

GEPHE SUMMARY

Gephebase Gene		GepheID
drh-1 (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~drh-1*#gephebase-summary-title)	GP00001308	
Entry Status		Main curator
Published		Arnoult

PHENOTYPIC CHANGE

Trait Category			
Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Physiology*#gephebase-summary-title)		Trait	
Pathogen resistance (viral immunity) (https://www.gephebase.org/search-criteria?/and+Trait=~Pathogen+resistance+(viral+immunity)*#gephebase-summary-title)		Trait State in Taxon A	
C. elegans - JU1580		Trait State in Taxon B	
C. elegans - N2		Ancestral State	
Data not curated		Taxonomic Status	
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Intraspecific*#gephebase-summary-title)			
Taxon A		Taxon B	
Caenorhabditis elegans (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Caenorhabditis+elegans*#gephebase-summary-title)		Caenorhabditis elegans (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Caenorhabditis+elegans*#gephebase-summary-title)	
Common Name		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	
Rank		Rank	
species		species	
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)		Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6237)	
NCBI Taxonomy ID		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)	
is Taxon A an Intraspecies?		is Taxon B an Intraspecies?	
Yes		Yes	
Taxon A Description		Taxon B Description	
C. elegans - JU1580		C. elegans - N2	

GENOTYPIC CHANGE

Generic Gene Name		UniProtKB Caenorhabditis elegans
drh-1		G5EDI8 (http://www.uniprot.org/uniprot/G5EDI8)
Synonyms		GenebankID or UniProtKB
CELE_F15B10.2; F15B10.2		177425 (https://www.ncbi.nlm.nih.gov/nuccore/177425)
String		
6239.F15B10.2 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=6239.F15B10.2)		
Sequence Similarities		
-		
GO - Molecular Function		
GO:0005524 : ATP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005524)		
GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)		
GO:0004386 : helicase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004386)		
GO - Biological Process		
GO:0016246 : RNA interference (https://www.ebi.ac.uk/QuickGO/term/GO:0016246)		
GO - Cellular Component		

-	Presumptive Null
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)	Molecular Type
Deletion (https://www.gephebase.org/search-criteria?/and+Aberration Type=~Deletion^#gephebase-summary-title)	Aberration Type
100-999 bp	Deletion Size
159 base deletion in CDS resulting in truncated but potentially non-null protein	Molecular Details of the Mutation
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping^#gephebase-summary-title)	Experimental Evidence
A deletion polymorphism in the Caenorhabditis elegans RIG-I homolog disables viral RNA dicing and antiviral immunity. (2013) (https://pubmed.ncbi.nlm.nih.gov/24137537)	Main Reference
Ashe A; B��licard T; Le Pen J; Sarkies P; Fr��zal L; Lehrbach NJ; F��lix MA; Miska EA	Authors
RNA interference defends against viral infection in plant and animal cells. The nematode Caenorhabditis elegans and its natural pathogen, the positive-strand RNA virus Orsay, have recently emerged as a new animal model of host-virus interaction. Using a genome-wide association study in C. elegans wild populations and quantitative trait locus mapping, we identify a 159 base-pair deletion in the conserved drh-1 gene (encoding a RIG-I-like helicase) as a major determinant of viral sensitivity. We show that DRH-1 is required for the initiation of an antiviral RNAi pathway and the generation of virus-derived siRNAs (viRNAs). In mammals, RIG-I-domain containing proteins trigger an interferon-based innate immunity pathway in response to RNA virus infection. Our work in C. elegans demonstrates that the RIG-I domain has an ancient role in viral recognition. We propose that RIG-I acts as modular viral recognition factor that couples viral recognition to different effector pathways including RNAi and interferon responses. DOI: http://dx.doi.org/10.7554/eLife.00994.001 .	Abstract
	Additional References

RELATED GEPHE

No matches found.	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

viral sensitivity to single stranded RNA virus (Orsay). This deletion is found in 23% of the 97 tested wild isolates ; non-null