Disorders & Traits Tested

Traits **20**

GENETIC TRAIT RELATED MARKERS TESTED	
Coat related traits	**15**
Hair related traits	**4**
Tail related traits	**1**

Disorders **134**

GENETIC DISORDER RELATED MARKERS TESTED	
Ophthalmic disorders	**23**
Dental and Oral disorders	**2**
Neurological disorders	**30**
Immunological disorders	**6**
Endocrine disorders	**3**
Skeletal disorders	**9**
Respiratory disorders	**1**
Hepatological disorders	**2**
Dermatological disorders	**8**
Metabolic disorders	**15**
Hematological disorders	**20**
Gastrointestinal disorders	**3**
Muscular disorders	**8**
Nephrological disorders	**4**

Traits Tested

COAT RELATED	Marker	Gene	Inheritance	Common Breeds
Classic Brown Coat	AGSCTD002	TYRP1	Recessive	Australian Shepherd, German Shepherd, Leonberger, Miniature American Shepherd
	AGSCTD130	TYRP1		
	AGSCTD134	TYRP1		
Uniform Black Coat	AGSCTD010	ASIP	Recessive	German Shepherd
	AGSCTD011	ASIP	Recessive	
Alopecia or Color Dilution	AGSCTD012	MLPH	Recessive	Multiple Breeds
	AGSCTD043	MLPH	Recessive	American Staffordshire Terrier, Beagle, Doberman Pinscher, German Pinscher, Large Munsterlander, Miniature Pinnscher, Rhodesian Ridgeback
Black, brown and grey melanistic muzzle mask	AGSCTD013	MC1R	Dominant Complex	Multiple Breeds
Grizzle coat, mixed blended hair with no discernible pattern	AGSCTD014	MC1R	Dominant Complex	Saluki and Afghan Hound
Dominant Black Coat	AGSCTD015	CBD103	Dominant Complex	Domesticated wolf breeds like German Shepard and Husky
Dominant Black Coat	AGSCTD044	CBD103	Dominant Complex	Domesticated wolf breeds like German Shepard and Husky
Harlequin patchy pattern coat	AGSCTD029	PSMB7	Dominant	Great Dane
Curly Coat	AGSCTD036	KRT71	Dominant Complex	Irish Water Spaniel, Standard Poodle
Improper Coat	AGSCTD048	RSPO2	Complex	Portuguese water dog
Variable degree white spotting to full white coat	AGSCTD153	KIT	Dominant	German Shepherd
HAIR RELATED		**Gene**	**Inheritance**	**Common Breeds**
Long Hair Phenotype	AGSCTD045	FGF5	Dominant Complex	Eurasier
	AGSCTD046	FGF5		Afghan Hound, Eurasier
	AGSCTD047	FGF5		Akita, Samoyed
	AGSCTD084	FGF5		Afghan Hound, Border Collie, Cocker Spaniel, Collie, Corgi, Dachshund, German Shepherd, Golden Retriever, Pomeranian, Samoyed
TAIL RELATED		**Gene**	**Inheritance**	**Common Breeds**
Short Tails (Bob Tails)	AGSCTD006	T	Dominant	Corgi

Disorders - Ophthalmic

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD001	**Progressive Retinal Atrophy**	CNGB1	Autosomal Recessive
	Progressive retinal atrophy is an inherited condition primarily affecting the dog's vision. Starting with degeneration of rod photoreceptors, leading to loss of night-vision, the disorder eventually leads to complete blindness.		
AGSCTD027	**Multifocal Retinopathy 1**	BEST1	Autosomal Recessive
	Multifocal Retinopathy is characterized by fluid accumulation under the detached retina resulting in gray, tan, orange or pink "blisters" in the eye. As, the progression is slow, lesions appear to heal with little or no vision loss.		
AGSCTD028	**Multifocal Retinopathy 2**	BEST1	Autosomal Recessive
	Multifocal Retinopathy is characterized by fluid accumulation under the detached retina resulting in gray, tan, orange or pink "blisters" in the eye. As, the progression is slow, lesions appear to heal with little or no vision loss.		
AGSCTD033	**Cone Rod Dystrophy 1**	PDE6B	Autosomal Recessive
	Cone Rod Dystrophy is an inherited eye disorder affecting the rod and cone photoreceptors resulting in visual acuity followed by severe loss of central and color vision that often progresses to blindness due to retinal degeneration.		
AGSCTD034	**Cone Rod Dystrophy 2**	IQCB1	Autosomal Recessive
	Cone Rod Dystrophy is an inherited eye disorder affecting the rod and cone photoreceptors resulting in visual acuity followed by severe loss of central and color vision that often progresses to blindness due to retinal degeneration.		
AGSCTD035	**Congenital Stationary Night Blindness**	RPE65	Autosomal Recessive
	Congenital Stationary Night Blindness is a slow, progressive, retinal degenerative disorder which is characterized by loss of night vision, progressing to low light and also possibly day vision.		
AGSCTD049	**Multifocal Retinopathy 3**	BEST1	Autosomal Recessive
	Canine multifocal retinopathy is characterized by multiple areas of retinal degeneration along with generalized retinal degeneration and affected dogs may exhibit acquired post-inflammatory changes, and fundus changes		
AGSCTD050	**Multifocal Retinopathy 3**	BEST1	Autosomal Recessive
	Canine multifocal retinopathy is characterized by multiple areas of retinal degeneration along with generalized retinal degeneration and affected dogs may exhibit acquired post-inflammatory changes, and fundus changes		
AGSCTD051	**Cone Rod Dystrophy 3**	ADAM9	Autosomal Recessive
	Cone Rod Dystrophy is an inherited eye disorder affecting the rod and cone photoreceptors resulting in visual acuity followed by severe loss of central and color vision that often progresses to blindness due to retinal degeneration.		
AGSCTD061	**Rod Cone Dysplasia 3**	PDE6A	Autosomal Recessive
	Rod cone dysplasia 3 is characterized by progressive retina atrophy including changes in reflectivity and appearance of a structure behind the retina resulting in loss of peripheral vision and night vision.		
AGSCTD066	**Primary Open Angle Glaucoma**	ADAMTS10	Autosomal Recessive
	Primary Open Angle Glaucoma is a genetic condition where microfibrils of eye are affected leading to increased pressure in the eye. This leads to slow loss of vision with eye pain, watery discharge, lethargy, loss of appetite, with swelling and bulging of the eyeball.		

Disorders – Ophthalmic (contd.)

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD071	**Golden Retriever Progressive Retinal Atophy 2**	TTC8	Autosomal Recessive
	Progressive retinal atrophy is an inherited disorder, characterized by late onset vision loss. The first sign is loss of vision in dim light that worsens progressively and culminates in total blindness. The symptoms include night blindness.		
AGSCTD073	**Progressive Retinal Atrophy**	CNGB1	Autosomal Recessive
	Progressive retinal atrophy is an inherited disorder, characterized by late onset vision loss. The first sign is loss of vision in dim light that worsens progressively and culminates in total blindness. The symptoms include night blindness. .		
AGSCTD079	**Achromatopsia 2**	CNGA3	Autosomal Recessive
	Achromatopsia 2 is an inherited eye disorder, characterized by early onset loss of cone photo-receptor function resulting in day blindness, total color blindness, decreased central visual acuity.		
AGSCTD080	**Achromatopsia (hemeralopia), AMAL**	CNGB3	Autosomal Recessive
	Achromatopsia, AMAL type is an inherited eye disorder, characterized by the loss of cone photo-receptor function resulting in day blindness, total color blindness, decreased central visual acuity. Onset varies from early to late in different breeds.		
AGSCTD081	**Progressive Retinal Atrophy CNGA1-related**	CNGA1	Autosomal Recessive
	Progressive Retinal Atrophy is an inherited, late onset, eye disorder, characterized by vision loss. The first sign is loss of vision in dim light that worsens progressively and culminates in blindness. The symptoms include night blindness.		
AGSCTD095	**Macular Corneal Dystrophy**	LOC489707	Autosomal Recessive
	Macular Corneal Dystrophy is an inherited eye disorder, characterized severe visual impairment in affected dogs. The symptoms include watery eyes, sensitivity to light glare, pain in the eye and corneal erosion.		
AGSCTD123	**Lens luxation**	ADAMTS17	Autosomal Recessive
	Lens luxation is an inherited disorder, characterized by breakdown of the lens zonules in the eye of the puppy. Symptoms include pain in the eye, increased tears, inflammation, cloudiness or redness of the eye.		
AGSCTD125	**Glaucoma**	ADAMTS17	Autosomal Recessive
	Characterized by vision loss, Glaucoma is a late onset disorder caused by increased intra ocular pressure. The symptoms include increase blurred vision, blue color Sclera, cloudy cornea, red eye, squinting and weak blink response.		
AGSCTD127	**Polyneuropathy, NDGR1- related**	NDRG1	Autosomal Recessive
	Degenerative Polyneuropathy results in slow wasting of muscles, exercise intolerance, gait abnormalities, ambulatory paraparesis, and difficulty in breathing due to involvement of the larynx and laryngeal folds in the throat.		
AGSCTD128	**Progressive Retinal Atrophy Basenji**	SAG	Autosomal Recessive
	Characterized by vision loss, the disorder has late onset and has been described in Basenji breeds. Starting with loss of vision in dim light, the condition has slow progression and culminates in total blindness.		
AGSCTD131	**Rod Cone Dysplasia 1a**	PDE6B	Autosomal Recessive
	Rod Cone Dysplasia is characterized by early onset loss of vision loss, which becomes more severe over time. These disorders affect the retina causing night blindness, loss of visual acuity, constriction of visual fields and complete blindness		
AGSCTD132	**Rod Cone Dysplasia 1a**	PDE6B	Autosomal Recessive
	Rod Cone Dysplasia is characterized by early onset loss of vision loss, which becomes more severe over time. These disorders affect the retina causing night blindness, loss of visual acuity, constriction of visual fields and complete blindness.		

Disorders – Dental and Oral

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD003	**Amelogenesis Imperfecta**	ENAM	Autosomal Recessive
	Amelogenesis Imperfecta is a common non-syndromic genetic condition caused by malfunction of enamel proteins, resulting in enamel hypoplasia or thinning, small and pointed teeth, rough surface with brown color, and greater gaps between teeth.		
AGSCTD041	**Hypomineralisation**	FAM20C	Autosomal Recessive
	Dental hypomineralization, also known as Raine Syndrome is an inherited dental disorder characterized by extensive wear of teeth, cracking of tooth enamel, brownish spots or brownish discoloration of teeth or pulpitis		

Disorders – Immunological

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD007	**C3 Deficiency**	C3	Autosomal Recessive
	C3 deficiency results in recurrent bacterial infections such as pneumonia, urinary tract infections and uterine infections due to compromised immunity with increased risk for muscle disease and glomerulonephropathy, a kidney disease.		
AGSCTD025	**Canine Leukocyte Adhesion Deficiency**	ITGB2	Autosomal Recessive
	Canine leukocyte adhesion deficiency is a primary immunodeficiency disorder characterized by recurrent bacterial infections in the presence of marked leukocytosis, impaired wound healing, fever, gingivitis, lameness, and enlarged lymph nodes.		
AGSCTD026	**Canine Leukocyte Adhesion Deficiency**	FERMT3	Autosomal Recessive
	Canine leukocyte adhesion deficiency is a primary immunodeficiency disorder characterized by recurrent bacterial infections in the presence of marked leukocytosis, impaired wound healing, fever, gingivitis, lameness, and enlarged lymph nodes.		
AGSCTD135	**Severe combined immunodeficiency**	RAG1	Autosomal Recessive
	Severe combined immunodeficiency autosomal, T-cell negative, B-cell negative, NK-positive is an immunological defect characterized by recurrent infections (Oral and respiratory), low immunity, chronic diarrhea and failure to thrive.		
AGSCTD137	**Severe combined immunodeficiency**	PRKDC	Autosomal Recessive
	Severe combined immunodeficiency autosomal, is an immunological defect characterized by recurrent infections (Oral and respiratory), low immunity, chronic diarrhea, reduced levels of immunoglobulins and lymphocytes and failure to thrive.		
AGSCTD154	**Severe combined immunodeficiency**	IL2RG	X-linked Recessive
	Severe combined immunodeficiency X-linked is an inherited disorder characterized by inability to fight recurrent systemic or localized infections of the eye, ear or respiratory system showing symptoms of chronic diarrhea, serious infections and failure to thrive.		

Disorders – Neurological

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD004	**Cerebellar ataxia**	SEL1L	Autosomal Recessive
	Cerebellar ataxia causes cerebellar shrinkage, leading to loss of balance and uncoordinated movements along with tremors, dizziness, hearing loss, weakening of limbs, head tilting, nystagmus, nausea and loss of appetite.		
AGSCTD005	**Benign Familial Juvenile Epilepsy**	LGI2	Autosomal Recessive
	Benign Familial Juvenile Epilepsy or focal epilepsy is a genetic disorder, characterized by the recurrent seizures in dogs with facial twitches, rhythmic jerks, hypersalivation, restlessness or behavioral changes with varying degree of severity.		
AGSCTD008	**Neuronal Ceroid Lipofuscinosis, 4A**	ARSG	Autosomal Recessive
	Neuronal Ceroid Lipofuscinosis is a severe neurological disorder with late-onset and slowly progressive cognitive and motor degeneration resulting in impaired vision, seizures, aggressive behavior, and increased sensitivity to loud noises.		
AGSCTD009	**Ataxia, Cerebellar, ATP1B2-related**	ATP1B2	Autosomal Recessive
	Ataxia is characterized by uncoordinated movements, loss of coordination and generalized ataxic gait starting at 4 weeks of age with seizures, showed pacing and circling and developed central blindness in affected dogs		
AGSCTD016	**Achromatopsia**	CNGB3	Autosomal Recessive
	Achromatopsia is an inherited eye disorder, characterized by cone photoreceptor dysfunction, leading to severely reduced or complete vision loss during daylight hours, photophobia, nystagamus and total colour-blindness.		
AGSCTD017	**Cerebellar Hypoplasia**	VLDLR	Autosomal Recessive
	Cerebellar hypoplasia, is non-progressive form of neurological condition resulting in inadequate development of cerebellum with poor motor skills, clumsiness, frequent falling, wide stance, tremors and vision problems.		
AGSCTD018	**Cerebellar Abiotrophy**	MUTYH	Unknown
	Cerebellar abiotrophy also known as neonatal cerebellar cortical degeneration (NCCD) is a neurodegenerative disorder affecting the cerebellum. Inheritance pattern is unclear.		
AGSCTD019	**Ataxia, cerebellar, ATP1B2-related**	ATP1B2 SDCA1	Autosomal Recessive
	Cerebellar Ataxia is an inherited neurological disorder, characterized by degeneration of cerebellum. The symptoms include ataxia, seizures, stumbling, staggering, tremors, hopping, falling and growth impairment.		
AGSCTD020	**Cerebellar Cortical Degeneration**	SNX14	Autosomal Recessive
	Cerebellar Cortical Degeneration is an inherited neurological condition, disrupting synaptic transmission and neuronal excitability with symptoms of dysmetric ataxia, marked truncal sway, tremors with rapid progression of the disorder after onset.		
AGSCTD024	**Neuronal Ceroid Lipofuscinosis 5**	CLN5	Autosomal Recessive
	The neuronal ceroid lipofuscinoses (NCLs) are a group of lysosomal storage disorders characterized by intraneuronal accumulation of fluorescent granules and early neuronal death.		

Disorders – Neurological (contd.)

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD052	**Degenerative myelopathy**	SOD1	Autosomal Recessive
	Degenerative myelopathy, also known as **chronic degenerative radiculomyelopathy,** is an inherited disorder affecting the spinal cord, resulting in slowly progressive hind limb weakness and paralysis.		
AGSCTD053	**Gangliosidosis GM1**	GLB1	Autosomal Recessive
	GM1 gangliosidosis is a lysosomal storage disorder caused by beta galactosidase deficiency and characterized by progressive neurological deterioration **including weight loss, ataxia, abnormal gait, tremors, strabismus and positional nystagmus.**		
AGSCTD054	**Gangliosidosis GM1**	GLB1	Autosomal Recessive
	GM1 gangliosidosis is a lysosomal storage disorder caused by beta galactosidase deficiency and characterized by progressive neurological deterioration **including weight loss, ataxia, abnormal gait, tremors, strabismus and positional nystagmus.**		
AGSCTD059	**Neuronal Ceroid Lipofuscinosis, 12**	ATP13A2	Autosomal Recessive
	Neuronal Ceroid Lipofuscinosis 12 is an inherited disorder, characterized by degeneration of Central Nervous System with affected dogs showing loss of vision, behavioral changes, cerebellar ataxia, tremors, and decline of cognitive and motor functions.		
AGSCTD060	**Neuronal Ceroid Lipofuscinosis, 6**	CLN6	Autosomal Recessive
	Neuronal Ceroid Lipofuscinosis 6 is an inherited disorder, characterized by degeneration of Central Nervous System with affected dogs showing loss of vision, behavioral changes, cerebellar ataxia, tremors, and decline of cognitive and motor functions.		
AGSCTD062	**Spongy Degenerative Cerebellar Ataxia**	KCNJ10	Autosomal Recessive
	Spongy Degenerative Cerebellar Ataxia, is an early onset inherited neurodegenerative disorder characterized by ataxiac gait, lack of co-ordination, poor balance, seizures, accompanied by stumbling, staggering, tremors, hopping, and falling.		
AGSCTD065	**Krabbe Disease**	GALC	Autosomal Recessive
	Krabbe Disease is an inherited neurological disorder with clinical signs of cerebellar ataxia/intention tremor, postural reaction deficit, stiffness, spastic paresis/paralysis, hearing loss, vision loss, motor and sensory neuropathy,		
AGSCTD075	**Polyneuropathy, ARHGEF10 related**	ARHGEF10	Autosomal Recessive
	Polyneuropathy is an inherited neurological disorder, with symptoms including change in gait, loss of bark, limb weakness, tremors, lack of coordination, difficulty in swallowing and atrophy.		
AGSCTD090	**Polyneuropathy, ARHGEF10 related**	FNIP2	Autosomal Recessive
	Polyneuropathy is an inherited neurological disorder, with symptoms including change in gait, loss of bark, limb weakness, tremors, lack of coordination, difficulty in swallowing and atrophy.		
AGSCTD093	**Polyneuropathy, RAB3GAP1-related**	RAB3GAP1	Autosomal Recessive
	Polyneuropathy is an inherited, early onset neurological disorder, characterized by dilated myelin sheaths of nerve cells. Symptoms include visual problems, laryngeal paralysis, regurgitation, gait abnormalities, ataxia and visual defects.		

Disorders – Neurological (contd.)

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD107	**Necrolapsy**	HCRTR2	Autosomal Recessive
	Necrolapsy is an inherited neurological disorder, characterized by abnormal nervous system. Affected dogs may exhibit sudden collapse and loss of movement with recovery in some time, excessive daytime sleepiness and sleep paralysis		
AGSCTD108	**Necrolapsy**	HCRTR2	Autosomal Recessive
	Necrolapsy is an inherited neurological disorder, characterized by abnormal nervous system. Affected dogs may exhibit sudden collapse and loss of movement with recovery in some time, excessive daytime sleepiness and sleep paralysis		
AGSCTD109	**Neuronal Ceroid Lipofuscinosis-1**	PPT1	Autosomal Recessive
	Neuronal Ceroid Lipofuscinosis, 1 is an inherited neurological disorder, characterized by progressive degeneration of central nervous system. Common symptoms include partial or total vision loss, behavior changes, abnormal gait, and seizures		
AGSCTD110	**Neuronal Ceroid Lipofuscinosis-10**	CTSD	Autosomal Recessive
	Neuronal Ceroid Lipofuscinosis, 10 is an inherited neurological disorder, characterized by progressive degeneration of central nervous system. Common symptoms include partial or total vision loss, behavior changes, abnormal gait, and seizures.		
AGSCTD111	**Neuronal Ceroid Lipofuscinosis-8**	CLN8	Autosomal Recessive
	Neuronal Ceroid Lipofuscinosis, 8 is an inherited neurological disorder, characterized by progressive degeneration of central nervous system. Common symptoms include partial or total vision loss, behavior changes, abnormal gait, and seizures.		
AGSCTD112	**Neonatal encephalopathy with seizures**	ATF2	Autosomal Recessive
	Neonatal encephalopathy with seizures is a serious inherited progressive brain disorder, characterized by weakness, mobility issues, and seizures in affected pups with uncoordinated movements and mental dullness.		
AGSCTD114	**Neuroaxonal dystrophy**	MFN2	Autosomal Recessive
	Neuroaxonal dystrophy is a neurological genetic disorder, characterized by progressive degeneration of the nerve cells. Symptoms include high stepping gait, poor coordination, stumbling, head tremors, incontinence, Vit E deficiency and secondary pneumonia.		
AGSCTD124	**Polyneuropathy**	NDRG1	Autosomal Recessive
	Degenerative Polyneuropathy results in slow wasting of muscles, exercise intolerance, gait abnormalities, ambulatory paraparesis, and difficulty in breathing due to involvement of the larynx and laryngeal folds in the throat.		
AGSCTD139	**Ataxia, Spinocerebellar, CAPN1-related**	CAPN1	Autosomal Recessive
	Spinocerebellar Ataxia is an inherited disorder characterized by abnormal coordination. The symptoms include ataxia, uncoordinated walk with stilted "toy soldier" leg movements, involuntary eye movement and growth impairment.		
AGSCTD147	**Tremors X-linked**	PLP1	X-linked Recessive
	Tremors X-linked is an inherited disorder characterized loss of coordination between brain and body. The male puppies have difficulties standing, eating and moving and show uncoordinated gait, leading to scuffing or dragging of the paws.		

Disorders – Endocrine

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD021	**Hypothyroidism**	TPO	Autosomal Recessive
	Hypothyroidism or deficiency in thyroid hormone, has early onset with varied clinical including dwarfism, mental retardation, skeletal development abnormalities, Lethargy, protruding eyes, constipation, tremors and spasticity.		
AGSCTD058	**Persistent Mullerian Duct Syndrome**	AMHR2	Autosomal Recessive
	PMDS is a type of XY disorder of sexual development (XY DSD), characterized by the presence of Müllerian duct derivatives in otherwise normal males with 50% of affected dogs are unilaterally or bilaterally cryptorchid		
AGSCTD083	**Dwarfism, Pituitary**	LHX3	Autosomal Recessive
	Dwarfism, Pituitary symptoms include body being longer than normal, legs shorter, bulging eyes, swollen abdomen, tongue sticking out and High-pitched puppy bark with respiratory and coordination issues.		

Disorders – Respiratory

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD023	**Primary ciliary dyskinesia**	CCDC39	Autosomal Recessive
	Primary Ciliary Dyskinesia results in early onset progressively respiratory distress with nasal discharge, chronic sneezing, coughing, exercise intolerance, respiratory distress, cyanosis and infertility in male. Acute bronchopneumonia may occur.		

Disorders – Hepatological

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD030	**Menkes Disease**	ATP7A	X-linked Recessive
	Menkes disease is an inherited, fatal, neurodegenerative disorder of copper deficiency with accumulation of copper and characterized by liver and brain degeneration, connective tissue abnormalities, coarse hair and failure to thrive.		
AGSCTD031	**Wilson Disease**	ATP7B	Autosomal Recessive
	Wilson disease, an inherited genetic disorder associated with copper accumulation resulting in hepatic cirrhosis and neuronal degeneration with fatigue, lack of appetite, jaundice, speech, poor coordination and muscle stiffness.		

Disorders – Skeletal

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD022	**Chondrodysplasia**	ITGA10	Autosomal Recessive
	Chondrodysplais is an inherited skeletal disorder associated with abnormalities in the development of cartilage tissues and symptoms include small stature, disproportionately short arms and legs, shortness of fingers and toes, broad short hands and feet.		
AGSCTD032	**Craniomandibular osteopathy**	SLC37A1	Autosomal Recessive
	Craniomandibular osteopathy is an early onset skeletal genetic disorder, characterized by abnormalities in jaws of dogs. The symptoms are Loss of appetite, bulging eyes, Jaw swelling, difficulty opening mouth and difficulty picking up food with mouth.		
AGSCTD076	**Osteogenesis Imperfecta, type III, COL1A1-related**	COL1A1	Autosomal Recessive
	Osteogenesis Imperfecta is an inherited skeletal disorder, characterized by fragile bones. The symptoms include spontaneous fracturing of the bones and teeth, loose joints, difficulty walking, pain, osteopenia and stunted growth.		
AGSCTD102	**Musladin-lueke syndrome**	ADAMTSL2	Autosomal Recessive
	Musladin-lueke syndrome is a congenital genetic defect characterized by defects in skeleton, heart, skin, and muscle. Dogs exhibit short outer toes, high set creased ears, flat skull, slant narrowed eyes, stiff gait, and seizures Severity is mild, moderate to severe.		
AGSCTD115	**Osteogenesis imperfecta**	COL1A2	Autosomal Recessive
	Osteogenesis imperfecta is an inherited disorder, characterized by fragile bones (soft bones). Affected dogs show spontaneous and frequent fractures of bone and teeth, stunned growth, difficulty in walking, pain and hearing loss.		
AGSCTD116	**Osteogenesis imperfecta Dachshund**	SERPINH1	Autosomal Recessive
	Osteogenesis imperfecta is an inherited disorder, characterized by fragile bones (soft bones). Affected dogs show spontaneous and frequent fractures of bone and teeth, stunned growth, difficulty in walking, pain and hearing loss.		
AGSCTD136	**Skeletal dysplasia (SD2)**	COL1A1	Autosomal Recessive
	This is an inherited disorder, characterized by dwarfism. Affecetd dogs have shoetened limbs but with normal body length and width. Radiological findings typically include shortened and slightly curved long bones with front legs more affected than hind.		
AGSCTD138	**Brachycephaly**	SMOC2	Multifactorial
	Brachycephalic dogs tend to have extremely shortened snouts that make them almost appear flat-faced and dogs with brachycephaly have a history of loud snoring and noisy breathing.		
AGSCTD148	**Vitamin D Deficiency, Rickets Type II**	VDR	Autosomal Recessive
	Vitamin D-deficency, rickets type II is an inherited disorder with end-organ resistance to the active Vitamin D hormone. The disorder is characterized by hypocalcemia, secondary hyperparathyroidism, hypomineralization of bones rickets and in some cases alopecia.		

Disorders – Dermatological

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD057	**Ichthyosis, SLC27A4-related**	SLC27A4	Autosomal Recessive
	Ichthyosis is a rare congenital hereditary disorder of skin, characterized by hyperkeratoses of different severity levels characterized by dry, wrinkled, thickened skin especially in the region of the eyes and nose.		
AGSCTD074	**Ichthyosis, SLC27A4-related**	SLC27A4	Autosomal Recessive
	Icthyosis is an inherited disorder, characterized by abnormal lesions on skin. The symptoms include scaly skin, thickening of the skin and footpads, thick, greasy flakes/scales and dandruff. Severity ranges from moderate to severe.		
AGSCTD077	**Ichthyosis, ASPRV1-related**	ASPRV1	Autosomal Recessive
	Icthyosis is an inherited disorder, characterized by abnormal lesions on skin. The symptoms include scaly skin, thickening of the skin and footpads, thick, greasy flakes/scales and dandruff. Severity ranges from moderate to severe.		
AGSCTD078	**Ectodermal Dysplasia**	FOX13	X-Linked Recessive
	Ectodermal Dysplasia is an inherited skin condition, with lack of hair on the forehead and back near the tail. Symptoms include abnormal nails, decreased skin color, large forehead, low nasal bridge, sparse hair and learning disabilities and frequent eye infections.		
AGSCTD088	**Hyperkeratosis, Palmoplantar**	FAM83G	Autosomal Recessive
	Hyperkeratosis, Palmoplantar is an inherited skin disorder, characterized by early onset, abnormal scaling of skin, horny protrusions on the rims of the footpads, hard pad surface, cracks, hard nails resulting in discomfort while walking.		
AGSCTD089	**Hyperkeratosis, Epidermolytic**	KRT10	Autosomal Recessive
	Epidermolytic Hyperkeratosis is an inherited skin disorder, characterized by abnormal scaling of skin with display of sloughing and blistering of the skin with rubbing. The footpads, claws, teeth and hair of affected dogs are typically normal.		
AGSCTD133	**Epidermolysis Bullosa, Dystrophic**	COL7A1	Autosomal Recessive
	Epidermolysis Bullosa, Dystrophic is a genetic disorder characterized by extreme fragility of the skin and mucosa, leading to unremitting blisters and erosion, bleeding in mouth and upper digestive system and defective wound healing.		
AGSCTD140	**Ichtyyosis Golden Retriever, TGM1-related**	TGM1	Autosomal Recessive
	Ichthyosis is a rare congenital hereditary disorder of skin, characterized by hyperkeratoses of different severity levels characterized by dry, wrinkled, thickened skin especially in the region of the eyes and nose.		

Disorders – Metabolic

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD037	**Cystinuria Type I-A**	SLC3A1	Autosomal Recessive
	Cystinuria Type I-A is an inherited metabolic disorder that affects kidney with increased urinary calculi formation, blockage of the urinary tract, inflammation of the bladder, blood in the urine, renal colic and kidney failure		
AGSCTD038	**Cystinuria Type II-A**	SLC3A1	Autosomal Dominant
	Cystinuria Type II-A is an inherited metabolic disorder that affects kidney with increased urinary calculi formation, blockage of the urinary tract, inflammation of the bladder, blood in the urine, renal colic and kidney failure		
AGSCTD039	**Cystinuria Type II-A**	SLC3A1	Autosomal Dominant
	Cystinuria Type II-A is an inherited metabolic disorder that affects kidney with increased urinary calculi formation, blockage of the urinary tract, inflammation of the bladder, blood in the urine, renal colic and kidney failure		
AGSCTD040	**Cystinuria Type II-B**	SLC7A9	Autosomal Dominant
	Cystinuria Type I-A is an inherited metabolic disorder that affects kidney with increased urinary calculi formation, blockage of the urinary tract, inflammation of the bladder, blood in the urine, renal colic and kidney failure		
AGSCTD055	**Glycogen Storage Disease**	GAA	Autosomal Recessive
	Glycogen storage diseases (GSD) is a severe inherited disorder with defective carbohydrate metabolism, leading to accumulation of glycogen in tissues, resulting in vomiting, progressive muscular weakness, heart disease and myocardial hypertrophy.		
AGSCTD067	**Glycogen Storage Disease-1a**	G6PC	Autosomal Recessive
	Glycogen Storage Disease-1a is a metabolic disorder characterized by inability to convert glucose-6-phosphate to glucose, resulting in weakness, chronic low blood sugar, lethargy, enlarged liver and anorexia with varied severity.		
AGSCTD068	**Gangliosidosis, GM1**	GLB1	Autosomal Recessive
	Gangliosidosis is an inherited metabolic disorder due to defective carbohydrate metabolism. The symptoms include vision loss, difficulties walking, loss of balance, head tremors, lethargy and weight loss.		
AGSCTD069	**Gangliosidosis, GM2, type II**	HEXB	Autosomal Recessive
	Glycogen Storage Disease-11 is an early onset, inherited metabolic disorder with, characterized by partial or total vision loss, behavior changes, abnormal gait, and seizures.		
AGSCTD072	**Glycogen Storage Disease IIIa**	AGL	Autosomal Recessive
	Glycogen storage disease IIIa is an inherited disorder, characterized by defective glycogen metabolism. Affected dog may not grow fast enough, and may have heat intolerance, bruising, hypoglycemia, enlarged liver, swollen belly and weak muscle tone.		
AGSCTD094	**L-2-Hydroxyglutaric Academia**	L2HGDH	Autosomal Recessive
	L-2-Hydroxyglutaric Academia is an inherited neurological and metabolic disorder, characterized by early onset neurological traits such as psychomotor impairment, seizures, ataxia, dementia, and tremors.		
AGSCTD098	**Mucopolysaccharidosis VII**	GUSB	Autosomal Recessive
	Mucopolysaccharidosis VII is an inherited disorder, characterized by skeletal abnormalities, retarded development, excessively lax joints, broad chests, low set ears, short muzzle, broad face, crooked legs with difficulty standing and walking difficulties.		

Disorders – Metabolic (contd.)

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD099	**Mucopolysaccharidosis IIIa**	SGSH	Autosomal Recessive
	Mucopolysaccharidosis IIIa is an inherited disorder, characterized by lysosomal accumulation and urinary excretion of heparan sulfate. The symptoms include growth retardation, skeletal deformities, corneal cloudiness, facial dysmorphia and neurological problems.		
AGSCTD100	**Mucopolysaccharidosis VII**	GUSB	Autosomal Recessive
	Mucopolysaccharidosis VII is an inherited disorder, characterized by skeletal abnormalities, retarded development, excessively lax joints, broad chests, low set ears, short muzzle, broad face, crooked legs with difficulty standing and walking difficulties.		
AGSCTD118	**Pyruvate Dehydrogenase Deficiency**	PDP1	Autosomal Recessive
	Pyruvate Dehydrogenase Deficiency leads to failure of the expelling waste products from the body efficiently. Affected dogs may show symptoms of nausea, vomiting, severe breathing problems, and an abnormal heartbeat.		
AGSCTD119	**Glycogen storage disease VII**	PFKM	Autosomal Recessive
	Glycogen storage disease VII is an inherited disorder, characterized by defective glycogen metabolism. Affected dog may not grow fast enough, and may have heat intolerance, bruising, hypoglycemia, enlarged liver, swollen belly and weak muscle tone.		

Disorders – Gastrointestinal

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD064	**Gallbladder Mucoceles**	ABCB4	Autosomal Dominant, Complex
	Gall bladder Mucocele results when there is a blockage within the fundus of gallbladder resulting in episodic symptoms of lack of appetite, vomiting and abdominal pain. Severe cases show gall bladder extension, necrosis of gallbladder and peritonitis.		
AGSCTD091	**Intestinal cobalamin malabsorption, CUBN-related**	CUBN	Autosomal Recessive
	Intestinal cobalamin malabsorption is an inherited disorder affecting bone marrow and gastric system. It is characterized by failure to thrive, neutropenia, decreased serum cobalamin, non-regenerative anemia, methylmalonic aciduria, and homocysteinemia.		
AGSCTD092	**Intestinal cobalamin malabsorption, CUBN-related**	CUBN	Autosomal Recessive
	Intestinal cobalamin malabsorption is an inherited disorder affecting bone marrow and gastric system. It is characterized by failure to thrive, neutropenia, decreased serum cobalamin, non-regenerative anemia, methylmalonic aciduria, and homocysteinemia.		

Disorders – Haematological

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD056	**Hemophilia B**	F9	Autosomal Recessive
	Hemophilia is an inherited hematological disorder characterized by uncontrolled bleeding due to absence of clotting factor IX in blood and affected dogs suffer from spontaneous and prolonged bleeding.		
AGSCTD063	**Factor VII Deficiency**	F7	Autosomal Recessive
	Factor VII deficiency, is an inherited blood clotting disorder, characterized by a deficiency or reduced activity of clotting factor VII protein with dogs exhibiting uncontrolled bleeding episodes with varying age of onset.		
AGSCTD082	**Scott Syndrome**	ANO6	Autosomal Recessive
	Scott Syndrome is an inherited blood disorder, characterized by excessive bleeding due to clotting factor deficiency. The symptoms include spontaneous, non-traumatic bleeding, nosebleeds, bruising, bleeding in joints, and excessive bleeding during teething.		
AGSCTD087	**Hypocatalasia**	CAT	Autosomal
	Hypocatalasia is an inherited disorder, due to deficiency of catalase enzyme activity in red blood cells. It results in progressive gangrene in the oral cavity with oral ulcers, difficulty in eating and frequent infections.		
AGSCTD117	**Bleeding disorder due to P2RY12**	P2RY12	Autosomal Recessive
	Bleeding disorder due to P2RY12 is characterized by excessive bleeding due to defective platelet function. Although spontaneous bleeding is uncommon, excessive bleeding following a trauma or surgery is reported in affected dogs.		
AGSCTD120	**Pyruvate kinase deficiency of erythrocyte**	PKLR	Autosomal Recessive
	Pyruvate kinase deficiency of erythrocyte is an inherited disorder, characterized by decreased number of red blood cells leading to inadequate supply of oxygen. Dog shows fatigue, lethargy, recurrent gallstones, jaundice and pale skin.		
AGSCTD121	**Pyruvate kinase deficiency of erythrocyte**	PKLR	Autosomal Recessive
	Pyruvate kinase deficiency of erythrocyte is an inherited disorder, characterized by decreased number of red blood cells leading to inadequate supply of oxygen. Dog shows fatigue, lethargy, recurrent gallstones, jaundice and pale skin.		
AGSCTD122	**Pyruvate kinase deficiency of erythrocyte**	PKLR	Autosomal Recessive
	Pyruvate kinase deficiency of erythrocyte is an inherited disorder, characterized by decreased number of red blood cells leading to inadequate supply of oxygen. Dog shows fatigue, lethargy, recurrent gallstones, jaundice and pale skin.		
AGSCTD126	**Polycythemia**	JAK2	Autosomal Dominant
	Polycythemia is an inherited blood disorder characterized by abnormal increase in count of red blood cells (RBC). The affected dog shows enlarged liver and spleen, fatigue, dizziness, shortness of breath, vision problems, night sweats and flushed face.		
AGSCTD129	**Prekallikrein Deficiency**	KLKB1	Autosomal Recessive
	Prekallikrein deficiency is a rare inherited disorder characterized by prolonged clotting time due to deficient Prekallikrein protein. Affected dogs may show presence of blood in the urine, gastrointestinal hemorrhage and excessive postoperative bleeding can occur.		

Disorders – Hematological (contd.)

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD141	**Thrombasthenia**	ITGA2B	Autosomal Recessive
	Thrombasthenia is an inherited blood disorder characterized by excessive bleeding due to defective platelet aggregation. Symptoms include hemorrhage, skin bruising, gum and nose bleeding, blood in urine and faeces or black faeces.		
AGSCTD142	**Thrombasthenia**	ITGA2B	Autosomal Recessive
	Thrombasthenia is an inherited blood disorder characterized by excessive bleeding due to defective platelet aggregation. Symptoms include hemorrhage, skin bruising, gum and nose bleeding, blood in urine and faeces or black faeces.		
AGSCTD143	**Thrombocytopaenia**	TUBB1	Autosomal Recessive
	Thrombocytopaenia is charecterized by excessive bleeding due to low platelet count. Affected dogs may show fever, lethargy, loss of appetite, weakness, heart murmur, bleeding of gums, skin bruises and blood in urine.		
AGSCTD144	**Thrombopathia**	RASGRP1	Autosomal Recessive
	Thrombopathia is characterized by excessive bleeding with abnormal platelets. The decreased platelet function can cause dogs to bleed excessively during an injury or surgery. Other symptoms are gingival bleeding and hematomas.		
AGSCTD145	**Thrombopathia**	RASGRP1	Autosomal Recessive
	Thrombopathia is characterized by excessive bleeding with abnormal platelets. The decreased platelet function can cause dogs to bleed excessively during an injury or surgery. Other symptoms are gingival bleeding and hematomas.		
AGSCTD146	**Trapped Neutrophil Syndrome**	VPS13B	Autosomal Recessive
	Trapped Neutrophil Syndrome is an inherited hematological disorder where neutrophils are affected and ability to fight illnesses decreases. Along with lack of immunity, slow weight gain and slow growth, dogs have depression, swollen joints and failure to thrive.		
AGSCTD149	**Von Willebrand disease I**	VWF	Autosomal Dominant and Recessive
	Von Willebrand disease III is an inherited bleeding disorder characterized by total or near-total absence of Willebrand factor (VWF) in the plasma, leading to a prolonged and excessive bleeding after injury, bleeding gums, blood in stool and skin bruising.		
AGSCTD150	**Von Willebrand disease II**	VWF	Autosomal Recessive
	Von Willebrand disease III is an inherited bleeding disorder characterized by total or near-total absence of Willebrand factor (VWF) in the plasma, leading to a prolonged and excessive bleeding after injury, bleeding gums, blood in stool and skin bruising.		
AGSCTD151	**Von Willebrand Disease III**	VWF	Autosomal Recessive
	Von Willebrand disease III is an inherited bleeding disorder characterized by total or near-total absence of Willebrand factor (VWF) in the plasma, leading to a prolonged and excessive bleeding after injury, bleeding gums, blood in stool and skin bruising.		
AGSCTD152	**Von Willebrand Disease III**	VWF	Autosomal Recessive
	Von Willebrand disease III is an inherited bleeding disorder characterized by total or near-total absence of Willebrand factor (VWF) in the plasma, leading to a prolonged and excessive bleeding after injury, bleeding gums, blood in stool and skin bruising.		

Disorders – Muscular

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD070	**Muscular Dystrophy, Duchenne type**	DMD	X-linked Recessive
	Duchene Muscular dystrophy is an inherited muscle disorder, characterized by stiff gait, weakening of muscles, difficulty swallowing, progressive generalized weakness, plantigrade stance, and muscle atrophy.		
AGSCTD096	**Myotonia**	CLCN1	Autosomal Recessive
	Myotonia is an inherited muscle disorder, characterized abnormal muscles. Affected dogs exhibit a stiff gait, experience trouble when rising, often suffer swollen tongues and may have difficulty swallowing		
AGSCTD097	**Muscular dystrophy, Duchenne type**	DMD	X-linked Recessive
	Duchene Muscular dystrophy is an inherited muscle disorder, characterized by stiff gait, weakening of muscles, difficulty swallowing, progressive generalized weakness, plantigrade stance, and muscle atrophy.		
AGSCTD101	**Muscular hypertrophy**	MSTN	Autosomal Recessive
	Muscular hypertrophy, also called as Bully Whippet – Whippet Double Muscling, is an inherited muscular disorder characterized by increased muscle mass with broad chest, strongly developed leg and neck musculature		
AGSCTD103	**Myasthenic syndrome, congenital**	CHAT	Autosomal Recessive
	Congenital Myasthenic is an inherited muscle disorder, characterized by severe generalized skeletal muscle weakness and fatigue, usually induced by exercise. Puppies also show inability to close the eyes, excessive drooling and difficulty breathing.		
AGSCTD104	**Myotonia**	CLCN1	Autosomal Recessive
	Myotonia is an inherited muscle disorder, characterized by muscle stiffness and weakness. Affected dogs exhibit a stiff gait, experience trouble when rising, suffer with swollen tongues and may have difficulty swallowing.		
AGSCTD105	**Myopathy, Great Dane**	BIN1	Autosomal Recessive
	Myopathy is an inherited muscle disorder, characterized by severe, progressive muscle atrophy in puppies. Symptoms include general weakness, exercise intolerance, muscle pain, limited joint movement and ventroflexion of head and neck.		
AGSCTD106	**Myotubular Myopathy**	MTM1	X-linked Recessive
	Myotubular Myopathy manifests with severe, progressive muscle atrophy in puppies. Symptoms include general weakness, exercise intolerance, muscle pain, limited joint movement and ventroflexion of head and neck.		

Disorders – Renal

Marker ID	Associated Condition Name and Description	Gene	Inheritance Pattern
AGSCTD042	**Renal Cystadenocarcinoma & Nodular Dermatofibrosis**	FLCN	Autosomal Dominant
	Renal Cystadenocarcinoma and Nodular Dermatofibrosis is a genetic disorder, which is inherited, that can lead to uterine, kidney, and dermal cancer with onset usually at around 6yrs		
AGSCTD085	**Polycystic Kidney Disease**	PKD1	Autosomal Dominant
	Polycystic Kidney Disease is an inherited kidney disorder, with high susceptibility for formation of cysts in kidneys. Symptoms include enlarged kidneys, thirst, frequent urination, lethargy, lack of appetite, weight loss, vomiting and high blood pressure.		
AGSCTD086	**Urolithiasis**	SLC2A9	Autosomal Recessive
	Urolithiasis is an inherited renal genetic condition with high susceptibility for formation of bladder stones (calculi). Symptoms include frequent urination, blood in the urine, lethargy, depression, reduced appetite, pain, vomiting and difficulty in urination.		
AGSCTD113	**Nephritis, X-linked**	COl4A5	X-linked Recessive
	Nephritis is a renal defect caused by defective collagen. Affected males exhibit proteinuria and develop rapidly progressive renal failure, which is usually fatal. Carrier females rarely exhibit mild symptoms.		

Product and Technology Limitations

- The test is limited to the genetic markers tested in the panel. Genetic disorders associated with genes not included in the panel cannot be identified.
- A genetic disorder can be caused by multiple variants of a gene. However, only selected variants (which are commonly reported for certain breeds) are included in the panel for testing. Canine DNA Report is not a diagnostic test, please consult with your veterinarian for available confirmatory options.
- The panel is based on current research. More and more genes and their association with disorders are being discovered. Newer versions of the panel will be released periodically.
- Complex polygenic genetic disorders caused by multiple genes are not identified in this test.
- Next Generation Sequencing technology was used to generate the data for analysis. Next Generation Sequencing (NGS) is the latest technology for multi-gene sequencing with 99% analytical sensitivity.
- For Research Use Only, Not for diagnostic uses.