Registered Name: NVRAINCATS' LIVVY JUNEBUG THOMPSON
Call Name: LIVVY
Registration ID: FS-TML-10635-0D-BCM/F
Breed: Mixed Breed
Gender: Female
Owner: Lacey Thompson
Country: United States
Testing date: 2020/8/6

Test results - Known disorders in the breed - page 1

Disorder	Type	Mode of Inheritance	Result
Acute Intermittent Porphyria; HMBS mutation: c.107_110delACAG	Metabolic Disorders	Autosomal Dominant	Clear
Acute Intermittent Porphyria; HMBS mutation: c.826-1G>A	Metabolic Disorders	Autosomal Dominant	Clear
Chylomicronemia, Lipoprotein Lipase Deficiency	Metabolic Disorders	Autosomal Recessive	Clear
Congenital Adrenal Hyperplasia	Endocrine Disorders	Autosomal Recessive	Clear
Cystinuria; SCL3A1 mutation	Metabolic Disorders	Autosomal Recessive	Clear
Cystinuria; SCL7A9 mutation: c.1175C>T	Metabolic Disorders	Autosomal Recessive	Clear
Cystinuria; SCL7A9 mutation: c.706G>A	Metabolic Disorders	Autosomal Recessive	Clear
Cystinuria; SCL7A9 mutation: c.881A>T	Metabolic Disorders	Autosomal Recessive	Clear
Dihydropyrimidinuria	Metabolic Disorders	Autosomal Recessive	Clear

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

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Test results - Known disorders in the breed - page 2

Disorder	Type	Mode of Inheritance	Result
Factor XII Deficiency	Blood Disorders	Autosomal Recessive	Clear
Feline GM1 Gangliosidosis	Neurologic Disorders	Autosomal Recessive	Clear
GM2 Gangliosidosis, Domestic Shorthair mutation HEXB: c.1467_1491inv	Neurologic Disorders	Autosomal Recessive	Clear
GM2 Gangliosidosis; Domestic Shorthair GM2A Mutation	Neurologic Disorders	Autosomal Recessive	Clear
Hemophilia B, mutation F9: c.1014C>T	Blood Disorders	X-linked Recessive	Clear
Hemophilia B, mutation F9: c.247G>A	Blood Disorders	X-linked Recessive	Clear
Hyperoxaluria	Renal Disorders	Autosomal Recessive	Clear
Mucopolysaccharidosis Type I	Metabolic Disorders	Autosomal Recessive	Clear
Mucopolysaccharidosis Type VI (MPS VI), Typical Form	Metabolic Disorders	Autosomal Recessive	Clear

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Test results - Known disorders in the breed - page 3

Disorder	Type	Mode of Inheritance	Result
Mucopolysaccharidosis Type VII, mutation GUSB: c.1074G>A	Metabolic Disorders	Autosomal Recessive	Clear
Mucopolysaccharidosis VII; GUSB mutation C1424T	Metabolic Disorders	Autosomal Recessive	Clear
Myotonia Congenita	Muscular Disorders	Autosomal Recessive	Clear
Niemann-Pick C2, NPC Disease, Sphingomyelinosis NPC2 Mutation	Neurologic Disorders	Autosomal Recessive	Clear
Niemann–Pick C1, NPC Disease, Sphingomyelinosis NPC1 Mutation	Neurologic Disorders	Autosomal Recessive	Clear
Polycystic Kidney Disease	Renal Disorders	Autosomal Dominant	Clear
Vitamin D-Dependent Rickets (VDDR-1A); CYP27B mutation: c.G637T	Metabolic Disorders	Autosomal Recessive	Clear

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Gender: Female
Owner: Lacey Thompson
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Testing date: 2020/8/6

Test results - Traits - page 1

Blood Type

Trait	Genotype	Description
Blood Type (3 variants)	N/b	Cat carries b allele; blood type is A.

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Test results - Traits - page 2

Coat Color

Trait	Genotype	Description
Color Locus B: Chocolate and Cinnamon (2 variants)	B/b	The cat produces black pigment. The cat carries brown.
Color Locus C: Pointed Coloration and Albinism (3 variants)	C/cs	The cat has full color. The cat carries Siamese color point.
Color Locus A: Agouti and Charcoal (2 variants)	a/a	The cat is likely to have non-agouti (solid) coat color.
any FERV1 insertion in the *KIT* gene	N/Ws II N/DW	The cat has one FERV1 insertion in the KIT gene and one wild type allele. The cat with pattern of white spotting has one White spotting insert and all white cat has one Dominant White insert.
MLPH T83del (d allele)	d/d	The color pigment of the cat is diluted. Black is diluted to a blue or gray and orange is diluted to a cream color. Brown pigment dilutes to a lilac and cinnamon dilutes to a fawn color.
MC1R c.250G>A (e allele)	E/E	The cat does not have e allele for Amber color found in Norwegian Forest Cat.
MC1R (e^r allele)	-/-	The cat does not have er allele for Russet color found in Burmese.

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Test results - Traits - page 3

Coat Type

Trait	Genotype	Description
Long Hair (4 variants)	M4/M4	The cat is likely to have long hair.
LPAR6 c.250_253_delTTTG	N/N	The cat does not have Cornish Rex curly coat.
KRT71 c.445-1C	N/N	The cat does not have Selkirk Rex curly coat.

Morphology

Trait	Genotype	Description
Short tail, T-box mutations (3 variants)	N/N	The cat does not have any of the tested bobtail mutations originally found in Manx.
Polydactyly (3 variants)	N/N	The cat does not have any of the tested mutations causing extra digits.
HES7 c.T5C	T/T	The cat has no bobtail mutation originally found in Japanese Bobtail.

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

Blood Disorders

Disorder	Mode of Inheritance	Result
Erythrocyte Pyruvate Kinase (PK) Deficiency	Autosomal Recessive	Clear

Cardiac Disorders

Disorder	Mode of Inheritance	Result
Hypertrophic Cardiomyopathy, MYBPC3 mutation: A31P found in Maine Coon	Autosomal Dominant (Incomplete Penetrance)	Clear
Hypertrophic Cardiomyopathy, MYBPC3 mutation: c.2460C>T found in Ragdoll	Autosomal Dominant (Incomplete Penetrance)	Clear

Immunologic Disorders

Disorder	Mode of Inheritance	Result
Autoimmune Lymphoproliferative Syndrome	Autosomal Recessive	Clear
Congenital Hypotrichosis with Short Life Expectancy	Autosomal Recessive	Clear

Metabolic Disorders

Disorder	Mode of Inheritance	Result
Acute Intermittent Porphyria	Autosomal Dominant	Clear
Acute Intermittent Porphyria; HMBS mutation: c.844delGAG	Autosomal Dominant	Clear
Congenital Erythropoietic Porphyria, mutation UROS: c.331G>A	Autosomal Recessive	Clear

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

Muscular Disorders

Disorder	Mode of Inheritance	Result
Congenital Myasthenic Syndrome (CMS)	Autosomal Recessive	Clear
Periodic Hypokalemic Polymyopathy, Burmese Hypokalemia, or Familial Episodic Hypokalaemic Polymyopathy	Autosomal Recessive	Clear
Spinal Muscular Atrophy (SMA)/Spinal Muscular Dystrophy	Autosomal Recessive	Clear

Neurologic Disorders

Disorder	Mode of Inheritance	Result
GM2 Gangliosidosis, Japanese Domestic mutation HEXB: c.667C>T	Autosomal Recessive	Clear

Neuromuscular Disorders

Disorder	Mode of Inheritance	Result
Glycogen Storage Disease Type IV	Autosomal Recessive	Clear

Ocular Disorders

Disorder	Mode of Inheritance	Result
Bengal Progressive Atrophy	Autosomal Recessive	Clear
Retinal Dystrophy (rdAc)	Autosomal Recessive	Clear

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APPENDIX
Explanation of the results of the tested disorders

Autosomal recessive inheritance (ARI)

Clear - A cat carries no copies of the tested mutation and has no or reduced likelihood of developing and passing on the disease/condition.
Carrier - A cat 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 cat 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 cat carries no copies of the tested mutation and has no or reduced likelihood of developing and passing on the disease/condition.
At risk - A cat 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 cat 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 cats at risk carry two mutated copies of the tested mutation. Males carry one copy of the tested mutation on their single X chromosome. Cats 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.

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OPTIMAL SELECTION™ FELINE DNA TEST TERMS AND CONDITIONS

Optimal Selection™ Genetic Breeding Analysis is a proprietary process designed and intended to be used on purebred cats 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 cat.

Upon receipt of your cat's DNA sample, Wisdom Health will analyze your cat's DNA to determine chromosomal similarities and differences in the genetic profile of a potential sire and dam and provide a match analysis. Your cat's DNA will also be analyzed for the presence of specific alleles that are associated with inherited conditions identified as occurring in your cat's breed. Wisdom Health's testing procedures are designed to provide reliable and accurate results, but are not guaranteed. By submitting your cat'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 cats and potential mates will be available online to the person(s) who registered the sample. A cat'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 cat changes ownership. The content of such online services 1) may be altered due to changes, additions, or removals of a cat'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' cats, 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 feline 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.

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