

GEPHE SUMMARY

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

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)	Latin Name	Caenorhabditis elegans (https://www.gephebase.org/search-criteria/?and+Taxon and Synonyms=^Caenorhabditis elegans^#gephebase-summary-title)	Latin Name
-	Common Name	-	Common Name
roundworm; Rhabditis elegans; Caenorhabditis elegans (Maupas, 1900); Rhabditis elegans Maupas, 1900	Synonyms	roundworm; Rhabditis elegans; Caenorhabditis elegans (Maupas, 1900); Rhabditis elegans Maupas, 1900	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis	Lineage	cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis	Lineage
Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6237)	Parent	Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6237)	Parent
6239 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6239)	NCBI Taxonomy ID	6239 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6239)	NCBI Taxonomy ID
Yes	is Taxon A an Infraspecies?	Yes	is Taxon B an Infraspecies?
C. elegans - JU1580	Taxon A Description	C. elegans - N2	Taxon B Description

GENOTYPIC CHANGE

drh-1	Generic Gene Name	UniProtKB Caenorhabditis elegans
CELE_F15B10.2; F15B10.2	Synonyms	GenebankID or UniProtKB
6239.F15B10.2 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 6239.F15B10.2)	String	
	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	

No (https://www.gephebase.org/search-criteria?/and+Presumptive+Null=%22No%22#gephebase-summary-title)	Presumptive Null
Coding (https://www.gephebase.org/search-criteria?/and+Molecular+Type=%22Coding%22#gephebase-summary-title)	Molecular Type
Deletion (https://www.gephebase.org/search-criteria?/and+Aberration+Type=%22Deletion%22#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=%22Linkage+Mapping%22#gephebase-summary-title)	Experimental Evidence
A deletion polymorphism in the <i>Caenorhabditis elegans</i> RIG-I homolog disables viral RNA dicing and antiviral immunity. (2013) (https://pubmed.ncbi.nlm.nih.gov/24137537)	Main Reference
Ashe A; Bâlicard T; Le Pen J; Sarkies P; Frâzal L; Lehrbach NJ; Fâlix MA; Miska EA	Authors
RNA interference defends against viral infection in plant and animal cells. The nematode <i>Caenorhabditis elegans</i> 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 <i>C. elegans</i> 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 <i>C. elegans</i> 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