

GEPHE SUMMARY

mab-23 (<a +mab-23+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^mab-23^#gephebase-summary-title)	Gephebase Gene	GepheID
	GP00001323	
	Entry Status	Main curator
Published	Courtier	

PHENOTYPIC CHANGE

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 Category	
Male genitalia (<a +male+genitalia+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait=^Male genitalia^#gephebase-summary-title)		Trait	
C. elegans		Trait State in Taxon A	
C. elegans - Vancouver strain KR314		Trait State in Taxon B	
Taxon A		Ancestral State	
Intraspecific (<a +intraspecific+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Intraspecific^#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
Caenorhabditis elegans (<a +caenorhabditis+elegans+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Caenorhabditis elegans^#gephebase-summary-title)		Caenorhabditis elegans (<a +caenorhabditis+elegans+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Caenorhabditis elegans^#gephebase-summary-title)	
-		-	
roundworm; Rhabditis elegans; Caenorhabditis elegans (Maupas, 1900); Rhabditis elegans Maupas, 1900		roundworm; Rhabditis elegans; Caenorhabditis elegans (Maupas, 1900); Rhabditis elegans Maupas, 1900	
species		species	
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	
Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6237)		Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6237)	
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)	
is Taxon A an Intraspecies?		is Taxon B an Intraspecies?	
No		Yes	
		Taxon B Description	
		C. elegans - Vancouver strain KR314	

GENOTYPIC CHANGE

mab-23		Generic Gene Name		UniProtKB Caenorhabditis elegans	
C32C4.5; CELE_C32C4.5		Synonyms		G5ECK3 (http://www.uniprot.org/uniprot/G5ECK3)	
6239.C32C4.5a (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=6239.C32C4.5a)		String		AF535153.1 (https://www.ncbi.nlm.nih.gov/nuccore/AF535153.1)	
-		Sequence Similarities			
		GO - Molecular Function			
GO:0003700 : DNA-binding transcription factor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0003700)					
GO:0043565 : sequence-specific DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043565)					
GO:0046872 : metal ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0046872)					
		GO - Biological Process			

-

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=~Yes^#gephebase-summary-title>)

Molecular Type

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

Aberration Type

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

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

TGC>TTC - cysteine of the DM motif transformed into phenylalanine; so is likely to disrupt DNA-binding function

Experimental Evidence

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

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

Main Reference

Regulation of sex-specific differentiation and mating behavior in *C. elegans* by a new member of the DM domain transcription factor family. (2002) (<https://pubmed.ncbi.nlm.nih.gov/12231628>)

Authors

Lints R; Emmons SW

Abstract

Mutations in *Caenorhabditis elegans* gene *mab-23* cause abnormal male tail morphology and abolish male fecundity but have no obvious effect in the hermaphrodite. Here we show that *mab-23* encodes a DM (*Doublesex/MAB-3*) domain transcription factor necessary for specific aspects of differentiation in sex-specific tissues of the male. *mab-23* is required for the patterning of posterior sensory neurons in the male nervous system, sex muscle differentiation, and morphogenesis of the posterior hypodermis, spicules, and proctodeum. Failure of *mab-23* mutant males to sire progeny is due primarily to defective sex muscle-mediated turning during copulatory behavior and likely compounded by impairment of sperm passage through the proctodeum. In the male nervous system, *mab-23* refines ray neuron subtype distribution by restricting expression of dopaminergic neurotransmitter identity through interactions with the Hox gene *egl-5* and a TGF-beta-related signaling pathway. *mab-23* has distinct roles and functions independent of *mab-3*, indicating different aspects of *C. elegans* male sexual differentiation are coordinated among DM domain family members. Our results support the hypothesis that DM domain genes derive from an ancestral male sexual regulator and suggest how regulation of sexual development has evolved in distinct ways in different phyla.

Additional References

Natural variation and copulatory plug formation in *Caenorhabditis elegans*. (1997) (<https://pubmed.ncbi.nlm.nih.gov/9136008>)

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

@SexualTrait - Presumptive Null Mutation