Inqaba Biotechnical Industries (Pty) Ltd
Animal Genetics Division

Co. Reg. No: 2001/011245/07
VAT No: 4150197251

B Locus (TYRP1)

Client Name:	Elisabeth Beccaro (ELI001)	Report No:	ZO2023/5142/20230116/#39006
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Profile:	DG2023/42217	Species:	Canis lupus familiaris / Canine / Dog
Name:	Gilda	Microchip #:	981 020 000 817 821
Breed:	Rhodesian Ridgeback	Registration #:	ZA009944B21

Test: [B Locus (Can)] B Locus (TYRP1)

Results:		
c.121T>A	TT	BCBC
c.991C>T	CT	BSbS
c.1033delCCT	CCT/CCT	BDBD
Final Conclusion	Bb	Carrying brown

Sample Type: Whole Blood (EDTA) Extraction Method: DNA Extraction: D4069 Test Type: Genetic Colour

[B Locus (Can)] B Locus (TYRP1)

The B locus or Tyrosinase Related Protein TYRP1 gene is associated with eumelanin production.

The mutation described in this report contains SNP mutation c.121 T>A in the TYRP1 gene, designated BC for T and bC for A. Similarly, SNP mutation c.991C>T in the TYRP1 gene is designated BS for C and bS for T. The INDEL mutation c.1033_1036delCCT in the TYRP1 gene is designated BD for CCT and bD for the deletion. The SNP mutation c.555T>G uniquely identified in Australian Shepherds, designates BA for the T and bA for the G.

*A compound heterozygote result occurs when there are two b-alleles at different mutation sites. The final colour of the individual is dependent on whether:

a) the b-alleles come from the same parent (the individual does not show the brown colour but carries brown) OR

b) the b-alleles come from both parents (the individual is brown in colour)

Both parents will need to be tested for the B-locus to conclude the phenotype of a compound heterozygote.

As the mutations present with autosomal recessive inheritance, two mutant alleles are required to confer the phenotype.

References: Schmutz et al 2002. TYRP1 and MC1R genotypes and their effects on coat color in dogs. Mammalian Genome 7, pp380-387. Schmutz and Berryere, 2007. Genes affecting coat colour and pattern in domestic dogs: a review. Animal Genetics 38, pp539-549. Jancuskova et al 2018. TYRP:c.555T>G is a recurrent mutation found in Australian Shepherd and Miniature American Shepherd dogs. Animal Genetics 49, 496-501.

Disclaimer:
Whatever is contained in this report is subject to the following:

This report does not disregard the existence of any rare or unknown variant within this gene or other gene(s) that may results in the same or similar trait. Multiple mutations and/or gene(s) may contribute to the overall trait observed.

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The DNA profile is based on a preliminary marker panel that is subject to modification pending additional genetic information.

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