

GEPHE SUMMARY

FGF5 (https://www.gephebase.org/search-criteria?/and+GeneGephebase=~FGF5~#gephebase-summary-title)	Gephebase Gene	GP00002443	GepheID
	Entry Status	Courtier	Main curator
	Published		

PHENOTYPIC CHANGE

Morphology (https://www.gephebase.org/search-criteria?/and+TraitCategory=~Morphology~#gephebase-summary-title)		Trait Category	
Hair length (https://www.gephebase.org/search-criteria?/and+Trait=~Hairlength~#gephebase-summary-title)		Trait	
WT hair		Trait State in Taxon A	
recessive long hair in Corgis dogs		Trait State in Taxon B	
Taxon A		Ancestral State	
Domesticated (https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=~Domesticated~#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
Canis lupus familiaris (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Canis+lupus+familiaris~#gephebase-summary-title)		Canis lupus familiaris (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Canis+lupus+familiaris~#gephebase-summary-title)	
dog		dog	
Canis canis; Canis domesticus; Canis familiaris; dog; dogs; Canis familiaris Linnaeus, 1758; Canis lupus familiaris Linnaeus, 1758		Canis canis; Canis domesticus; Canis familiaris; dog; dogs; Canis familiaris Linnaeus, 1758; Canis lupus familiaris Linnaeus, 1758	
subspecies		subspecies	
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		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 lupus (gray wolf) - (Rank: species) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9612)		Canis lupus (gray wolf) - (Rank: species) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9612)	
9615 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9615)		9615 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9615)	
No		Yes	
		Corgi breed	
		Taxon B Description	

GENOTYPIC CHANGE

Fgf5		Generic Gene Name		UniProtKB Mus musculus
go; Fgf-5; HBGF-5; angora		Synonyms		GenebankID or UniProtKB
10090.ENSMUSP00000031280 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=10090.ENSMUSP00000031280)		String		ABB87177 (https://www.ncbi.nlm.nih.gov/nucore/ABB87177)
Belongs to the heparin-binding growth factors family.		Sequence Similarities		
GO:0008083 : growth factor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0008083)		GO - Molecular Function		
GO:0005104 : fibroblast growth factor receptor binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005104)		GO - Biological Process		

GO:0008283 : cell proliferation (<https://www.ebi.ac.uk/QuickGO/term/GO:0008283>)
GO:0008284 : positive regulation of cell proliferation (<https://www.ebi.ac.uk/QuickGO/term/GO:0008284>)
GO:0051781 : positive regulation of cell division (<https://www.ebi.ac.uk/QuickGO/term/GO:0051781>)
GO:0008543 : fibroblast growth factor receptor signaling pathway (<https://www.ebi.ac.uk/QuickGO/term/GO:0008543>)
GO:0010001 : glial cell differentiation (<https://www.ebi.ac.uk/QuickGO/term/GO:0010001>)
GO:0023019 : signal transduction involved in regulation of gene expression (<https://www.ebi.ac.uk/QuickGO/term/GO:0023019>)

GO - Cellular Component

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

No (<https://www.gephebase.org/search-criteria?/and+Presumptive Null=~No~#gephebase-summary-title>)

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

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

Nonsynonymous

Presence of a duplication in a relatively non-conserved region of the gene and a missense mutation resulting in the substitution of Phe for Cys in a highly conserved region. Genotyping of 218 dogs from three breeds fixed for long hair; eight breeds fixed for short hair and five breeds in which long hair is segregating provided evidence that the missense mutation is associated with the hair-length differences among these breeds.

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

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	Phe	Cys	95

The long and the short of it: evidence that FGF5 is a major determinant of canine 'hair'-itability. (2006) (<https://pubmed.ncbi.nlm.nih.gov/16879338>)

Housley DJ; Venta PJ

Hair length in dogs has been known for many years to be primarily controlled by a limited number of genes, but none of the genes have been identified. One of these genes produces a recessively inherited long-haired phenotype that has been thought to explain the bulk of hair-length variation among many breeds. Sequence analysis of the FGF5 gene in short and long-haired corgis resulted in the identification of two coding region differences: a duplication in a relatively non-conserved region of the gene and a missense mutation, resulting in the substitution of Phe for Cys, in a highly conserved region. Genotyping of 218 dogs from three breeds fixed for long hair, eight breeds fixed for short hair and five breeds in which long hair is segregating provided evidence that the missense mutation is associated with the hair-length differences among these breeds.

RELATED GEPHE

- 1 (R-spondin-2 (RSPO2)) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=~9615~/and+Trait=Hair length/and+groupHaplotypes=true#gephebase-summary-title>)
- 5 (<https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~FGF5~/and+Taxon ID=~9615~/or+Gene Gephebase=~FGF5~/and+Taxon ID=~9615~#gephebase-summary-title>)

EXTERNAL LINKS

COMMENTS

