

GEPHE SUMMARY

	Gephebase Gene	GephelD
lanosterol synthase (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^lanosterol synthase^#gephebase-summary-title)	GP00001950	
Published	Entry Status	Main curator

PHENOTYPIC CHANGE

	Trait Category
Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Physiology^#gephebase-summary-title)	Trait
Cholesterol metabolism (cholesterol biosynthesis) (https://www.gephebase.org/search-criteria?/and+Trait=^Cholesterol+metabolism+(cholesterol+biosynthesis)^#gephebase-summary-title)	Trait State in Taxon A
able to synthesise cholesterol de novo	Trait State in Taxon B
unable to synthesise cholesterol de novo	Ancestral State
Taxon A	Taxonomic Status
Intergeneric or Higher (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Intergeneric or Higher^#gephebase-summary-title)	

Taxon A	Latin Name	Taxon B	Latin Name
	Common Name		Common Name
	Synonyms		Synonyms
Homo sapiens (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Homo+sapiens^#gephebase-summary-title)	human	Caenorhabditis elegans (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Caenorhabditis+elegans^#gephebase-summary-title)	-
species	Rank	species	Rank
	Lineage		Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Euchortoglires; Primates; Haplorrhini; Simiiformes; Catarrhini; Hominoidea; Hominidae; Homininae; Homo	cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis		
Homo () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9605)	Parent	Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6237)	Parent
9606 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9606)	NCBI Taxonomy ID	6239 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6239)	NCBI Taxonomy ID
No			is Taxon B an Infraspecies?
		No	

GENOTYPIC CHANGE

	Generic Gene Name	UniProtKB Homo sapiens
LSS	P48449 (http://www.uniprot.org/uniprot/P48449)	
	Synonyms	GenebankID or UniProtKB
OSC; HYPT14; CTRCT44	0	
	String	
9606.ENSP00000380837 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=9606.ENSP00000380837)		
	Sequence Similarities	
Belongs to the terpene cyclase/mutase family.		
	GO - Molecular Function	
GO:0000250 : lanosterol synthase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0000250)		
	GO - Biological Process	

GO:0006695 : cholesterol biosynthetic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006695>)
GO:0006694 : steroid biosynthetic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006694>)
GO:0045540 : regulation of cholesterol biosynthetic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0045540>)
GO:0031647 : regulation of protein stability
(<https://www.ebi.ac.uk/QuickGO/term/GO:0031647>)

GO - Cellular Component

GO:0016020 : membrane (<https://www.ebi.ac.uk/QuickGO/term/GO:0016020>)
GO:0005789 : endoplasmic reticulum membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0005789>)
GO:0005811 : lipid droplet (<https://www.ebi.ac.uk/QuickGO/term/GO:0005811>)

Presumptive Null

Yes ([https://www.gephebase.org/search-criteria?/and+Presumptive Null=%27Yes%27#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive%20Null=%27Yes%27#gephebase-summary-title))

Molecular Type

Gene Loss ([https://www.gephebase.org/search-criteria?/and+Molecular Type=%27Gene Loss%27#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular%20Type=%27Gene%20Loss%27#gephebase-summary-title))

Aberration Type

Deletion ([https://www.gephebase.org/search-criteria?/and+Aberration Type=%27Deletion%27#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration%20Type=%27Deletion%27#gephebase-summary-title))

Deletion Size

unknown

Molecular Details of the Mutation

gene absent in the genome

Experimental Evidence

Candidate Gene ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence=%27Candidate Gene%27#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental%20Evidence=%27Candidate%20Gene%27#gephebase-summary-title))

Main Reference

Why do worms need cholesterol?. (2003) (<https://pubmed.ncbi.nlm.nih.gov/12894170>)

Authors

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Abstract

Cholesterol is a structural component of animal membranes that influences fluidity, permeability and formation of lipid microdomains. It is also a precursor to signalling molecules, including mammalian steroid hormones and insect ecdysones. The nematode *Caenorhabditis elegans* requires too little cholesterol for it to have a major role in membrane structure. Instead, its most probable signalling functions are to control molting and induce a specialized non-feeding larval stage, although no cholesterol-derived signalling molecule has yet been identified for these or any other functions.

Additional References

Preservation of genes involved in sterol metabolism in cholesterol auxotrophs: facts and hypotheses. (2008) (<https://pubmed.ncbi.nlm.nih.gov/18682733>)

RELATED GEPHE

Related Genes

3 (lanosterol c14 demethylase, squalene synthase, sterol C5 desaturase) ([https://www.gephebase.org/search-criteria?/or+Taxon ID=%279606%27/and+Trait=Cholesterol metabolism/or+Taxon ID=%276239%27/and+Trait=Cholesterol metabolism/and+groupHaplotypes=true#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Taxon%20ID=%279606%27/and+Trait=Cholesterol%20metabolism/or+Taxon%20ID=%276239%27/and+Trait=Cholesterol%20metabolism/and+groupHaplotypes=true#gephebase-summary-title))

Related Haplotypes

1 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase=%27lanosterol synthase%27/and+Taxon ID=%279606%27/or+Gene Gephebase=%27lanosterol synthase%27/and+Taxon ID=%276239%27#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene%20Gephebase=%27lanosterol%20synthase%27/and+Taxon%20ID=%279606%27/or+Gene%20Gephebase=%27lanosterol%20synthase%27/and+Taxon%20ID=%276239%27#gephebase-summary-title))

EXTERNAL LINKS

COMMENTS

@ParrallelEvolution in insects