally found in Dachshund | Autosomal Recessive | Clear |
| Neuronal Ceroid Lipofuscinosis 10, (NCL10); mutation originally found in American Bulldog | Autosomal Recessive | Clear |
| Neuronal Ceroid Lipofuscinosis 8, (NCL8); mutation originally found in Alpine Dachsbracke | Autosomal Recessive | Clear |
| Neuronal Ceroid Lipofuscinosis 8, (NCL8); mutation originally found in Australian Shepherd | Autosomal Recessive | Clear |
| Neuronal Ceroid Lipofuscinosis 8, (NCL8); mutation originally found in English Setter | Autosomal Recessive | Clear |
| Neuronal Ceroid Lipofuscinosis, (NCL7); mutation originally found in Chinese Crested Dog and Chihuahua | Autosomal Recessive | Clear |
| Polyneuropathy with ocular abnormalities and neuronal vacuolation, (POANV); mutation originally found in Black Russian Terrier | Autosomal Recessive | Clear |
| Progressive Early-Onset Cerebellar Ataxia; mutation originally found in Finnish Hound | Autosomal Recessive | Clear |
| Sensory Neuropathy; mutation originally found in Border Collie | Autosomal Recessive | Clear |
| Shaking Puppy Spongiform LeucoEncephaloMyelopathy, (SLEM); mutation originally found in Border Terrier | Autosomal Recessive | Clear |
| Spinocerebellar Ataxia with Myokymia and/or Seizures (SCA) | Autosomal Recessive | Clear |
| Spinocerebellar Ataxia/ Late-Onset Ataxia (SCA, LOA) | Autosomal Recessive | Clear |
| Spongy Degeneration with Cerebellar Ataxia, (SDCA1); mutation originally found in Belgian Shepherd Dog | Autosomal Recessive | Clear |
| Spongy Degeneration with Cerebellar Ataxia, (SDCA2); mutation originally found in Belgian Shepherd Dog | Autosomal Recessive | Clear |
| X-Linked Tremors; mutation originally found in English Springer Spaniel | X-linked Recessive | Clear |

## Test results - Additional disorders found in other breeds - page 11

### Neuromuscular Disorders

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Congenital Myasthenic Syndrome (CMS); mutation originally found in Labrador Retriever | Autosomal Recessive | Clear |
| Congenital Myasthenic Syndrome, (CMS); mutation originally found in Jack Russell Terrier | Autosomal Recessive | Clear |
| Congenital Myasthenic Syndrome, (CMS); mutation originally found in Old Danish Pointing Dog | Autosomal Recessive | Clear |
| Episodic Falling, (EF) | Autosomal Recessive | Clear |
| Exercise-Induced Collapse, (EIC) | Autosomal Recessive (Incomplete Penetrance) | Clear |
| GM1 Gangliosidosis; mutation originally found in Portuguese Water Dog | Autosomal Recessive | Clear |
| GM2 Gangliosidosis, mutation originally found in Japanese Chin | Autosomal Recessive | Clear |
| GM2 Gangliosidosis; mutation originally found in Toy Poodle | Autosomal Recessive | Clear |
| Globoid Cell Leukodystrophy or Krabbe Disease, (GLD); mutation originally found in Irish Setter | Autosomal Recessive | Clear |
| Globoid Cell Leukodystrophy or Krabbe Disease, (GLD); mutation originally found in Terriers | Autosomal Recessive | Clear |
| Paroxysmal Dyskinesia, (PxD); mutation originally found in Irish Soft Coated Wheaten Terrier | Autosomal Recessive | Clear |

## Test results - Additional disorders found in other breeds - page 12

### Skeletal Disorders

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Chondrodysplasia; mutation originally found in Norwegian Elkhound and Karelian Bear Dog | Autosomal Recessive | Clear |
| Cleft Palate; Cleft Lip and Palate with Syndactyly; ADAMTS20 gene mutation originally found in Nova Scotia Duck Tolling Retriever | Autosomal Recessive | Clear |
| Cleft Palate; DLX6 gene mutation originally found in Nova Scotia Duck Tolling Retriever | Autosomal Recessive | Clear |
| Craniomandibular Osteopathy, (CMO); mutation associated with terrier breeds | Autosomal Dominant (Incomplete Penetrance) | Clear |
| Hereditary Vitamin D-Resistant Rickets, (HVDRR) | Autosomal Recessive | Clear |
| Osteochondrodysplasia; mutation originally found in Miniature Poodle | Autosomal Recessive | Clear |
| Osteochondromatosis; mutation originally found in American Staffordshire Terrier | Autosomal Dominant | Clear |
| Osteogenesis Imperfecta, (OI); mutation originally found in Beagle | Autosomal Dominant | Clear |
| Osteogenesis Imperfecta, (OI); mutation originally found in Dachshund | Autosomal Recessive | Clear |
| Skeletal Disease (Hypophosphatasia); mutation originally found in Karelian Bear Dog | Autosomal Recessive | Clear |
| Skeletal Dysplasia 2, (SD2) | Autosomal Recessive | Clear |
| Spondylocostal Dysostosis | Autosomal Recessive | Clear |
| Van den Ende-Gupta Syndrome, (VDEGS) | Autosomal Recessive | Clear |

## Test results - Additional disorders found in other breeds - page 13

### Dermal Disorders

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Dystrophic Epidermolysis Bullosa; mutation originally found in Central Asian Ovcharka | Autosomal Recessive | Clear |
| Dystrophic Epidermolysis Bullosa; mutation originally found in Golden Retriever | Autosomal Recessive | Clear |
| Epidermolytic Hyperkeratosis | Autosomal Recessive | Clear |
| Focal Non-Epidermolytic Palmoplantar Keratoderma, (FNEPPK); mutation originally found in Dogue de Bordeaux | Autosomal Recessive | Clear |
| Hereditary Footpad Hyperkeratosis, (HFH) | Autosomal Recessive | Clear |
| Hereditary Nasal Parakeratosis, (HNPK); mutation originally found in Greyhound | Autosomal Recessive | Clear |
| Ichthyosis; mutation originally found in American Bulldog | Autosomal Recessive | Clear |
| Ichthyosis; mutation originally found in Great Dane | Autosomal Recessive | Clear |
| Lamellar Ichthyosis, (LI) | Autosomal Recessive | Clear |
| Lethal Acrodermatitis, (LAD); mutation originally found in in Bull Terrier and Miniature Bull Terrier | Autosomal Recessive | Clear |
| Ligneous Membranitis | Autosomal Recessive | Clear |
| Musladin-Lueke syndrome, (MLS) | Autosomal Recessive | Clear |
| X-Linked Ectodermal Dysplasia, (XHED) | X-linked Recessive | Clear |

## Test results - Additional disorders found in other breeds - page 14

### Other Disorders

| Disorder | Mode of Inheritance | Result |
|---|---|---|
| Acute Respiratory Distress Syndrome, (ARDS); mutation originally found in Dalmatian | Autosomal Recessive | Clear |
| Amelogenesis Imperfecta, (AI) | Autosomal Recessive | Clear |
| Amelogenesis Imperfecta, (AI); mutation originally found in Parson Russell Terrier | Autosomal Recessive | Clear |
| Congenital Keratoconjunctivitis Sicca and Ichthyosiform Dermatosis, (CKCSID) | Autosomal Recessive | Clear |
| Dental Hypomineralization; mutation originally found in Border Collie | Autosomal Recessive | Clear |
| Lung Developmental Disease; mutation originally found in in Airedale Terrier | Autosomal Recessive | Clear |
| Narcolepsy; mutation originally found in Dachshund | Autosomal Recessive | Clear |
| Narcolepsy; mutation originally found in Labrador Retriever | Autosomal Recessive | Clear |
| Persistent Müllerian Duct Syndrome, (PMDS); mutation originally found in Miniature Schnauzer | Autosomal Recessive | Clear |
| Primary Ciliary Dyskinesia, (PCD) | Autosomal Recessive | Clear |

## APPENDIX
## Explanation of the results of the tested disorders

Autosomal recessive inheritance (ARI)

Clear - A dog carries no copies of the tested mutation and has no or reduced likelihood of developing and passing on the disease/condition.
Carrier - A dog carries one copy of the tested mutation. Carriers typically have a normal, healthy appearance but pass on the mutation to approximately 50% of their offspring.
At risk - A dog carries two copies of the tested mutation and is at high or increased risk of developing the disease/condition.

Autosomal dominant inheritance (ADI)

Clear - A dog carries no copies of the tested mutation and has no or reduced likelihood of developing and passing on the disease/condition.
At risk - A dog carries one or two copies of the tested mutation and is at high or increased risk of developing the disease/condition.

X-linked recessive inheritance (X-linked)

Clear - A dog carries no copies of the tested mutation and has no or reduced likelihood of developing and passing on the disease/condition.
Carrier - Female carriers typically have a normal, healthy appearance but carry one copy of the tested mutation on one of their X chromosomes. As males only have one X chromosome, there are no male carriers.
At risk - Female dogs at risk carry two mutated copies of the tested mutation. Males carry one copy of the tested mutation on their single X chromosome. Dogs at risk are at high or increased risk of developing the disease/condition.

Please note that the descriptions above are generalized based on typically observed inheritance patterns. When obtaining a 'carrier' or 'at risk' test result, always refer to the corresponding online test documentation for more detailed information on the condition and any exceptions.

# OPTIMAL SELECTION™ DNA TEST TERMS AND CONDITIONS

Optimal Selection™ Genetic Breeding Analysis is a proprietary process designed and intended to be used on purebred dogs solely to 1) Help quantify the genetic compatibility of potential breeding pairs and 2) To identify specific alleles or DNA mutations that are associated with certain inherited diseases or traits. No other purpose is authorized or permitted. It is not intended to diagnose diseases or predict behavior in any particular dog.

Upon receipt of your dog's DNA sample, Wisdom Health will analyze your dog's DNA to determine chromosomal similarities and differences in the genetic profile of a potential sire and dam and provide a match analysis. Your dog's DNA will also be analyzed for the presence of specific alleles that are associated with inherited conditions identified as occurring in your dog's breed. Wisdom Health's testing procedures are designed to provide reliable and accurate results, but are not guaranteed. By submitting your dog's sample(s) for Optimal Selection™ analysis it is understood that you agree that the sample(s), analysis, results and related information may be used confidentially by Mars in conjunction with other samples to increase the understanding of the breed's genetic structure, as well as for internal, research and development, or statistical purposes and may be shared with third parties for these purposes.

Samples may be disposed of or stored at Wisdom Health's option and will not be returned. Please view the full Mars Privacy Policy here: http://www.mars.com/global/policies/privacy/pp-english.aspx It is also understood that future releases of the Optimal Selection™ test may refine results as more information is obtained regarding the breed structure and/or if new genetic markers are included.

Optimal Selection™ genetic assessments for individual dogs and potential mates will be available online to the person(s) who registered the sample. A dog's results, photo and other information may be shared by the owner with other individuals whom they choose or transferred to a new owner if the dog changes ownership. The content of such online services 1) may be altered due to changes, additions, or removals of a dog's information in the Optimal Selection™ database or due to changes in technical or other design of such services and 2) includes information about third parties and other Wisdom Health clients' dogs, which Wisdom Health is not responsible or liable for. Wisdom Health has right to terminate access to online services one year from the purchase date, unless a longer period has been agreed upon.

You agree to Wisdom Health instructions related to ordering process, payment, sampling and sample delivery. You also certify that the animal described in your order is the same animal whose sample is submitted for analysis, and that all information is accurate. You warrant that you are entitled to obtain and supply samples to Wisdom Health.

In the unlikely event that it is not possible to provide an analysis (for example due to an insufficient DNA sample) or that an error in the analysis occurs, liability by Wisdom Health or related companies and individuals is disclaimed and damages in any event are limited to the payment actually received by Wisdom Health for the specified analysis at issue. Wisdom Health's study of the complexities of the canine genome is ongoing with the goal of continuing to provide the most advanced and complete analysis possible.

Wisdom Health reserves the right to use any third party of its choice to undertake the testing, analysis or laboratory services for the analysis.

SpermVision®

# Semen Analysis Report

**Sampson (aka: Sampson)**

**Companion Animal Clinic of Gainesville**
14760 Lee Hwy Gainesville VA 20155
**Phone:** 703-754-8387 **Fax:** 703-754-0533
**Email:** info@companionanimalclinicva.com **Web Site:** www.companionanimalclinicva.com

## Donor Information — Owner: Sharon Johnson

**Name:** Sampson (aka: Sampson)
**Breed:** Mastiff
**Reg #:**
**Birth date:**
**DNA profile #:**
**Primary Color:**
**Secondary Color:**
**Tattoo:**
**MicroChip:**
**Weight:**
**Sex:**
**AKC Group:**

## Sample Information — Collection Date: 05/25/2020

### Sample Collection

**Date/Time:** 05/25/2020 / 5:17:44 PM
**Collection:** Manual w/Teaser
**Received:** 5:17:44 PM
**Antibiotics:** No comments...
**Veterinarian:** Natalia Kunze
**Technician:** Natalia Kunze
**Time since last collection:** 0 days
**Reason for evaluation:**

### Untreated Sample

**Volume:** 4.2 ml
**Bacteria:** No comments...
**Type of semen:** Fresh
**Agglutination:**
**Leucocytes:**
**Red Blood Cells:**
**Semen Color:** Normal
**Prostate Cells:**
**Debris Type:**

### Sample Preparation

**Technician:** Natalia Kunze
**Washes:** 0
**Centrifugation:** ☐ **Purification:** ☐
**Extender:** AndroPro AI
**Extender batch:**
**Dilution ratio:** 1 to 0

**Sampson (aka: Sampson)**

**Companion Animal Clinic of Gainesville**

## Motility Information — Collection Date: 05/25/2020

### Average Cell Analysis Information - 3036 Cells Analyzed 05/25/2020 5:18:32 PM

**Sperm Concentration:** 532.1 million/ml
**Total Sperm:** 2,234.82 million
**Viable Sperm:** 1,819.59 million

**Motility:** 98.41 %
**Progressive motility:** 81.42 %

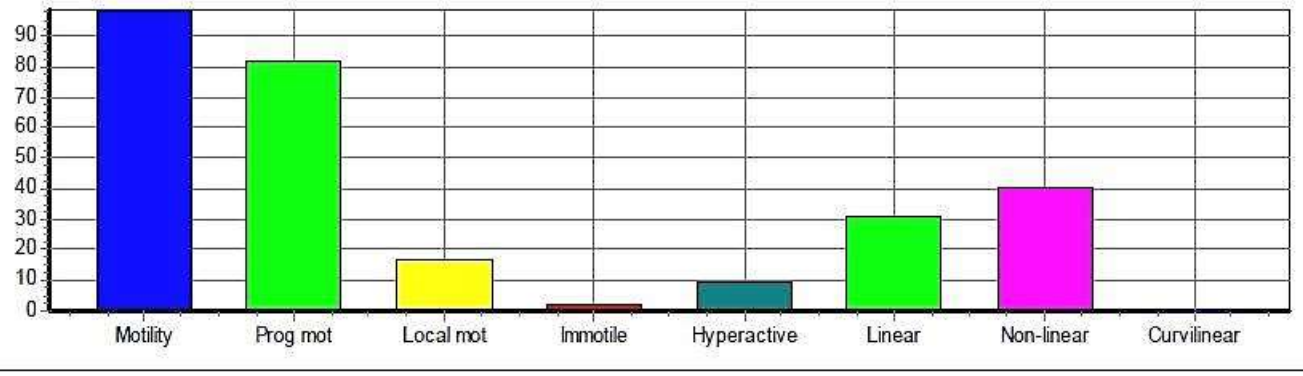
**Local motility:** 16.99 %
**Immotile:** 1.59 %

**VCL:** 219.50 µm/sec
**VAP:** 139.90 µm/sec
**VSL:** 113.70 µm/sec

**LIN:** 0.51
**STR:** 0.81

**BCF:** 20.96 hertz
**ALH:** 12.45 µm

### Cell Classification Chart

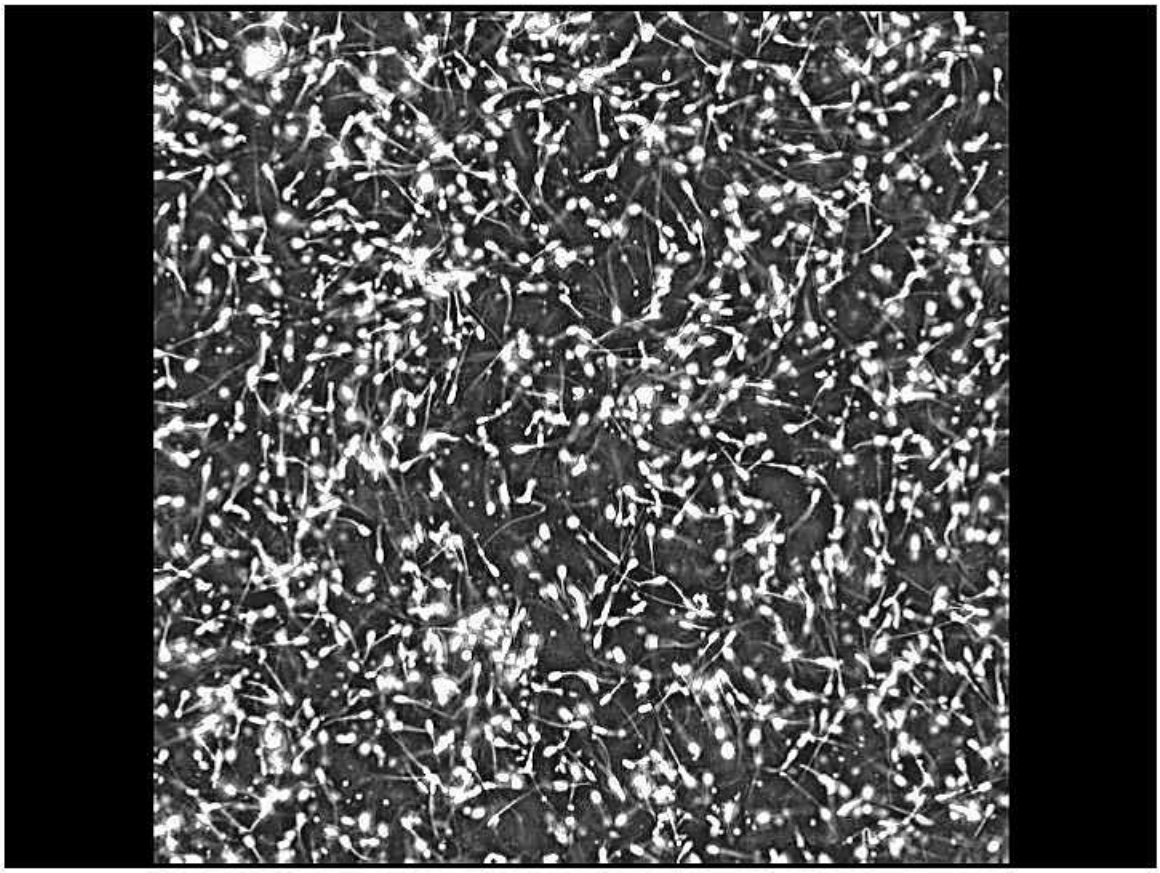


Sampson (aka: Sampson)

Companion Animal Clinic of Gainesville

## Motility Information cont. — Collection Date: 05/25/2020

### Motility Image - Field 1



**Field Analysis Information**

| | |
|---|---|
| Cells: | 1547 |
| Concentration: | 542.2 million/ml |
| Motility: | 98.51 |
| Progressive motility: | 81.18 |
| Local motility: | 17.32 |
| Immotile: | 1.49 |

**Field Summary**

| | |
|---|---|
| Hyperactive: | 9.82 |
| Linear: | 30.70 |
| Non-linear: | 40.65 |
| Curvilinear: | 0.00 |

**Progressive Summary**

| | | | |
|---|---|---|---|
| VCL: | 216.60 | LIN: | 0.51 |
| VAP: | 137.50 | STR: | 0.81 |
| VSL: | 112.20 | BCF: | 20.99 |
| | | ALH: | 12.31 |

**NOTE: The printout on this Page does not show the colors on the slide. To see the colors, view the computer generated slide.**