Paw Print Genetics
A division of Genetic Veterinary Sciences, Inc.

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# Laboratory Report

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|---|---|---|---|
| **Laboratory #:** | 23932 | **Call Name:** | Wrath |
| **Order #:** | 9488 | **Registered Name:** | Wrath Denbrix |
| **Ordered By:** | Sheri Moreau | **Breed:** | German Shepherd Dog |
| **(Co-)Owner:** | Chris Moreau | **Sex:** | Male |
| **Ordered:** | March 2, 2016 | **DOB:** | Feb. 2014 |
| **Received:** | March 25, 2016 | **Registration #:** | CMKU/DS/93405/14 |
| **Reported:** | April 4, 2016 | **Tattoo:** | 16644 |

## Results:

| Disease | Gene | Genotype | Interpretation |
|---|---|---|---|
| Anhidrotic ectodermal dysplasia | *EDA* | WT/WT | Normal (clear) |
| Degenerative myelopathy | *SOD1* | M/M | Affected/At Risk |
| Hemophilia A (German Shepherd Dog, type 2) | *F8* | WT/WT | Normal (clear) |
| Hyperuricosuria | *SLC2A9* | WT/WT | Normal (clear) |
| Leukocyte adhesion deficiency, type III | *FERMT3* | WT/WT | Normal (clear) |
| Mucopolysaccharidosis VII (Shepherd type) | *GUSB* | WT/WT | Normal (clear) |
| Multidrug resistance 1 | *ABCB1* | WT/WT | Normal (clear) |
| Renal cystadenocarcinoma and nodular dermatofibrosis | *FLCN* | WT/WT | Normal (clear) |

WT, wild type (normal); M, mutant

## Interpretation:

Molecular genetic analysis was performed for eight specific mutations reported to be associated with disease in dogs. We identified two normal copies of the DNA sequences in seven of the mutations tested. Thus, this dog is not at an increased risk for any of the diseases associated with these seven mutations. However, we identified two mutant copies of the DNA sequences for *SOD1*. Thus, this dog is affected with/at risk for degenerative myelopathy.

## Recommendations:

Degenerative myelopathy is inherited in an autosomal recessive fashion. Based on this, and the fact that this dog showed a mutation in both copies of the *SOD1* gene, this dog is affected with/at-risk for this disease. Although this dog may not be clinically affected by the mutation at this time, this dog will likely develop symptoms with age. The average age of onset for dogs with degenerative myelopathy is approximately nine years of age. Affected dogs usually present in adulthood with gradual muscle atrophy and loss of coordination typically beginning in the pelvic limbs due to degeneration of the nerves. The condition is not typically painful for the dog, but will progress until the dog is no longer able to walk. For further evaluation of this dog, a neurological exam with a board certified veterinary neurologist is recommended. Breeding of this dog is not recommended because 100% of the offspring from a breeding between an *SOD1* normal dog (WT/WT) and an *SOD1* affected dog (M/M) will be carriers (WT/M) of the mutation for degenerative myelopathy and a breeding between an *SOD1* carrier dog (WT/M) and an *SOD1* affected dog (M/M) will result in 50% of the offspring being affected with degenerative myelopathy. Dogs related to this dog have an increased risk to be affected by or carry the mutated gene. Additional testing for this mutation is indicated for related dogs.

Paw Print Genetics™ has genetic counseling available to you at no additional charge to answer any questions about these test results, their implications and potential outcomes in breeding this dog.

**Christina J Ramirez, PhD, DVM, DACVP**
Medical Director

**Casey R Carl, DVM**
Associate Medical Director

Normal results do not exclude inherited mutations not tested in these or other genes that may cause medical problems or may be passed on to offspring. These tests were developed and their performance determined by Paw Print Genetics™. This laboratory has established and verified the tests' accuracy and precision. Because all tests performed are DNA-based, rare genomic variations may interfere with the performance of some tests producing false results. If you think these results are in error, please contact the laboratory immediately for further evaluation. In the event of a valid dispute of results claim, Paw Print Genetics will do its best to resolve such a claim to the customer's satisfaction. If no resolution is possible after investigation by Paw Print Genetics with the cooperation of the customer, the extent of the customer's sole remedy is a refund of the fee paid. In no event shall Paw Print Genetics be liable for indirect, consequential or incidental damages of any kind. Any claim must be asserted within 60 days of the report of the test results.