

GENETIC ANALYSIS REPORT



OWNER'S DETAILS

Imke Niewoehner

Hasenweg 28

Hatten, 26209

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A.B.N. 8 722 516 58 99

ANIMAL'S DETAILS

Registered Name: Flyland Never Stop Narnia
Pet Name: Narnia
Breed: Border Collie
Date of Birth / Age: 20/02/15

Registration No: Pending
Microchip No: 27609607027234
Sex: Female
Colour: Chocolate

COLLECTION DETAILS

Case Number: 16-097852
Collected By: Imke Niewoehner

Date of Test: 19/04/16
Approved Coll. Mthd.:

Sample with Lab ID Number 16-097852 was received at Orivet Genetics, DNA was extracted and analysed with the following results reported:

DNA PROFILE The DNA Profile below represents the genetic identification of Flyland Never Stop Narnia

SNP01 AA 	SNP02 AA 	SNP03 GG 	SNP04 CC 	SNP05 GC 	SNP06 CT 	SNP07 GG 	SNP08 GG 	SNP09 GG 	SNP10 CC 	SNP11 GG
SNP12 GG 	SNP13	SNP14 AA 	SNP15 CC 	SNP16 TT 	SNP17 CC 	SNP18 GT 	SNP19 GT 	SNP20 CC 	SNP21 CC 	SNP22 CC
SNP23 TT 	SNP24	SNP25 GG 	SNP26	SNP27 GG 	SNP28 GG 	SNP29 AA 	SNP30 GA 	SNP31 CC 	SNP32 AA 	SNP33 CC
SNP34 TC 	SNP35 CC 	SNP36 AA 	SNP37 GT 	SNP38 TT 	SNP39 TT 	SNP40 CC 	SNP41 GT 	SNP42 CG 	SNP43 CC 	SNP44 GG
SNP45 CC 	SNP46 GG 	SNP47 CC 	SNP48 CC 	SNP49 CA 	SNP50 AG 	SNP51 GG 	SNP52 TC 	SNP53 GC 	SNP54 TT 	SNP55 TT
SNP56 TT 	SNP57 CC 	SNP58 GT 	SNP59 CC 	SNP60 TT 	SNP61 GG 	SNP62 CC 	SNP63 CC 	SNP64 GG 	SNP65 GT 	SNP66 AA
SNP67 AA 	SNP68 TT 	SNP69 CC 	SNP70 CC 	SNP71 GG 	SNP72 GG 	SNP73 CT 	SNP74	SNP75 CC 	SNP76 GG 	SNP77 TT
SNP78	SNP79 TT 	SNP80 GA 	SNP81 GG 	SNP82 CC 	SNP83 CT 	SNP84 CC 	SNP85 TT 	SNP86 CC 	SNP87 AA 	SNP88 GA



RESULTS REVIEWED AND CONFIRMED BY:

Dr. Noam Pik BVs MDSV

George Sofronidis BSc (Hons)

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DISEASE(S): PRIMARY LENS LUXATION - **NORMAL / CLEAR / NEGATIVE (NO VARIANT DETECTED)**
COLLIE EYE ANOMALY/CHOROIDAL HYPOPLASIA - **CARRIER (ONE COPY OF VARIANT DETECTED)**
DEGENERATIVE MYELOPATHY - **NORMAL / CLEAR / NEGATIVE (NO VARIANT DETECTED)**
IVERMECTIN SENSITIVITY MDR1 - **NORMAL / CLEAR / NEGATIVE (NO VARIANT DETECTED)**
NCL- BORDER COLLIE - **NORMAL / CLEAR / NEGATIVE (NO VARIANT DETECTED)**
TRAPPED NEUTROPHIL SYNDROME (TNS) - **NORMAL / CLEAR / NEGATIVE (NO VARIANT DETECTED)**
COBALAMIN MALABSORPTION CUBILIN DEF - **NORMAL / CLEAR / NEGATIVE (NO VARIANT DETECTED)**

TRAIT(S): LONG HAIR GENE (PHENOTYPE) - **CARRIER (ONE COPY OF VARIANT DETECTED)**
A-LOCUS AGOUTI - **at/at - TAN POINTS MAY BE BRINDLED (SEE K LOCUS)**
DILUTE MLPH GENE (BLUE/GREY) - **DD - NO COPY OF MLPH-D ALLELE**
K-LOCUS (DOM BLACK/WILD TYPE) - **KK - DOMINANT BLACK WILL NOT BE BRINDLED or EXPRESS AGOUTI**
E (EXTENSION) LOCUS MC1R - **EE - DOMINANT BLACK DOES NOT CARRY YELLOW/RED/WHITE**
SPOTTING LOCUS (W GENE) - **NORMAL / CLEAR / NEGATIVE (NO VARIANT DETECTED)**
BROWN (GLNT331STOP) STOP CODON (**b^s**) - **BB - DOES NOT CARRY BROWN or CHOCOLATE**
BROWN (345DELPRO) DELETION (**b^d**) - **BB - DOES NOT CARRY BROWN or CHOCOLATE**
BROWN (SER41CYS) INSERTION CODON (**b^c**) - **AFFECTED bb (BROWN/CHOCOLATE, LIVER OR RED)**



16-097852

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The terms below are provided to help clarify certain results phrases on your genetic report. The phrases below are those as reported by Orivet and may vary from one laboratory to the other.

NORMAL/CLEAR/NEGATIVE - NO VARIANT DETECTED

No presence of the variant (mutation) has been detected. The animal is clear of the disease and will not pass on any disease-causing mutation.

CARRIER - ONE COPY OF THE VARIANT DETECTED

This is also referred to as HETEROZYGOUS. One copy of the normal gene and copy of the affected (mutant) gene has been detected. The animal will not exhibit disease symptoms or develop the disease. Consideration needs to be taken if breeding this animal - if breeding with another carrier or affected or unknown then it may produce an affected offspring.

AFFECTED/POSITIVE FOR THE VARIANT

Two copies of the disease gene variant (mutation) have been detected also referred to as HOMOZYGOUS for the variant. The animal may show symptoms (affected) associated with the disease. Appropriate treatment should be pursued by consulting a Veterinarian.

AFFECTED – HETEROZYGOUS ONE COPY (AUTOSOMAL DOM)

Also referred to as POSITIVE ONE COPY or POSITIVE HETEROZYGOUS. This result is associated with a disease that has a dominant mode of inheritance. One copy of the normal gene (wild type) and affected (mutant) gene is present. Appropriate treatment should be pursued by consulting a Veterinarian. This result can still be used to produce a clear offspring.

AFFECTED – HOMOZYGOUS TWO COPIES (AUTOSOMAL DOM)

Also referred to as POSITIVE HOMOZYGOUS. Two copies of the disease gene variant (mutant) have been detected and the animal may show symptoms associated with the disease. Please Note: This disease has dominant mode of inheritance so if mated to a clear animal ALL offspring will be AFFECTED – HETEROZYGOUS ONE COPY.

NORMAL BY PARENTAGE HISTORY

The sample submitted has had its parentage verified by DNA. By interrogating the DNA profiles of the Dam, Sire and Offspring this information together with the history submitted for the parents excludes this animal from having this disease. The controls run confirm that the dog is NORMAL for the disease requested.

NORMAL BY PEDIGREE

The sample submitted has had its parentage verified by Pedigree. The pedigree has been provided and details (genetic testing reports) of the parents have been included. Parentage could not be determined via DNA profile as no sample was submitted.

NO RESULTS AVAILABLE

Insufficient information has been provided to provide a result for this test. Sire and Dam information and/or sample may be required. This result is mostly associated with tests that have a patent/license and therefore certain restrictions apply. Please contact the laboratory to discuss.

DNA PROFILE

Also known as a DNA fingerprint. This is unique for the animal. No animal shares the same DNA profile. An individual's DNA profile is inherited from both parents and can be used for verifying parentage (pedigrees). This profile contains no disease or trait information and is simply a unique DNA signature for that animal.

INDETERMINABLE

The sample submitted has failed to give a conclusive result. This result is mainly due to the sample failing to "cluster" or result in the current grouping. This will be repeated and looked at manually; if a result cannot be determined, a recollection may be requested.

PARENTAGE VERIFICATION

QUALIFIES/CONFIRMED or DOES NOT QUALIFY/EXCLUDED

Parentage is determined by examining the markers on the DNA profile. A result is generated and stated for all DNA parentage requests. Parentage confirmation reports can only be generated if a DNA profile has been carried out for Dam, Offspring and possible Sire/s.

PENDING

Results for this test are still being processed. Some tests are run independently and are reported at a later date. When completed, the result will be emailed.

APPROVED COLLECTION METHOD (YES)

The sample submitted for testing HAS met the requirements recommended by member bodies for the DNA collection process. The animal has been identified via its microchip number (Positive ID) and collected by a Veterinarian or Approved Collection Agent.

APPROVED COLLECTION METHOD (NO)

The sample submitted for testing HAS NOT met the requirements recommended by member bodies for the DNA collection process.

TRAIT

A feature that an animal is born with (a genetically determined characteristic). Traits are a visual phenotype that range from colour to hair length, and also includes certain features such as tail length. If an individual is AFFECTED for a trait then it will show that characteristic eg. AFFECTED for the B (Brown) Locus or bb will be brown/chocolate.

CLARIFICATION OF GENETIC TESTING The goal of genetic testing is to provide breeders with relevant information to improve breeding practices in the interest of animal health. However, genetic inheritance is not a simple process, and may be complicated by several factors. Below is some information to help clarify these factors.

1) Some diseases may demonstrate signs of what Geneticists call “genetic heterogeneity”. This is a term to describe an apparently single condition that may be caused by more than one mutation and/or gene.

2) It is possible that there exists more than one disease that presents in a similar fashion and segregates in a single breed. These conditions - although phenotypically similar - may be caused by separate mutations and/or genes.

3) It is possible that the disease affecting your breed may be what Geneticists call an “oligogenic disease”. This is a term to describe the existence of additional genes that may modify the action of a dominant gene associated with a disease. These modifier genes may for example give rise to a variable age of onset for a particular condition, or affect the penetrance of a particular mutation such that some animals may never develop the condition.

The range of hereditary diseases continues to increase and we see some that are relatively benign and others that can cause severe and/or fatal disease. Diagnosis of any disease should be based on pedigree history, clinical signs, history (incidence) of the disease and the specific genetic test for the disease.

Penetrance of a disease will always vary not only from breed to breed but within a breed, and will vary with different diseases. Factors that influence penetrance are genetics, nutrition and environment. Although genetic testing should be a priority for breeders, we strongly recommend that temperament and phenotype also be considered when breeding.

Orivet Genetic Pet Care aims to frequently update breeders with the latest research from the scientific literature. If breeders have any questions regarding a particular condition, please contact us on (03) 9534 1544 and we will be happy to work with you to answer any relevant questions.

Join the Genetic Revolution

ORIVET GENETIC PET CARE PO BOX 110, ST KILDA 3182 VIC AUSTRALIA orivet.com.au

The logo for Orivet Genetic Pet Care features a stylized white outline of a dog's head and neck, positioned above the word "Orivet" in a large, elegant, white serif font. Below "Orivet" is the phrase "Genetic Pet Care" in a smaller, white, sans-serif font. The entire logo is set against a dark teal background.

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