

GEPHE SUMMARY

FOXI3 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^FOXI3^#gephebase-summary-title)	Gephebase Gene	GP00000351	GephelD
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Morphology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Morphology^#gephebase-summary-title)	Trait		
Hair (hypotrichosis) (https://www.gephebase.org/search-criteria?/and+Trait=^Hair (hypotrichosis)^#gephebase-summary-title)	Trait State in Taxon A		
Canis familiaris - various breeds	Trait State in Taxon B		
Canis familiaris - various breeds	Ancestral State		
Taxon A	Taxonomic Status		
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Domesticated^#gephebase-summary-title)			
Taxon A		Taxon B	
Canis lupus	Latin Name	Canis lupus familiaris	Latin Name
(https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Canis lupus^#gephebase-summary-title)		(https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Canis+lupus familiaris^#gephebase-summary-title)	
gray wolf	Common Name	dog	Common Name
gray wolf; grey wolf; Canis lupus Linnaeus, 1758	Synonyms	Canis canis; Canis domesticus; Canis familiaris; dog; dogs; Canis familiaris Linnaeus, 1758;	Synonyms
	Rank	Canis lupus familiaris Linnaeus, 1758	Rank
species	Lineage	subspecies	Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Laurasiatheria; Carnivora; Caniformia; Canidae; Canis		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Laurasiatheria; Carnivora; Caniformia; Canidae; Canis; Canis lupus	
Canis () - (Rank: genus)	Parent	Canis lupus (gray wolf) - (Rank: species)	Parent
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9611)	NCBI Taxonomy ID	(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9612)	NCBI Taxonomy ID
9612		9615	
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9612)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9615)	
No	is Taxon A an Infraspecies?	No	is Taxon B an Infraspecies?

GENOTYPIC CHANGE

FOXI3	Generic Gene Name	UniProtKB Canis lupus familiaris
-	Synonyms	GenebankID or UniProtKB
9615.ENSCAFP00000041322 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=9615.ENSCAFP00000041322)	String	AM998820 (https://www.ncbi.nlm.nih.gov/nuccore/AM998820)
	Sequence Similarities	
-	GO - Molecular Function	
GO:0043565 : sequence-specific DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043565)		
GO:0000981 : DNA-binding transcription factor activity, RNA polymerase II-specific (https://www.ebi.ac.uk/QuickGO/term/GO:0000981)		
GO:0009653 : anatomical structure morphogenesis	GO - Biological Process	

(https://www.ebi.ac.uk/QuickGO/term/GO:0009653)	
GO:0006357 : regulation of transcription by RNA polymerase II	
(https://www.ebi.ac.uk/QuickGO/term/GO:0006357)	
GO:0030154 : cell differentiation (https://www.ebi.ac.uk/QuickGO/term/GO:0030154)	GO - Cellular Component
GO:0005634 : nucleus (https://www.ebi.ac.uk/QuickGO/term/GO:0005634)	Presumptive Null
Yes (https://www.gephebase.org/search-criteria?/and+Presumptive Null=%27Yes%27#gephebase-summary-title)	Molecular Type
Coding (https://www.gephebase.org/search-criteria?/and+Molecular Type=%27Coding%27#gephebase-summary-title)	Aberration Type
Insertion (https://www.gephebase.org/search-criteria?/and+Aberration Type=%27Insertion%27#gephebase-summary-title)	Insertion Size
1-9 bp	
Frameshift; 7-bp duplication within exon 1	Molecular Details of the Mutation
Association Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=%27Association Mapping%27#gephebase-summary-title)	Experimental Evidence
A mutation in hairless dogs implicates FOXI3 in ectodermal development. (2008) (https://pubmed.ncbi.nlm.nih.gov/18787161)	Main Reference
Dr Åberg Åller C; Karlsson EK; Hyt Ånen MK; Perloski M; Dolf G; Sainio K; Lohi H; Lindblad-Toh K; Leeb T	Authors
Mexican and Peruvian hairless dogs and Chinese crested dogs are characterized by missing hair and teeth, a phenotype termed canine ectodermal dysplasia (CED). CED is inherited as a monogenic autosomal semidominant trait. With genomewide association analysis we mapped the CED mutation to a 102-kilo-base pair interval on chromosome 17. The associated interval contains a previously uncharacterized member of the forkhead box transcription factor family (FOXI3), which is specifically expressed in developing hair and teeth. Mutation analysis revealed a frameshift mutation within the FOXI3 coding sequence in hairless dogs. Thus, we have identified FOXI3 as a regulator of ectodermal development.	Abstract
	Additional References

RELATED GEPHE

4 (FGF5, R-spondin-2 (RSPO2), SGK3, KRT71) (https://www.gephebase.org/search-criteria?/or+Taxon ID=%279612%27/and+Trait=Hair/or+Taxon ID=%279615%27/and+Trait=Hair/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

@HeterozygoteAdvantage (homozygous embryonic lethal) <https://omia.org/OMIA000323/9615/>