

# GENETIC ANALYSIS REPORT



## OWNER'S DETAILS

Lauren Elgie  
35 WALLAROO CIRCUIT NORTH LAKES  
BRISBANE  
Queensland 4509 Australia

## COLLECTION DETAILS

Case Number : 19211961  
Date of Test : 10th Apr 2019  
Collected By :  
**Approved Collection : NO**

## ANIMAL'S DETAILS

Registered Name : Pending  
Pet Name : Tika  
Registration Number : Pending  
Breed : Labrador Retriever  
Microchip Number : 953010002529622  
Sex : Intact Female  
Date of Birth : 9th Aug 2018  
Colour : black

Sample with Lab ID Number 19211961 was received at Orivet Genetics, DNA was extracted and analysed with the following result reported:

## GENETIC ANALYSIS SUMMARY

**<sup>1</sup>Please Note:** This is a summary disease and trait report. To view more details on each test, including a DNA profile, please log in to your account and view the detailed single DNA report.

## TESTS REPORTED

## RESULT <sup>1</sup>

### *Urinary system / Urologic - Associated with the kidneys, bladder, ureters and urethra*

CANINE HYPERURICOSURIA NEGATIVE / CLEAR [NO VARIANT DETECTED]  
CYSTINURIA (SLC3A1) LABRADOR RETRIEVER TYPE NEGATIVE / CLEAR [NO VARIANT DETECTED]

### *Musculoskeletal - Associated with muscles, bones and associated structures*

CENTRONUCLEAR MYOPATHY (LABRADOR RETRIEVER TYPE) NEGATIVE / CLEAR [NO VARIANT DETECTED]  
MYOTUBULAR MYOPATHY X-LINKED (LABRADOR RETRIEVER TYPE) NEGATIVE / CLEAR [NO VARIANT DETECTED]  
SKELETAL DYSPLASIA 2 (MILD DISPROPORTIONATE DWARFISM) NEGATIVE / CLEAR [NO VARIANT DETECTED]

### *Haemolymphatic - Associated with the blood and lymph*

CONGENITAL MACROTHROMBOCYTOPENIA NEGATIVE / CLEAR [NO VARIANT DETECTED]  
ELLIPTOCYTOSIS B-SPECTRIN (LABRADOR RETRIEVER/POODLE TYPE) NEGATIVE / CLEAR [NO VARIANT DETECTED]

### *Nervous system / Neurologic - Associated with the brain, spinal cord and nerves*

CONGENITAL MYASTHENIC SYNDROME (LABRADOR RETRIEVER TYPE) NEGATIVE / CLEAR [NO VARIANT DETECTED]  
DEGENERATIVE MYELOPATHY NEGATIVE / CLEAR [NO VARIANT DETECTED]  
EXERCISE INDUCED COLLAPSE (RETRIEVER TYPE) NEGATIVE / CLEAR [NO VARIANT DETECTED]  
NARCOLEPSY (LABRADOR) NEGATIVE / CLEAR [NO VARIANT DETECTED]

### *Dermatologic - Associated with the skin*

HEREDITARY NASAL PARAKERATOSIS/DRY NOSE (LABRADOR RETRIEVER TYPE) NEGATIVE / CLEAR [NO VARIANT DETECTED]

### *Ophthalmologic - Associated with the eyes and associated structures*

MACULAR CORNEAL DYSTROPHY (LABRADOR TYPE) NEGATIVE / CLEAR [NO VARIANT DETECTED]  
PROGRESSIVE ROD CONE DEGENERATION (PRCD) - PRA NEGATIVE / CLEAR [NO VARIANT DETECTED]

**Metabolic - Associated with the enzymes and metabolic processes of cells**

MALIGNANT HYPERTHERMIA  
PYRUVATE KINASE DEFICIENCY (CANINE)  
PYRUVATE KINASE DEFICIENCY (LABRADOR TYPE)

NEGATIVE / CLEAR [NO VARIANT DETECTED]  
NEGATIVE / CLEAR [NO VARIANT DETECTED]  
NEGATIVE / CLEAR [NO VARIANT DETECTED]

**Trait (Associated with Phenotype)**

A LOCUS (FAWN/SABLE;TRI/TAN POINTS)  
BROWN (345DELPPO) DELETION  
BROWN (GLNT331STOP) STOP CODON  
BROWN (SER41CYS) INSERTION CODON  
D (DILUTE) LOCUS  
E LOCUS - (CREAM/RED/YELLOW)  
K LOCUS (DOMINANT BLACK)  
LONG HAIR GENE (CANINE)

a<sup>t</sup>/a<sup>t</sup> - TAN POINTS - TAN POINTS or TRICOLOUR MAY BE BRINDLED [SEE K LOCUS]  
BB<sup>d</sup> - DOES NOT CARRY BROWN or CHOCOLATE (DELETION)  
BB<sup>s</sup> - DOES NOT CARRY BROWN or CHOCOLATE (STOP CODON)  
BB<sup>c</sup> - DOES NOT CARRY BROWN or CHOCOLATE (INSERTION)  
DD - NO COPY OF MLPH-D ALLELE (DILUTE) - PIGMENT IS NORMAL  
EE - DOMINANT BLACK DOES NOT CARRY YELLOW/RED/WHITE  
KK - DOMINANT BLACK - SOLID [WILL NOT BE BRINDLED or EXPRESS AGOUTI]  
NEGATIVE - NOT SHOWING THE PHENOTYPE

**RESULTS REVIEWED & CONFIRMED BY:**

Dr. Noam Pik BVSc, BMVS, MBA, MACVS



George Sofronidis BSc(Hons)

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Authentication Code



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## **EXPLANATION of RESULT TERMINOLOGY**

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.

### **NEGATIVE / CLEAR [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.

### **POSITIVE / AT RISK [TWO COPIES OF THE VARIANT DETECTED]**

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.

### **POSITIVE HETEROZYGOUS [ONE COPY OF THE DOMINANT VARIANT DETECTED]**

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.

### **POSITIVE HOMOZYGOUS [TWO COPIES OF THE DOMINANT VARIANT DETECTED]**

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 with 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.

### **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. A recollection is required at no charge.

### **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.

### **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 (NO)**

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

### **TRAIT (PHENOTYPE)**

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.

### **POSITIVE – SHOWING THE PHENOTYPE**

The animal is showing the trait or phenotype tested.

## 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** or **admin@orivet.com** and we will be happy to work with you to answer any relevant questions.

**PennHIP Report**

Referring Veterinarian: Dr Jason Beck	Clinic Name: Queensland Veterinary Specialists- Northlakes
Email: northlakes@qldvetspecialists.com.au	Clinic Address: 53 Finders Parade Northlakes 4509
	Phone: 6 (173) 384-2222
	Fax: 6 (173) 384-2244

**Patient Information**

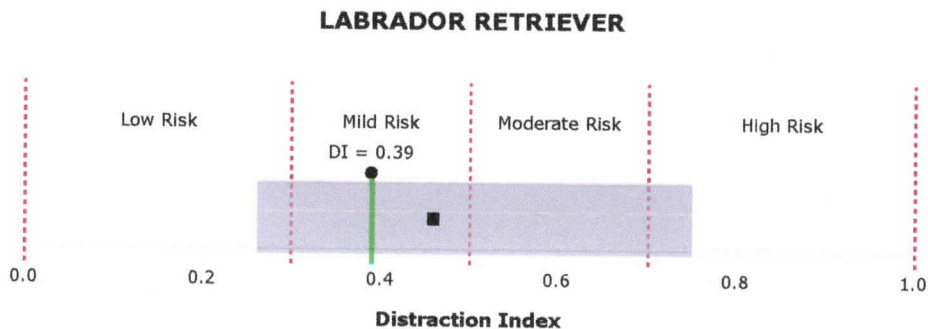
Client: DOGS, CAREER	Tattoo Num:
Patient Name: TIKA	Patient ID: 118545
Reg. Name: CAREER DOGS FALLEN LEAF	Registration Num:
PennHIP Num: 134391	Microchip Num: 953010002529622
Species: Canine	Breed: LABRADOR RETRIEVER
Date of Birth: 09 Aug 2018	Age: 13 months
Sex: Female	Weight: 64.6 lbs/29.3 kgs
Date of Study: 04 Sep 2019	Date Submitted: 04 Sep 2019
Date of Report: 05 Sep 2019	

**Findings**

Distraction Index (DI): Right DI = 0.38, Left DI = 0.39.
Osteoarthritis (OA): <b>No radiographic evidence of OA for either hip.</b>
Cavitation/Other Findings: No cavitation present.

**Interpretation**

Distraction Index (DI): The laxity ranking is based on the hip with the greater laxity (larger DI). In this case the DI used is 0.39.  
 OA Risk Category: The DI is between 0.31 and 0.49. This patient is at mild risk for hip OA.  
 Distraction Index Chart:



**BREED STATISTICS:** This interpretation is based on a cross-section of 33962 canine patients of the LABRADOR RETRIEVER breed in the AIS PennHIP database. The gray strip represents the central 90% range of DIs (0.26 - 0.75) for the breed. The breed average DI is 0.46 (solid square). The patient DI is the solid circle (0.39).

**SUMMARY:** The degree of laxity (DI = 0.39) falls within the central 90% range of DIs for the breed. This amount of hip laxity places the hip at a mild risk to develop hip OA. **No radiographic evidence of OA for either hip.**

# LAVELLE'S DIAGNOSTIC IMAGING

RB LAVELLE MA Vet MB MRCVS DVR FANZCVS FAVA

ABN755 75202799

## Canine Hip & Elbow Dysplasia Evaluation Report

KC Name: CAREER DOGS' FALLEN LEAF	Identification No: 953010002529622
KC Reg No:	Pet Name: "TIKI"

Date Radiograph taken: 04.09.2019	Breed: LABRADOR RETRIEVER
Sex: FEMALE	DOB: 09.08.2018
Name of Owner: Career Dogs Australia	Address: PO Box 620 Northlakes 4509 Email: <a href="mailto:info@careerdog.com.au">info@careerdog.com.au</a> northlakes@qldveterinaryspecialists.com.au
Sire: "TUBBY" GUIDE ROYAL TUBBY	Dam: "SIOUX" CAREER DOGS' STONEY SIOUX

The results of the examination will be used at a future date for the purposes of statistical research which will be published. Please check that the particulars above are correct and relate to the dog submitted for radiographic examination by: Dr Jason Beck, Queensland Veterinary Specialists

Signature of owner: \_\_\_\_\_

Please inform Dr R B Lavelle, 80 Ashworths Road, Lancefield, Victoria, 3435 if you object to the use of the results. Telephone (03) 5429 1682 BH

**Film quality:** Satisfactory

**Positioning:** Satisfactory

**Comment:** ON ED ASSESSMENT: SUITABLE FOR TRAINING.

Elbow Grade:	Normal 0	Left:	1	0.5mm
Right :				
Date received for examination:	10.09.2019	<i>R. B. Lavelle</i>		
Date returned:	10.09.2019	RB LAVELLE MA Vet MB MRCVS DVR FANZCVSc FAVA		

**OPHTHALMIC EXAMINATION FORM**

Owner: Career Dogs Australia      Animal Name: Tika

Address: PO Box 620 North Lakes Queensland 4509

Microchip No: 953010002529622

A.K.C. Reg No:

ANIMAL: Species: Canine    Breed: Labrador Retriever    Birthdate: 09-08-2018

Coat: colour/type: Black    Sex: Female

*"I hereby declare that the animal submitted for examination is the animal described above. Furthermore, I declare I am the owner or agent of the owner for this animal"*

Signed: Owner/Agent: [Signature]      Date: 22/8/19

PREVIOUS EXAMINATION:  Not prev examined     Not affected     Undetermined     Affected

Date of previous examination:   /  /  

EXAMINATION TECHNIQUE: Direct ophthalmoscopy     Indirect ophthalmoscopy  
Biomicroscopy    Other

MYDRIATIC:  Yes     No

REGIONS EXAMINED:	LIDS	CORNEA	IRIS	LENS	FUNDUS	OTHER
Not affected	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Undetermined/suspicious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Affected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

INHERITED DISEASE: Yes     NO     Suspicious    Date of examination:   /  /  

Should be re-examined:    Months       Yearly    SIGNED [Signature]



# VETERINARY CARDIAC SERVICES AUSTRALIA | NEW ZEALAND

## Certificate of Echocardiography

This is to certify that I, Dr Geoff Nicolson BVSc (Hons I) MVETSTUD Dipl. ECVIM-CA (Cardiology), a qualified **Specialist Veterinary Cardiologist**, have today 11-9-19 examined the following animal for evidence of cardiac disease:

Animal name: "Tika" Career Dogs  
Age/DOB: 09-08-18 Sex: F Breed: Labrador  
Colour: Black Reg no: NA Microchip no: 953010002529622  
Owner: CAREER DOGS AUSTRALIA  
Address: PO BOX 620, NORTH LAKES, QLD 4509

### Echocardiographic Examination (cardiologist to complete)

Findings: Trivial tricuspid regurgitation (physiologic).  
Otherwise unremarkable.

LVIDd 41 mm LVIDs 29.8 mm FS 27 %  
IVSd 8.2 mm LVFWd 9.2 mm LA:Ao 1.42 (norm. < 1.6)  
Aortic velocity 1.1 m/s (norm. < 2m/s) Pulmonic velocity 0.7 m/s (norm. < 2m/s)  
MR velocity — m/s (norm. 5-6 m/s) TR velocity — m/s (norm. < 3.0m/s)

### Certification Statement (cardiologist to complete)

① No echocardiographic evidence of cardiac disease.

- ① The above animal has no echocardiographic evidence of cardiac disease  
2) The above animal has echocardiographic changes, which I consider to be of no significance with regards to breeding  
3) The above animal has an echocardiographic abnormality, which I consider makes it unsuitable for breeding purposes

**Dr Geoff Nicolson**  
BVSc (Hons I) MVETSTUD Dipl. ECVIM-CA (Cardiology)  
Specialist Veterinary Cardiologist