

GEPHE SUMMARY

plep-1 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase^=plep-1^#gephebase-summary-title)	Gephebase Gene	GP00000897	GephelD
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

Trait Category			
Behavior (https://www.gephebase.org/search-criteria?/and+Trait Category^=Behavior^#gephebase-summary-title)	Trait		
Male-male copulatory behavior (https://www.gephebase.org/search-criteria?/and+Trait^=Male-male copulatory behavior^#gephebase-summary-title)	Trait State in Taxon A		
Caenorhabditis elegans - CB4856 (no plug behavior)	Trait State in Taxon B		
Caenorhabditis elegans - CB4856 (no plug behavior)	Ancestral State		
Taxon A		Taxonomic Status	
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status^=Intraspecific^#gephebase-summary-title)			
Taxon A	Latin Name	Taxon B	Latin Name
Caenorhabditis elegans (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms^=Caenorhabditis elegans^#gephebase-summary-title)	Common Name	Caenorhabditis elegans (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms^=Caenorhabditis elegans^#gephebase-summary-title)	Common Name
-	Synonyms	-	Synonyms
roundworm; Rhabditis elegans; Caenorhabditis elegans (Maupas, 1900); Rhabditis elegans Maupas, 1900		roundworm; Rhabditis elegans; Caenorhabditis elegans (Maupas, 1900); Rhabditis elegans Maupas, 1900	
species	Rank	species	Rank
	Lineage		Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis	
	Parent		Parent
Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6237)	NCBI Taxonomy ID	Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6237)	NCBI Taxonomy ID
6239 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6239)		6239 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6239)	
Yes	is Taxon A an Infraspecies?	Yes	is Taxon B an Infraspecies?
	Taxon A Description		Taxon B Description
Caenorhabditis elegans - CB4856 (no plug behavior)		Caenorhabditis elegans - CB4856 (no plug behavior)	

GENOTYPIC CHANGE

plep-1	Generic Gene Name	UniProtKB Caenorhabditis elegans A0A0K3AR66 (http://www.uniprot.org/uniprot/A0A0K3AR66)
CELE_Y52E8A.4; Y52E8A.4	Synonyms	GenebankID or UniProtKB CTQ86544 (https://www.ncbi.nlm.nih.gov/nuccore/CTQ86544)
-	String	
	Sequence Similarities	
-	GO - Molecular Function	
-	GO - Biological Process	
-	GO - Cellular Component	
GO:0016021 : integral component of membrane (https://www.ebi.ac.uk/QuickGO/term/GO:0016021)		Presumptive Null

No ([#gephebase-summary-title](https://www.gephebase.org/search-criteria/?and+Presumptive+Null=%No))

Molecular Type

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

Aberration Type

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

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

V278D

Experimental Evidence

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

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	-	-	-

Natural Variation in *plep-1* Causes Male-Male Copulatory Behavior in *C.Â elegans*. (2015) (<https://pubmed.ncbi.nlm.nih.gov/26455306>)

Main Reference

Noble LM; Chang AS; McNelis D; Kramer M; Yen M; Nicodemus JP; Riccardi DD; Ammerman P; Phillips M; Islam T; Rockman MV

Authors

In sexual species, gametes have to find and recognize one another. Signaling is thus central to sexual reproduction and involves a rapidly evolving interplay of shared and divergent interests [1-4]. Among Caenorhabditis nematodes, three species have evolved self-fertilization, changing the balance of intersexual relations [5]. Males in these androdioecious species are rare, and the evolutionary interests of hermaphrodites dominate. Signaling has shifted accordingly, with females losing behavioral responses to males [6, 7] and males losing competitive abilities [8, 9]. Males in these species also show variable same-sex and autocopulatory mating behaviors [6, 10]. These behaviors could have evolved by relaxed selection on male function, accumulation of sexually antagonistic alleles that benefit hermaphrodites and harm males [5, 11], or neither of these, because androdioecy also reduces the ability of populations to respond to selection [12-14]. We have identified the genetic cause of a male-male mating behavior exhibited by geographically dispersed *C.Â elegans* isolates, wherein males mate with and deposit copulatory plugs on one another's excretory pores. We find a single locus of major effect that is explained by segregation of a loss-of-function mutation in an uncharacterized gene, *plep-1*, expressed in the excretory cell in both sexes. Males homozygous for the *plep-1* mutation have excretory pores that are attractive or receptive to copulatory behavior of other males. Excretory pore plugs are injurious and hermaphrodite activity is compromised in *plep-1* mutants, so the allele might be unconditionally deleterious, persisting in the population because the species' androdioecious mating system limits the reach of selection.

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Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

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