

# Canine Analysis report

## SAMPLE REPORT



Owner Name

Sample report

Test Report Code

8000016



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- 2.2 Genetic diseases
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Sample report EasyDNA





# 1 Overview

## Overview

Lily was submitted for a full set of genetic testing for dogs, including breed identification, single-gene genetic disease detection, complex disease detection, hair trait and behaviour determination. The data analysis of the experimental results was completed on Jan,19,2022 Hong Kong time.

## Sample quality

In the samples received in this batch, DNA extraction was successful. The specific information is as follows:

Sample ID	Total Reads	Reads matched with primer	Effective average depth	Ontarget ratio	Q20
Lily	679423	520266	328.2435	0.7657	0.9623

## Breed identification

In this test, the sample is a mixed blood of Staffordshire Bull Terrier, Labrador Retriever and Dachshund.



Staffordshire  
Bull Terrier



Labrador Retriever



Dachshund

## Disease detection

133 canine single-gene genetic diseases was tested. 1 single gene mutation was detected in this sample.

Single-gene genetic diseases	Risk
Factor VII deficiency	Carrier

Detected Complex genetic diseases are as follows:

Complex genetic diseases	Relative risk(%)
Osteosarcoma	89.68
Hypothyroidism	69.19
Hip dysplasia	55.38
Lymphoma	31.69

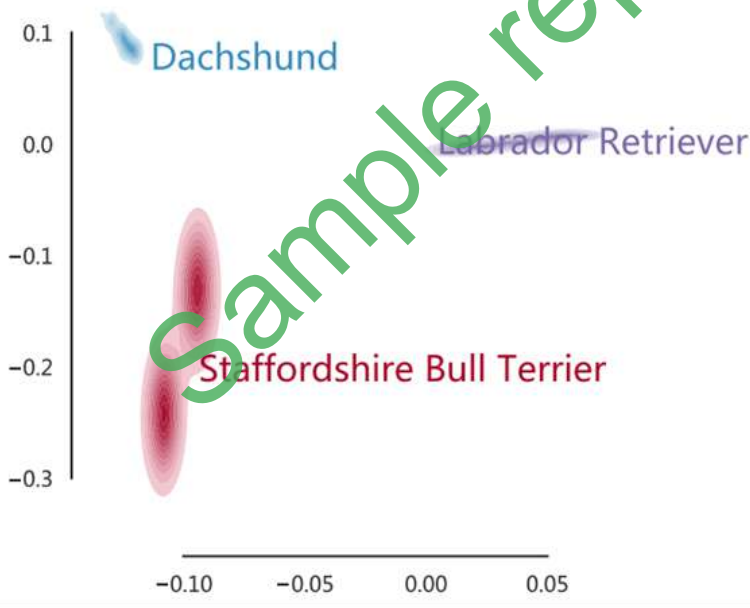
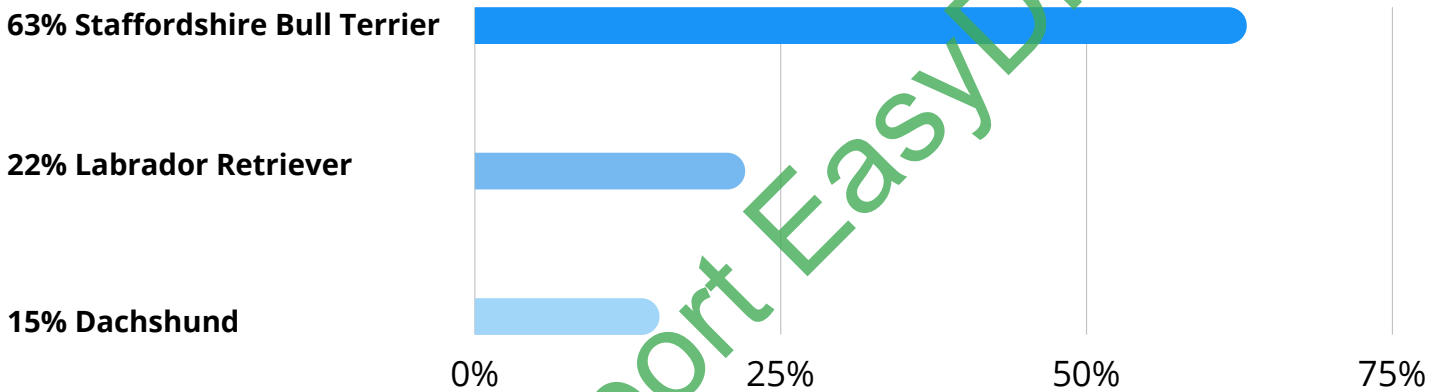




## 2.1 Breed

### Breed Identification Report

Lily is a mixed blood. The breed composition diagram is as follows:





Lily



A/B/C  
25%/44%/31%



A  
100%

PARENTS



A/B/C  
50%/25%/25%



B/C  
63%/37%



A  
100%

GRAND PARENTS



A/B/C  
100%



B/C  
50%50%



B/C  
75%25%



B/C  
50%50%



A  
100%

GREAT GRAND PARENTS

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A: Staffordshire Bull Terrier

B: Labrador Retriever

C: Dachshund



Please note, the family tree above only shows the most likely scenario according to laws of genetics. It's just for reference.

# Variety Description



## Staffordshire Bull Terrier

### *Historical Origin*

It originated in Britain hundreds of years ago

### *Characteristics*

Stanfordshire Bulldog is a medium-sized short-haired dog, belonging to the type of bulldog. This modern breed is very suitable as a companion dog. It is known for its fearlessness and toughness, and likes to be big Natural, low-key, quiet, stable and reliable, it is an important multi-purpose dog. Average height: 13-16 inches (33-41cm). Average weight: 24-37 lbs (11-17kg).

### *Anecdote*

The early bulldogs and terriers were not bred like today's breeds, but were bred to fight against large animals such as bears or bulls. This required testing the strength and skills of dogs. As the UK began With the implementation of the Animal Welfare Law, these bloody sports were officially cancelled in 1835.

### *Common Genetic Diseases*

L2 hydroxyglutaric aciduria, Hereditary cataract, Encephalopathy, Cerebellar Ataxia. (All of these were tested and showed in this report)



Sample report EasyDNA

# Variety Description



## Labrador Retriever

### *Historical Origin*

It originated in Newfoundland before 1800 AD.

### *Migration and Development*

Migration to England in the 19th Century.

### *Characteristics*

The Labrador Retriever is one of the most popular dog breeds in the United States, Britain and Canada. They are often trained to help the blind and autistic patients as treatment dogs. It also completes screening and testing for law enforcement agencies and other official agencies. In addition, they are also sporting dogs and hunting dogs.

Average height: 21.5-22.5 inches (54-57 cm).

Average weight: 55-80 lbs (25-36 kg).

### *Anecdote*

In 1903, the Kennel Club recognized the Labrador Retriever. In 1917, people registered the first Labrador Retriever in the American Kennel Club. It appeared on December 12, 1928. The first dog on the cover of "Life" magazine is the black Labrador retriever named "Blind Arden".

### *Common Genetic Diseases*

Alexander disease, Centronuclear Myopathy, Congenital Myasthenic Syndrome, Canine elliptocytosis, Hyperuricosuria, Narcolepsy, X-linked Myotubular Myopathy, Progressive Retinal Atrophy, Von Willebrand disease, Pyruvate kinase deficiency, Degenerative myelopathy, Hereditary Nasal Parakeratosis, Exercise Induced Collapse, Developmental dysplasia of the hip (DDH).

(All of these were tested and showed in this report)





# Variety Description



## Dachshund

### *Historical Origin*

It originated in Germany.

### *Characteristics*

The dachshund is a short-legged hunting dog. Standard-sized dachshunds can complete the work of olfactory exploration and tracking; mini dachshunds can search for smaller prey. In the United States, they are used for Hunting, for example, tracking injured deer. They also participated in performances organized by the American Kennel Club, field trials and other activities, ranking 13th in the most popular list in the United States.

Average height:

- Standard 14-19 inches (35-47cm)
- Miniature 12-15 inches (25-37cm)
- Rabbit 9.8-13 inches (25-32cm)

### *Anecdote*

Some experts infer that the dachshund can be traced back to ancient Egypt, where people found murals engraved with basset hounds. When American scholars found mummy-like dachshunds in ancient Egyptian graves, they were even more convinced of the above Inferred. Queen Victoria was a fan of this breed.

### *Common Genetic Diseases*

Progressive Retinal Atrophy, Von Willebrand disease, Osteogenesis imperfecta, Neuronal Ceroid Lipofuscinosis 1, Neuronal Ceroid Lipofuscinosis 2, Narcolepsy.

(All of these were tested and showed in this report)





## 2.2 Genetic diseases

### Single-gene disease detection report

**Factor VII deficiency** is related to the pathogenic mutation which is located in the F7 gene of chromosome 22. It's caused by insufficient production of coagulation factor VII or abnormal structure and function (only 1%-2.5% of normal). The body is unable to produce enough coagulation factor VII protein (prothromboplastin, auxiliary thromboplastin) causing coagulopathy bleeding disease. VII coagulation factor is essential for the formation of blood prothrombin activator.

If the factor is insufficient, it will hinder the formation of prothrombin activator, the formation of thrombin by prothrombin will be delayed, and the activation of fibrinogen will be affected successively, so that the formation of fibrin will be hindered.

The coagulation factor VII protein is vitamin K dependent. Glycoprotein is an important part of the blood coagulation process. It is synthesized in the liver and then participates in the blood circulation. This protein is activated and plays a key role in the initial coagulation process. If the blood vessel is damaged, it will coagulate with the participation of calcium. After factor VII binds to tissue factor (a transmembrane single-chain glycoprotein composed of amino acid residues), it splits factor IX and factor V, thereby activating them, and finally producing thrombin.

Items	Factor VII deficiency
Test results	+/-
Genotype	GA
Genetic model	Recessive
Heredity	50.0% probability of passing at least one mutation to the next generation
Risk interpretation	Risk gene carrier





## 2.2 Genetic diseases

### Complex disease detection report

**Osteosarcoma** is a primary bone tumour in dogs, caused by mesenchymal stem cells in the bone, originating deep inside the bone, and as it grows outward the bone is destroyed from the inside, producing intense pain.

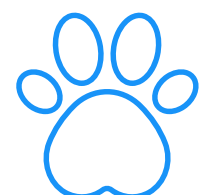
The causes of osteosarcoma are mainly due to accumulation or exposure to carcinogens and genetic factors. It accounts for up to 85% of all skeletal malignancies, mainly affects middle-aged to older dogs, and especially affects the leg bones of large breeds such as the Great Dane and Irish Wolfhound.

However, it can also occur in any other skeletal structure, with the extremities accounting for 75% to 85% of all cases. Other bones that can be affected include the maxilla, mandible, spine, skull, ribs, nasal cavity, paranasal sinuses, and pelvis. Osteosarcoma in extraosseous sites is rare, but has been reported in breast tissue, subcutaneous tissue, spleen, gut, liver, kidney, testis, vagina, eye, stomach, ligament, synovium, meninges, and adrenal glands.

Osteosarcoma is one of the serious cancers a dog can have because it spreads quickly and is difficult to remove surgically. Tumours initially appear in a swollen or painful area of a dog's leg and can cause the affected dog to limp, lick, or whimper in pain. This bone is much weaker than healthy bone and can break accidentally.

Items	Osteosarcoma
Test results	High risk
Relative risk	89.68%
Gene	FBL near;KIAA1462;None
Genotype	G,G;C,C;C,A

The relative risk of Osteosarcoma in this sample is higher than 89.68% of dogs.





## 2.2 Genetic diseases

### Hip dysplasia

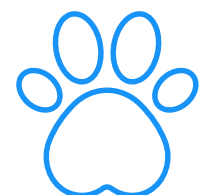
Hip dysplasia is an abnormality in the hip socket where, due to inconsistencies in the muscles and overgrown bone, hip instability leads to subluxation of the acetabulum and femoral head, and the hip joint cannot remain stable. Daily body activities such as standing, walking, weight-bearing and other sports will cause wear and tear of the hip joint. As the damage accumulates over time, the hip joint will undergo morphological and structural changes such as thickening of the femoral neck, osteophytes and acetabular sclerosis, osteoarthritis and pain.

Severe cases can lead to lameness and painful arthritis. In many dog breeds, especially large breeds, hip dysplasia is the single most common cause of hip arthritis. Hip dysplasia usually begins at 18 months and can range from mild mobility problems to severe paralysis and osteoarthritis. Affected dogs often have reduced hip mobility, leading to "rabbit hopping," where the two hind legs move together, which can also lead to muscle stiffness. Because the hip joint does not move fully, dogs often adjust to changes in the hip joint by adjusting the spine, resulting in problems with the spine, knees, or soft tissue.

The pain usually occurs after activities, and will be significantly relieved or disappear after rest, and manifest at night. Pets may whine, whimper, and frequently lick their fur, especially on the thighs, legs, and abdomen. Weakness, falls, and even refuses to climb stairs when going upstairs. The hind limbs are placed forward, and the load is concentrated on the forelimbs, showing a clear rabbit hopping gait.

Items	Osteosarcoma
Test results	Medium risk
Relative risk	55.38%
Gene	CHST3;CCND1 near;SRBD1;RPN1 near;KIF26B
Genotype	C,C;T,T;C,C;C,T;T,C

The relative risk of Hip dysplasia in this sample is higher than 55.38% of dogs.





## 2.2 Genetic diseases

The hip joint is swollen, red, and warm to the touch. Stiffness of the hip joint, especially in the morning with markedly abnormal gait, stiffness and inability to bend. Difficulty lying down and squatting up and taking longer. Bone fricative can be heard during exercise. Joint instability, walking hind limbs showed X-shaped, swaying gait.

Reduced activity, reluctance to exercise, lying on the stomach for a long time, bedsores and calluses develop in heavy load-bearing places, such as forelimb elbows and buttocks.

In many cases, the disease is usually bilateral, and only unilateral hip dysplasia occurs in about 7% of cases. The time for obvious symptoms to appear may vary. Some can show obvious discomfort at 5-10 months, but most of them will not show until adulthood, and some symptoms such as walking and limp appearing until 4-5 years old.

### Hypothyroidism

**Hypothyroidism** is caused by a deficiency of thyroxine T4 and triiodothyronine T3, resulting in clinical symptoms involving nearly all organ systems.

Mental disorders and abnormal skeletal development lead to disproportionate dwarfism, and goitre may also be present. Skin pigmentation, keratinization and seborrhoea, dryness, loss of coat or pyoderma due to weakened immunity. Affected dogs have a protruding tongue and eyeball, resulting in an abnormal appearance, listlessness, lethargy, loss of appetite, constipation and cramps, ataxia.

Items	Hypothyroidism
Test results	Medium risk
Relative risk	69.19%
Gene	ZNF76;MAPK14;LRFN2
Genotype	C,A;G,A;C,T

The relative risk of Hypothyroidism in this sample is higher than 69.19% of dogs.





## 2.3 Hair trait

### Hair trait report

The coat colour most likely to be carried by the next generation of this sample are pure black. The hair type most likely to be carried in the next generation of this sample is short straight hair.

The coat color of dogs is determined by the interaction of multiple genetic loci, and completely opposite results may be obtained between different loci. Therefore, the test is only for reference, please refer to the actual appearance.

Associated genes	Genotype	Mutation	Result
B (brown) locus	C,C	None	
B (brown) locus	-,-	Homozygous	bb
B (brown) locus	ACCAGC,ACCAGC	None	
E (extension) locus	G,G	None	EE
K (dominant black) locus	-,-	Homozygous	K <sup>B</sup> K <sup>B</sup>
A (agouti) locus	T,T	None	
A (agouti) locus	A,A	None	A <sup>y</sup> A <sup>y</sup>
A (agouti) locus	C,C	None	
D (dilute) locus	G,G	None	DD

\*bb refers to brown - chocolate or liver;

\*EE refers to normal extension, means pattern expressed as per alleles present at A and K loci;

\*K<sup>B</sup>K<sup>B</sup> refers to dominant black (black);

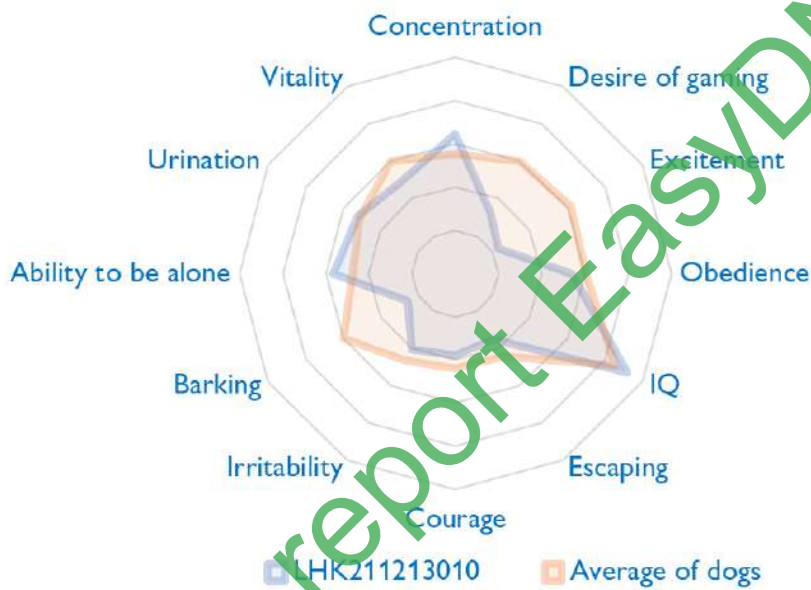
\*A<sup>y</sup>A<sup>y</sup> refers to fawn or sable;

\*DD refers to not diluted color.



## 2.3 Behaviours

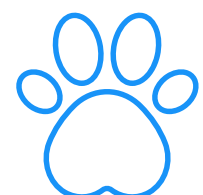
### Behaviours determination



**Concentration** refers to the degree to which a dog's concentration is affected by external stimuli, such as being attracted by a leaf on the asphalt road, a long one of many intermittent and short sounds, being attracted by a plastic bag blown by the wind, or chasing a fly. Birds and other small animals that have passed by, the lower the score, the more the surface is affected by external stimuli, and the lower the concentration.

Lily can concentrate, but is sometimes interrupted by other things. If training, it is recommended to start with no distractions.

**Desire** of gaming refers to the activity of the dog, the desire to play games, the higher the score, the more active, the more energetic, and the stronger the desire to play. Lily is a dog who likes to play games. The more time you play with it, the more lively it will be.





**Excitement** refers to the dog's response after being stimulated. The higher the score, the stronger the response to stimulation or excitement, such as walking, driving, doorbell ringing, guests visiting, the owner returning home after a period of time, and the dog's excitement. Lily is a Buddhist, and it seems that few things can interest it.

**Obedience** refers to dog's willingness to obey orders. Dogs with high scores show more concern for their owners, willingness to obey orders, positive reactions, quick learning, and high obedience. Lily holds a teachable type. As long as you do it properly and tell it well, it will still be willing to learn with you.

**IQ** refers to the dog's IQ index, the higher the score, the smarter it is. For a new command, Lily can understand what it means without giving it more than 5 times, and obey the master's first command at more than 95% of the time.

**Escaping** refers to the probability that the dog will run away, or escape home or owner at the first opportunity. The higher the score, the greater the probability. Lily will not run away easily, but will often run away from you because of seeing things that are more interesting. In most cases, it can be recalled. It depends on the relationship between you. Remember to tie the rope when you go out.

**Courage** refers to the dog's fear and anxiety about unfamiliar things. The higher the score, the easier it is to have fear or anxiety. Lily is a brave dog with a peaceful mind and a very stable child.

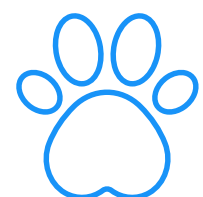
**Irritability** refers to the dog's aggression. The higher the score, the easier it is to produce aggressive behavior, which has nothing to do with combat effectiveness. Lily is a typical dog that doesn't conduct active attacks. If you don't provoke it, it won't fry.

**Barking** refers to the degree of continuous barking of the dog. The higher the score, the more severe the continuous barking when the dog is excited or stimulated. Lily is not a talkative dog. This kind of non-noisy dog is the ideal type for many people.

**Ability to be alone** refers to the dog's perception of loneliness and whether it is prone to separation anxiety. The higher the score, the stronger the perception of loneliness and the lower the ability to be alone. Lily is a sensible dog who can be alone for a while, but it also misses you, don't let it wait too long.

**Urination** refers to the disorder of urination when the dog is at home alone. The higher the score, the greater the possibility of disorderly urination. Lily usually won't pee at will unless it can't help it or it wants to tell you something by peeing.

**Vitality** refers to the activity of the dog, the higher the score, the more lively, energetic, and the more interesting and noisy personality, the greater the amount of exercise required. Lily is a dog that is suitable for both movement and stillness. It is as quiet as a virgin, and moving as a rabbit.







## 3 References

### Single-gene genetic diseases:

2-8-Dihydroxyadenine  
Alport Syndrome  
C3 deficiency  
Glanzmanns thrombasthenia Type I  
Gangliosidosis 1  
Gangliosidosis GM2 Gangliosidosis  
Canine Multifocal Retinopathy cmr3  
Von Willebrand disease  
Canine multifocal retinopathy - Type 2  
Von Willebrand disease - Type II  
Canine multifocal retinopathy - Type 1  
Von Willebrand disease  
L-2-HGA-L-2-hydroxyglutaric aciduria  
May-Hegglin anomaly  
Musladin-Lueke Syndrome  
Myotubular Myopathy 1  
Axonal Disease Shaking Puppy Syndrome  
X-linked Severe Combined Immunodeficiency  
Canine leukocyte adhesion deficiency  
Pyruvate kinase deficiency  
Pyruvate Dehydrogenase Phosphatase Deficiency  
Intestinal malabsorption of cobalamin  
Imerslund-Grasbeck Syndrome  
Osteogenesis imperfecta  
Persistant Mullerian Duct Syndrome  
Cleft lip with or without cleft palate  
Gallbladder mucocele formation  
Protein Losing Nephropathy  
Progressive Retinal Atrophy  
Progressive Retinal Atrophy - rcd4  
Progressive retinal atrophy - Dominant  
Cerebellar disease Cerebellar ataxia  
Collie eye anomaly  
Dilated Cardiomyopathy  
Phosphofructokinase deficiency  
Ligneous Membranitis  
Multi-Drug Sensitivity  
Malignant Hyperthermia  
Narcolepsy  
Sensory ataxic neuropathy  
Dry eye curly coat syndrome  
Hyperuricosuria  
Cystinuria  
Cystinuria1  
Cystinuria2  
Cystinuria4  
Cystinuria Type II-A  
Cystinuria Type II-B  
Spongiform leukoencephalomyelopathy  
Myostatin defect  
Centronuclear Myopathy  
Muscular dystrophy  
Spinocerebellar Ataxia  
Spondylocostal Dysostosis  
Familial Nephropathy  
Episodic falling syndrome  
Progressive Retinal Atrophy  
Progressive Retinal Atrophy - cord1  
Progressive Retinal Atrophy - cord2  
Progressive Retinal Atrophy - PRA1  
Progressive Retinal Atrophy - RCD1  
Progressive Retinal Atrophy - RCD3  
Progressive Retinal Atrophy - Type A  
Progressive Retinal Atrophy - PRCD  
Catalase Deficiency  
Pachyonychia congenita  
Cerebellar disease Cerebellar hypoplasia  
Cerebellar Ataxia  
Neonatal ataxia  
Neonatal Encephalopathy with Seizures  
Congenital Myotonia  
Congenital Myasthenic Syndrome

**\*\*X : Carrier**



Mucopolysaccharidosis Type IIIA  
 Mucopolysaccharidosis Type VII  
 MPS VI  
 ✗ Factor VII deficiency  
 Ectodermal dysplasia  
 Prekallikrein Deficiency  
 Globoid cell leukodystrophy  
 Progressive neuronal abiotrophy  
 Polyneuropathy  
 Canine elliptocytosis  
 Lysosomal Storage Disease  
 Chondrodysplasia  
 Neuronal Ceroid Lipofuscinosis  
 Neuronal Ceroid Lipofuscinosis 1  
 Neuronal Ceroid Lipofuscinosis 10  
 Neuronal ceroid lipofuscinosis 12  
 Neuronal Ceroid Lipofuscinosis 2  
 Neuronal ceroid lipofuscinosis 5  
 Neuronal Ceroid Lipofuscinosis 6  
 Neuronal Ceroid Lipofuscinosis 8  
 Neuroaxonal Dystrophy  
 Renal Cystadenocarcinoma and Nodular  
 Dermatofibrosis  
 Axonal Disease Hypomyelination and Tremor  
 Glycogen Storage Disease Type IIIa  
 Glycogen Storage Disease Type II  
 Glycogen Storage Disease Type Ia  
 Degenerative myelopathy  
 Late Onset Ataxia  
 Exercise Induced Collapse  
 early retinal degeneration  
 Long QT Syndrome  
 Congenital hypothyroidism  
 Primary Lens Luxation  
 Congenital Stationary Night Blindness  
 Congenital Macrothrombocytopenia  
 Axonal Disease Fetal-onset neonatal neuroaxonal  
 dystrophy  
 Cerebellar abiotrophy  
 Coagulopathy Thrombopathia  
 Hemophilia A  
 Hemophilia B  
 Autosomal Recessive Amelogenesis Imperfecta  
 Encephalopathy  
 Alexander disease  
 Severe Combined Immunodeficiency  
 Fucosidosis  
 Oculoskeletal Dysplasia 1  
 Hereditary Vitamin D-Resistant Rickets  
 Hereditary Cataracts  
 Hereditary Cataracts  
 Hereditary Nasal Parakeratosis  
 Trapped Neutrophil Syndrome  
 Hereditary Footpad Hyperkeratosis  
 Dystrophic epidermolysis bullosa  
 Juvenile Epilepsy  
 Ichthyosis  
 Primary hyperoxaluria type I  
 Primary Open Angle Glaucoma  
 Primary ciliary dyskinesia  
 Cyclic neutropenia  
 Dwarfism  
 Day blindness

## Complex genetic diseases:

✗ Hip dysplasia  
 ✗ Hypothyroidism  
 Rupture of the cranial cruciate ligament  
 Obsessive-compulsive disorder  
 ED  
 Portosystemic Vascular Anomaly(PSVA)  
 Mast cell tumor(MCT)  
 ✗ Lymphoma  
 Congenital Sensorineural Deafness  
 ✗ Osteosarcoma  
 Congenital megaesophagus  
 Hemangiosarcoma  
 B-cell lymphoma  
 Duchenne muscular dystrophy  
 Adult-Onset Deafness  
 Amylase



**\*\*X : Carrier**

## Breed list:

Havanese  
Weimaraner  
Neapolitan Mastiff  
St. Bernard Dog  
Wirehaired Pointing Griffon  
Redbone Coonhound  
Akita Inu  
✓Staffordshire Bull Terrier  
Australian Silky Terrier  
Toy Fox Terrier  
Bull Terrier  
Norwich Terrier  
Basinji  
Pugs  
Basset Hound  
Malinois dog  
Shar Pei  
Soft-coated Wheaten Terrier  
Cairn Terrier  
Airedale Terrier  
German Shepherd  
Shih Tzu  
Keeshond  
Bull Terrier  
Goldendoodle  
Samoyed  
Sheltie  
Coton de Tulear  
American Pit Bull Terrier  
Xigou  
Icelandic Sheepdog  
Briard  
West Highland White Terrier  
Puli dog  
Kuvasz  
Vizsla  
Pomeranian  
Chow Chow  
Molossar  
Border Terrier  
Chinook  
Standard Schnauzer  
English Springer Spaniel  
Golden Retriever  
American hairless Terrier  
Pembroke Welsh Corgi  
Scottish Deerhound  
Dogue de Bordeaux  
Maltese  
Saluki  
Anatolian Shepherd  
Petit Basset Griffon Vendéen  
Wolf  
Black Russia Terrier  
English Bulldog  
Great Swiss Mountain Dog  
Jack Russell Terrier  
Ibiza Hound  
Nova Scotia Duck Hunting Retriever  
Tibet Terrier  
Parson Russell Terrier  
Australia Terrier  
Xoloitzcuintle  
Palatore Dog  
Irish Water Spaniel  
Tervuren  
Irish Setter  
Australian Kelpie  
Curly-coated retriever  
American Pit Bull Terrier  
German Wirehaired Pointer  
St. huberhound  
Cardigan Welsh Corgi  
Scotch Collie  
Alaskan Malamute  
Pekingese



\*\* ✓: Carrier

Belgian Shepherd Dog	Borzoi	Giant Schnauzer
Papillon	Greenland Dog	Boston Terrier
Italian Greyhound	Old English Sheepdog	Norfolk Terrier
Large Münsterländer	Norwegian Elkhound	Tibetan spaniel
Bellington Terrier	Newfoundland	Rhodesian Ridgeback
Pyrenean Mountain Dog	Sussex Spaniel	New Guinea Singing Dog
Beagle	Picardy Spaniel	Bernese Mountain Dog
Doberman	Greyhound	English Foxhound
Kelly Blue Terrier	Eurasier	Toy Manchester Terrier
Yorkshire Terrier	Tibetan Mastiff	Irish Wolfhound
Czechoslovakian Wolfdog	Sloughi	Griffon Bruxellois
Pharaoh Hound	Miniature Dachshund	Irish Terrier
Mastiff	Komondor	Cirneco dell'Etna
Carolina Dog	Volpino	Glen
Bouvier des Flandres	Gordon Setter	Australian Shepherd
Shiba Inu	Boxer	Dalmatian
Brittany	French Bulldog	American Staffordshire Terrier
American Eskimo Dog	Boerboel	Field Spaniel
Abruzzo Mastiff	Flat-coated Retriever	Xoloitzcuintle
Lhasa Apso	Catehola Leopard Dog	Bracco
Cane Corso	Saarlooswolfdog	Finnish Spitz
Sweden Wa Hande dogs	Scotland Terrier	Greyhound
Portuguese Water Dog	✓ Siberian Husky	Azawakh
Chesapeake Bay Retriever	Miniature Schnauzer	Standard Poodle
Toy Poodle	Curl Bichon Frise	Miniature Pinscher
Chinese Crested Dog	Great Dane	Bullmastiff
Chihuahua	Leonberger	Curly-coated retriever
Cavalier King Charles Spaniel	Bearded Collie	Wire Hair Fox Terrier
Miniature Poodle	Pumi	
Peruvian Inca Orchid	German Shorthaired Pointer	
Otterhound	Border Collie	
Schipperke	Afghan Hound	
✓ Rottweiler	Whibit	
English Cocker Spaniel	Rat Terrier	
Labrador Retriever	English Setter	
Miniature Bull Terrier	Australian Cattle Dog	
Japanese Chin	Canis aureus	
Dachshund	American Cocker Spaniel	

\*\* ✓: Carrier





# CANINE BREED COMPOSITION CERTIFICATE

Certified breed analysis and genetic makeup for

*Lily*

## BREED BREAKDOWN

**Staffordshire Bull Terrier – 63%**

**Labrador Retriever – 22%**

**Dachshund- 15%**

LAB SAMPLE ID – LHK211213010

CASE REF: PETGENC1111NZ

7, March, 2022

DATE OF ANALYSIS

