

GEPHE SUMMARY

	Gephebase Gene		GepheID
Agouti (ASIP) (<a +agouti+(asip)^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+Agouti+(ASIP)^#gephebase-summary-title)		GP00001978	
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Morphology (<a +morphology^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait+Category="+Morphology^#gephebase-summary-title)			
	Trait		
Coloration (coat) (<a +coloration+(coat)^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+Coloration+(coat)^#gephebase-summary-title)			
	Trait State in Taxon A		
light-brown and white individuals			
	Trait State in Taxon B		
black and dark-brown coat colors ; Magaheem and Sofor			
	Ancestral State		
Taxon A			
	Taxonomic Status		
Domesticated (<a +domesticated^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Domesticated^#gephebase-summary-title)			
Taxon A		Taxon B	
	Latin Name		Latin Name
Camelus dromedarius (<a +camelus+dromedarius^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Camelus+dromedarius^#gephebase-summary-title)		Camelus dromedarius (<a +camelus+dromedarius^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Camelus+dromedarius^#gephebase-summary-title)	
	Common Name		Common Name
Arabian camel		Arabian camel	
	Synonyms		Synonyms
Arabian camel; camel; dromedaries; dromedary; dromedary camel; one-humped camel; Camelus dromedarius Linnaeus, 1758		Arabian camel; camel; dromedaries; dromedary; dromedary camel; one-humped camel; Camelus dromedarius Linnaeus, 1758	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Laurasiatheria; Cetartiodactyla; Tylopoda; Camelidae; Camelus		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Laurasiatheria; Cetartiodactyla; Tylopoda; Camelidae; Camelus	
	Parent		Parent
Camelus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9836)		Camelus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9836)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
9838 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9838)		9838 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9838)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Mus musculus
Asip		Q03288 (http://www.uniprot.org/uniprot/Q03288)	
	Synonyms		GenebankID or UniProtKB
As; ASP; A<y>; ASIP; a		()	
	String		
10090.ENSMUSP00000029123 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=10090.ENSMUSP00000029123)			
	Sequence Similarities		
-			
	GO - Molecular Function		
GO:0031779 : melanocortin receptor binding (https://www.ebi.ac.uk/QuickGO/term/GO:0031779)			
GO:0031781 : type 3 melanocortin receptor binding (https://www.ebi.ac.uk/QuickGO/term/GO:0031781)			
GO:0031782 : type 4 melanocortin receptor binding (https://www.ebi.ac.uk/QuickGO/term/GO:0031782)			

GO:0008343 : adult feeding behavior
 (https://www.ebi.ac.uk/QuickGO/term/GO:0008343)
 GO:0006091 : generation of precursor metabolites and energy
 (https://www.ebi.ac.uk/QuickGO/term/GO:0006091)
 GO:0071514 : genetic imprinting (https://www.ebi.ac.uk/QuickGO/term/GO:0071514)
 GO:0009755 : hormone-mediated signaling pathway
 (https://www.ebi.ac.uk/QuickGO/term/GO:0009755)
 GO:0042438 : melanin biosynthetic process
 (https://www.ebi.ac.uk/QuickGO/term/GO:0042438)
 GO:0032438 : melanosome organization
 (https://www.ebi.ac.uk/QuickGO/term/GO:0032438)
 GO:0032402 : melanosome transport
 (https://www.ebi.ac.uk/QuickGO/term/GO:0032402)
 GO:0043473 : pigmentation (https://www.ebi.ac.uk/QuickGO/term/GO:0043473)
 GO:0048023 : positive regulation of melanin biosynthetic process
 (https://www.ebi.ac.uk/QuickGO/term/GO:0048023)
 GO:0040030 : regulation of molecular function, epigenetic
 (https://www.ebi.ac.uk/QuickGO/term/GO:0040030)

GO - Cellular Component

GO:0005576 : extracellular region (https://www.ebi.ac.uk/QuickGO/term/GO:0005576)
 GO:0005623 : cell (https://www.ebi.ac.uk/QuickGO/term/GO:0005623)

Yes (https://www.gephebase.org/search-criteria?/and+Presumptive Null=~Yes~#gephebase-summary-title) Presumptive Null

Coding (https://www.gephebase.org/search-criteria?/and+Molecular Type=~Coding~#gephebase-summary-title) Molecular Type

Deletion (https://www.gephebase.org/search-criteria?/and+Aberration Type=~Deletion~#gephebase-summary-title) Aberration Type

1-9 bp Deletion Size

1-bp deletion at position 23 resulting in frameshift Molecular Details of the Mutation

Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Candidate Gene~#gephebase-summary-title) Experimental Evidence

Polymorphisms in MC1R and ASIP Genes are Associated with Coat Color Variation in the Arabian Camel. (2018) (https://pubmed.ncbi.nlm.nih.gov/29893870) Main Reference

Almathen F; Elbir H; Bahbahani H; Mwacharo J; Hanotte O Authors

Pigmentation in mammals is primarily determined by the distribution of eumelanin and pheomelanin, the ratio of which is mostly controlled by the activity of melanocortin 1 receptor (MC1R) and agouti signaling protein (ASIP) genes. Using 91 animals from 10 Arabian camel populations, that included the 4 predominant coat color phenotypes observed in the dromedary (light brown, dark brown, black, and white), we investigated the effects of the MC1R and ASIP sequence variants and identified candidate polymorphisms associated with coat color variation. In particular, we identified a single nucleotide polymorphism (SNP), found in the coding region of MC1R (901C/T), linked to the white coat color, whereas a 1-bp deletion (23delT/T) and a SNP (25G/A) in exon 2 of ASIP are associated with both black and dark-brown coat colors. Our results also indicate support that the light-brown coat color is likely the ancestral coat color for the dromedary. These sequence variations at the MC1R and ASIP genes represent the first documented evidence of candidate polymorphisms associated with Mendelian traits in the dromedary. Abstract

Comparative FISH-Mapping of MC1R, ASIP, and TYRP1 in New and Old World Camelids and Association Analysis With Coat Color Phenotypes in the Dromedary (Camelus dromedarius). (2019) (https://pubmed.ncbi.nlm.nih.gov/31040864) Additional References

RELATED GEPHE

1 (Kit (type III receptor protein-tyrosine kinase)) (https://www.gephebase.org/search-criteria?/or+Taxon ID=~9838~/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title) Related Genes

No matches found. Related Haplotypes

EXTERNAL LINKS

COMMENTS

https://omia.org/OMIA000201/9838/

