CombiBreed®
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Analysis Certificate

H321 CombiBreed Australian Shepherd

Customer Info

Name	:	Tanja Hembes
Adress	:	Hauptstrasse 46
Zip Code / City	:	56379 Weinähr - 56379 (Rheinland-Pfalz)
Customer no.	:	105479

Animal Info

Name	:	Kraftbrewd´s You will be in my Heart forever
Animal ID	:	238122
Breed	:	Australian Shepherd
Sex	:	Male
Date of Birth	:	4.6.2024
VHL ID	:	H672558

Sample Info

Order number	:	EN72655
Sample type	:	Blood
Certificate number	:	H128010
Test date	:	10.10.2025

Witness Sampling Statement available.

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VHLGenetics®
DNA is our core

Health Conditions

An explanation of these results is accessible in our Online Results Portal, which can be found in your account on the Combibreed Webshop. Within this portal, you will also discover comprehensive details for each test, including the breed relevance associated with each DNA test.

Breed Relevant Test Results

Code	Test Name	Gene	Mode of Inheritance	Result
H904	Achromatopsia 3 (Day Blindness)	CNGB3	Autosomal Recessive	Normal
H871	CMR1 (Canine Multifocal Retinopathy)	BEST1	Autosomal Recessive	Normal
H705	Collie Eye Anomaly CEA, CH	NHEJ1	Autosomal Recessive	Normal
H673	Degenerative Myelopathy Exon 2 (DM Exon 2)	SOD1	Autosomal Recessive with Incomplete Penetrance	Normal
H672	Exercise Induced Collapse, EIC	DNM1	Autosomal Recessive	Normal
H781	Hereditary Ataxia (SCA) - Australian Shepherd	PNPLA8	Autosomal Recessive	Normal
H809	Hereditary Cataract (HC, HSF4-1) – Australian Shepherd	HSF4	Autosomal Dominant with Incomplete Penetrance	Normal
H811	Hyperuricemia (HUU)	SLC2A9	Autosomal Recessive	Normal
H277	Hyposegmentation of Granulocytes (HG) – Australian Shepherd	LMBR1L	Autosomal Recessive	Normal
H778	Junctional Epidermolysis Bullosa (JEB, LAMB3-related) – Australian Shepherd	LAMB3	Autosomal Recessive	Normal
H746	Malignant Hyperthermia (MH) – Dog	RYR1	Autosomal Dominant	Normal
H629	MDR1 Multi Drug Resistance - Dog	ABCB1	Autosomal Dominant with Incomplete Penetrance	Normal
H289	Neuroaxonal Dystrophy (NAD) - Miniature American Shepherd	RNF170	Autosomal Recessive	Normal
H330	Neuronal Ceroid Lipofuscinosis 6 (NCL6) – Australian Shepherd	CLN6	Autosomal Recessive	Normal
H968	Primary Ciliary Dyskinesia (PCD) – Australian Shepherd	STK36	Autosomal Recessive	Normal
H704	Progressive Retinal Atrophy (prcd-PRA)	PRCD	Autosomal Recessive	Normal
H594	Startle Disease – Miniature American Shepherd	GLRA1	Autosomal Recessive	Normal
H677	Von Willebrand Disease Type 1	VWF	Autosomal Recessive	Normal

Other Tests

Genetic traits are often influenced by other genetic traits and environmental factors. For in-depth insight into these genetic traits you can visit the online portal.

Code	Test Name	Gene	Mode of Inheritance	Result	Phenotype

Code	Test Name	Gene	Mode of Inheritance	Result	Phenotype
H487	Tail Length (Brachyury, T-Locus, Natural Bobtail) – Dog	T	Autosomal Dominant	Normal	--

Trait Characteristics

Coat colour and patterns are caused by the interaction of several genetic traits. For in-depth insights into these genetic traits, you can visit the online portal with test results or access the knowledgebase via the CombiBreed webshop.

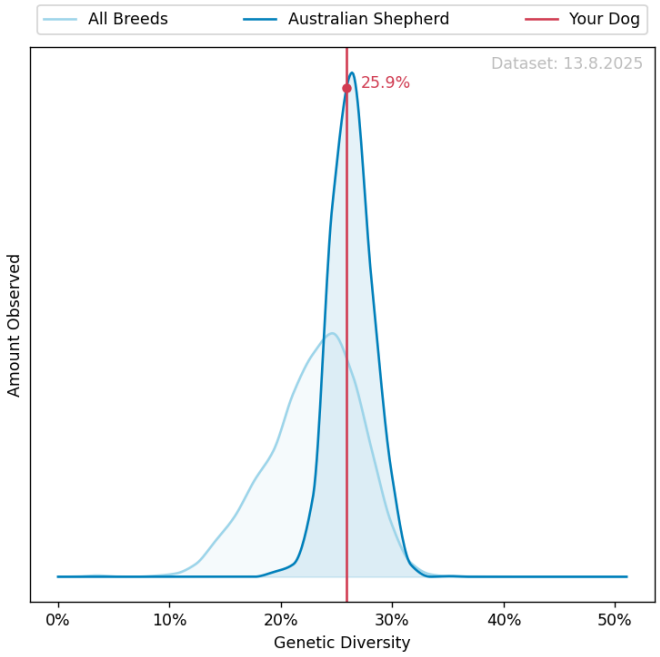
Coat Patterns

Code	Test Name	Gene	Mode of Inheritance	Result	Phenotype
H630	Coat Colour Merle	PMEL	Autosomal Incomplete Dominant	N/N	No effect

The provided sample was collected by an independent individual who verified the identity of the animal. For more information, please refer to the attached Witness Sampling Statement form.

On behalf of VHLGenetics B.V.,
A. de Lange MBA

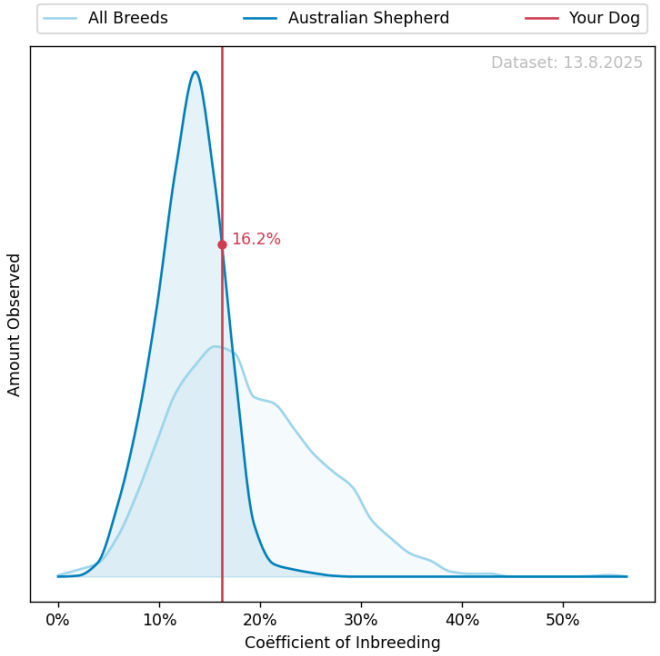
Genetic Information



Diversity/Heterozygosity

Heterozygosity in dogs refers to the genetic situation where a dog inherits two different alleles (gene variants) for a specific trait or gene locus from its parents. This genetic diversity contributes to the variation seen in physical traits, behaviors, and health among individual dogs and different breeds. Maintaining a certain level of heterozygosity is important in breeding programs to avoid an excessive accumulation of harmful recessive traits and promote overall genetic health within dog populations.

*In case there is an insufficient amount of animals for your specific breed, only a comparison with all breeds will be shown.



Coefficient of Inbreeding

The Coefficient of Inbreeding (COI) in dogs is a numerical measure that quantifies the probability of two copies of the same gene being inherited from a common ancestor. In simpler terms, it reflects how closely related the parents of a dog are within their family tree. A higher COI indicates a higher likelihood of the dog inheriting identical genes from both parents, which can lead to an increased risk of passing on genetic disorders or health issues.

*In case there is an insufficient amount of animals for your specific breed, only a comparison with all breeds will be shown.

Modes of Inheritance

Autosomal Co-Dominant: A mode of inheritance where the affected and normal alleles are expressed equally, leading to an intermediate phenotype when both alleles are present in carriers.

Autosomal Dominant: A single copy of a dominant allele from one parent is sufficient to express the disease/trait. Individuals with at least one dominant allele will exhibit the trait.

Autosomal Dominant with Incomplete Penetrance: A genetic inheritance pattern that functions as normal Autosomal Dominant. However, carriers are not guaranteed to express the trait.

Autosomal Incomplete Dominant: A mode of inheritance where the phenotype is dependent on the number of copies present. Individuals with a single copy of the affected allele express a version of the trait specific to carriers. This is often an intermediate/blended version of the homozygous phenotypes. Individuals with two copies express the version specific to affected. This inheritance pattern is also known as semi-dominant or partial dominant.

Autosomal Recessive: Two copies of a recessive allele must be present for the trait to be expressed. If they have one recessive allele, they are a carrier who do not exhibit the trait, though can pass on the recessive allele.

Autosomal Recessive Lethal: A genetic inheritance pattern where an individual must inherit two copies of the recessive allele to express a lethal trait, typically resulting in spontaneous abortion, stillbirth or early death.

Autosomal Recessive with Incomplete Penetrance: A genetic inheritance pattern that functions as normal Autosomal Recessive. However, affected individuals are not guaranteed to express the disease/trait.

Mitochondrial: Genes located in the mitochondria, outside the cell nucleus, are inherited from the mother. Both sons and daughters can inherit these genes, but only daughters pass them on to their offspring.

Multifactorial: Disease/trait is influenced by multiple genetic and/or environmental factors, and may be difficult to predict.

Resistance/Susceptibility: The genetic predisposition of an individual or organism to either resist or be susceptible to a particular condition, disease, or treatment.

Risk factor: A risk factor in genetics refers to a specific genetic variation, trait, or condition that increases the likelihood of an individual developing a particular disease or health issue.

Unknown: Refers to cases where the mode of inheritance associated with the mutation is not yet (fully) identified or understood.

X-Linked Dominant: Dominant alleles located on the X chromosome result in the expression of the disease or trait. In females, a single copy of the allele is sufficient. In males, who have only one X chromosome, presence of the dominant allele leads to the trait's expression.

X-Linked Incomplete Dominant: A mode of inheritance where the phenotype is dependent on the number of copies present. Females with a single copy of the affected allele express a version of the trait specific to carriers. Females with two copies, and males carrying the allele, express the version specific to affected animals. This pattern of inheritance is also known as X-linked Semi-Dominant.

X-Linked Recessive: Dominant alleles located on the X chromosome result in the expression of the disease or trait. In females, who have two X-chromosomes, two copies of the allele are needed. In males, who have only one X chromosome, presence of the recessive allele already leads to the trait's expression.

Y-Linked: Males have one Y chromosome, females have none. This chromosome will always pass on to male offspring. Genes on the Y chromosome are passed on exclusively and always from father to son. Traits determined by Y-linked genes are therefore inherited down the paternal lineage.

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Zeugnis zur Probennahme (Seite 1 / 1)

Anleitung:

- Für jede Probe muss ein eigenes Formular ausgefüllt werden;
- Die Probennahme wird durch den Zeugen durchgeführt bzw. bestätigt;
- Es werden nur Formulare bearbeitet, für die ein bezahlter Auftrag im Webshop existiert;
- Das ausgefüllte Formular muss gemeinsam mit der Probe ins Labor geschickt werden;
- Unvollständig ausgefüllte Formulare werden nicht bearbeitet.

Angaben zum Zeugen *	
Firma:	Tierarztpraxis zum Gelbachtal Dr. med. vet Tanja Hembes Hauptstraße 46 56379 Weinähr Mobil 01714451559 Tel. 026047156
Name:	
Beruf:	z.B. Tierarzt, Notar, etc.
Adresse:	
PLZ:	
Ort:	
E-Mail:	tanja-hembes@t-online.de
Telefon:	

Tierarztpraxis zum Gelbachtal
Dr. med. vet Tanja Hembes
Hauptstraße 46
56379 Weinähr
Mobil 01714451559
Tel. 026047156

Ggf. Firmen- oder Tierarzt-Stempel

Angaben zum Tier / Name *	Chip- oder Registrier-Nummer *	VHL-ID
Kraftbrewd's You will be in my heart forever	E 238122	H672558 H672558

* Pflichtfelder

Zeugenaussage

Hiermit erkläre ich, dass die Registrierungsdaten des oben genannten Tieres mit den Angaben auf der Bestellung übereinstimmen. Außerdem erkläre ich, dass das Probenmaterial von den auf diesem Formular und Auftrag aufgeführten Tieren stammt.

Ort Wunch Datum 09/09/2025 Name _____ Unterschrift Tanja Hembes