AVA/ANKC CANINE HIP & ELBOW DYSPLASIA REPORT

Pedigree details

~~Registered~~ Name	EMMA		
Microchip No/Animal Tattoo	956000004020679	Vet scan? (Y) N	
Registered Number			
Breed	LABRADOR		
Date of birth	24.10.2014	* must be at least 12mths old	Sex Male ☐ Female ☒
Sire	GUIDINGLIGHT HAWKE		
Dam	CCI's ASTA II		

Owner details/declaration

Owner Name	DOGS FOR KIDS WITH DISABILITIES
Address	156 AUSTIN ROAD, SEAFORD, VIC 3198

I hereby declare that
(a) The particulars above are correct and relate to the dog submitted for radiographic examination.
(b) The dog has not previously been submitted for scoring by the AVA Panel or any individual reader.
(c) I give permission for the results of the examination to be used at a future date for the purposes of statistical research which will be published and for use by the ANKC. In addition to using the results for statistical purposes, the results will be placed on an opened or closed register. Yes ☒ No ☐

Owner signature: Katie Hunter Date ~~24~~ 17.11.2015

Veterinarian details/declaration

Referring veterinarian	Dr. Ari XIPOLITOS
Referring veterinary hospital	KARINGAL VETERINARY HOSPITAL
Address	328 Cranbourne Road
Telephone	Frankston, Victoria, 3199
Identification sighted	9789-3444
Date of radiograph	Tattoo No. ☐ Microchip read ☑ Pedigree Registration paper ☐
Veterinarian signature	17/11/15 Date 17/11/15

Radiographs

- Radiographs must be taken under general anaesthesia
- Digital x-rays must be in **DICOM** format
- Digital x-rays must be saved to a disk (no sticky labels on disk) or a memory stick (images cannot be e-mailed)

Radiographs must include:

Clear indelible labels	Date of radiography
Animal registered name and/or number	Microchip or Tattoo number
Client surname	Left AND right position markers

Film quality: (Satisfactory); underexposed; overexposed; extraneous marks
Positioning: (Satisfactory); tilted laterally left/right; femora not sufficiently extended; femora not evenly extended

Hip Joint	Right	Left	Comment
Norberg angle			
Subluxation			
Cranial acetabular edge			
Dorsal acetabular edge			
Cranial effect acetabular rim			
Acetabular fossa			
Caudal acetabular edge			
Femoral head/neck exostosis			
Femoral head recontouring			
Total			☐ Total Score (Max possible 106)

Elbow joint	Score	mm	Comment
Right Elbow	0	–	
Left Elbow	0	–	

Date submitted for examination 27.11.15 Radiologist number: 24 AVA ref: 23676

Pricing (including GST)
Hips $76 per dog
Elbows $22 per dog

Breed Average .....

Payment can be made via cheque or credit card. Please make cheque payable to AVA Ltd. If paying by credit card please download the credit card form from the website www.ava.com.au/cheds E-mail: avaact@ava.com.au Tel: 02 62730064

Please post completed form, radiographs and payment to: AVA Hip Dysplasia Scheme, PO Box 4257, KINGSTON ACT 2604.

1) DISCLAIMER OF LIABILITY:- No liability will be accepted for any circumstances of canine hip and or elbow dysplasia not mentioned in this report which manifests after the date of this report.
2) DISCLAIMER OF LIABILITY TO THIRD PARTIES:- This report is made solely for the use and benefit of the owner named herein and no liability or responsibility whatsoever is accepted for any third party who may rely upon this report wholly or in part. Any third party acting or relying on this report wholly or in part does so at their own risk.

Please note: Turnaround time for results is approximately four weeks

GENETIC ANALYSIS REPORT

Orivet Genetic Pet Care
e labresults@orivet.com
p +61 3 9534 1544
www.orivet.com

OWNER'S DETAILS

Lauren Elgie
35 WALLAROO CIRCUIT NORTH LAKES
BRISBANE
Queensland 4509 AU

ANIMAL'S DETAILS

Registered Name:	CAREER DOGS' PETALUMA EMMA	**Pet Name:**	EMMA
Registration Number:		**Breed:**	Labrador Retriever
Microchip Number:	956000004020679	**Sex:**	Intact Female
Date of Birth:	24/10/2014	**Colour:**	BLACK

COLLECTION DETAILS

Case Number:	17079391	**Date of Test:**	31/10/2017
Approved Collection Method:	NO (Collected by Owner)	**Collected By:**	

Sample with Lab ID Number 17079391 was received at Orivet Genetics, DNA was extracted and analysed with the following result reported:

TESTS REPORTED	RESULT [1]

[1]**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.

Urogenital (Associated with the Urinary and Genital Tracts)

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

Neurologic (Associated with the Brain, Spinal and Nerves)

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

Metabolic (Associated with the Body's Enzymes and Cell Metabolism)

COPPER TOXICOSIS (ATP7B & ATP7A) LABRADOR RETRIEVER TYPE	NEGATIVE / CLEAR [NO VARIANT DETECTED]
MALIGNANT HYPERTHERMIA	NEGATIVE / CLEAR [NO VARIANT DETECTED]
PYRUVATE KINASE DEFICIENCY (CANINE)	NEGATIVE / CLEAR [NO VARIANT DETECTED]

Dermatologic (Associated with Skin)

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

Haemolymphatic (Associated with the Circulatory System)

ELLIPTOCYTOSIS (B-SPECTRIN)	NEGATIVE / CLEAR [NO VARIANT DETECTED]

Musculoskeletal (Associated with Bones and Muscles)

MYOTUBULAR MYOPATHY X-LINKED	NEGATIVE / CLEAR [NO VARIANT DETECTED]
SKELETAL DYSPLASIA 2 (DWARFISM SD2)	NEGATIVE / CLEAR [NO VARIANT DETECTED]

Ophthalmologic (Associated with the Eyes)

OCULO-SKELETAL DYSPLASIA	NEGATIVE / CLEAR [NO VARIANT DETECTED]
PROGRESSIVE ROD CONE DEGENERATION (PRCD) - PRA	NEGATIVE / CLEAR [NO VARIANT DETECTED]

Trait (Associated with Phenotype)	
A LOCUS (FAWN/SABLE;TRI/TAN POINTS)	a^t/a^t - TAN POINTS - TAN POINTS or TRICOLOUR MAY BE BRINDLED [SEE K LOCUS]
BROWN (345DELPRO) DELETION	BB^d - DOES NOT CARRY BROWN or CHOCOLATE (DELETION)
BROWN (GLNT331STOP) STOP CODON	BB^s - DOES NOT CARRY BROWN or CHOCOLATE (STOP CODON)
BROWN (SER41CYS) INSERTION CODON	BB^c - DOES NOT CARRY BROWN or CHOCOLATE (INSERTION)
D (DILUTE) LOCUS	DD - NO COPY OF MLPH-D ALLELE (DILUTE) - PIGMENT IS NORMAL
E LOCUS - (CREAM/RED/YELLOW)	Ee - CARRIES EXTENSION (YELLOW/WHITE/APRICOT/RUBY/RED)
K LOCUS (DOMINANT BLACK)	K^B/k^y - ONE COPY DOMINANT BLACK (K^B) and ONE COPY NON BLACK (k^y) or BRINDLE (k^{br})
LONG HAIR GENE (CANINE)	NEGATIVE - NOT SHOWING THE PHENOTYPE

RESULTS REVIEWED AND CONFIRMED BY:

Dr. Noam Pik BVSc, BMVS, MBA, MACVS

George Sofronidis BSc (Hons)

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. This will be repeated and looked at manually; if a result cannot be determined, a recollection may be requested.

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 (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 (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

ANTECH Imaging Services

Reference #: 924403
Report Date: 20 Nov 2015
Date Received: 19 Nov 2015

Referring Veterinarian:
DR. SHANE SIMPSON
KARINGAL VETERINARY HOSPITAL
328 CRANBOURNE ROAD
FRANKSTON, VIC 3199
AUSTRALIA

Patient ID: 94342
Radiography Date: 17 Nov 2015

Owner/Responsible Person:
DOGS DOGS FOR KIDS

Patient:

Patient Name: EMMA		Species: CANINE	
Reg. Name:		Breed: LABRADOR RETRIEVER	
Reg. #:	Tattoo:	Date of Birth: 24 Oct 2014	Age: 13 mo.
Microchip: 956000004020679		Gender: F	Weight: 55 lbs.

RESULTS

LEFT	Distraction Index (DI)	**0.32**	DI is greater than 0.30 with no radiographic evidence of OA. There is an increasing risk of developing OA as the DI increases; low risk when DI is close to 0.30, high risk when DI is close to 0.70 or above.
	Osteoarthritis (OA)	**None**	
	Cavitation	**No**	
	Other Findings	Not Applicable	
RIGHT	Distraction Index (DI)	**0.31**	DI is greater than 0.30 with no radiographic evidence of OA. There is an increasing risk of developing OA as the DI increases; low risk when DI is close to 0.30, high risk when DI is close to 0.70 or above.
	Osteoarthritis (OA)	**None**	
	Cavitation	**No**	
	Other Findings	Not Applicable	

Please note that the PennHIP DI is a measure of hip joint laxity, it does not allude to a "passing" or "failing" hip score.

LAXITY PROFILE RANKING

The laxity profile ranking is based on the hip with the greater laxity (DI). This interpretation is based on a cross-section of 26,857 CANINE animals of the LABRADOR RETRIEVER breed. The median DI for this group is 0.45.

Percentiles

90th	80th	70th	60th	50th	40th	30th	20th	10th
> 90th				Median					**< 10th**

⇧

The chart above indicates the ranking of your animal's passive hip laxity (DI) in relation to all CANINE animals of the LABRADOR RETRIEVER breed in our database. This result means that 1) your animal's hips are tighter than approximately 90% of this group of animals (alternatively, 10% of the group has tighter hips than your animal), and 2) your animal's hip laxity is in the tighter half of the laxity profile. Breed-specific evaluations are analyzed semi-annually. Consequently, the average laxity and range of laxity for any given group will change over time.

PennHIP does not make specific breeding recommendations. Selection of sire and dam for mating is the decision of the breeder.

NOTE: As a minimum breeding criterion, we propose that breeding stock be selected from the population of animals having hip laxity in the tighter half of the breed (to the left of the median mark on the graph). Higher selection pressure equates to more rapid expected genetic change per generation.

By implementing selection based on passive hip laxity, we expect the breed average DI over the years to move toward tighter hip configuration, meaning lower hip dysplasia susceptibility. The PennHIP database permits scientific adjustment of criteria to reflect these shifts; the average laxity and range of laxity for a particular breed will change over time.