GEPHE SUMMARY

Gephebase Gene
lin-48 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^lin-48^#gephebase-summary-title)

GepheID
GP00000544

Entry Status
Published

Main curator
Courtier

PHENOTYPIC CHANGE

Trait Category
Morphology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Morphology^#gephebase-summary-title)

Trait
Excretory duct position (https://www.gephebase.org/search-criteria?/and+Trait=^Excretory duct position^#gephebase-summary-title)

Trait State in Taxon A
C. briggsae; C. remanei; C. japonica; C. sp CB5161

Trait State in Taxon B
C. elegans

Ancestral State
Taxon A

Taxonomic Status
Interspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Interspecific^#gephebase-summary-title)

Taxon A #1

Latin Name
Caenorhabditis briggsae (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Caenorhabditis briggsae^#gephebase-summary-title)

Common Name
-

Synonyms
Caenorhabditis briggsae Dougherty & Nigon, 1949

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis

Parent
Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6237)

NCBI Taxonomy ID
6238 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6238)

is Taxon A an Infraspecies?
No

Taxon A #2

Latin Name
Caenorhabditis remanei (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Caenorhabditis remanei^#gephebase-summary-title)

Common Name
-

Synonyms
Caenorhabditis vulgaris; Caenorhabditis remanei (Sudhaus, 1974); Caenorhabditis vulgaris Baird, Fitch & Emmons, 1994; Caenorhabditis vulgarensis; Caenorhabditis vulgariensis

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis

Parent
Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6237)

NCBI Taxonomy ID
31234

Taxon B

Latin Name
Caenorhabditis elegans (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Caenorhabditis elegans^#gephebase-summary-title)

Common Name
-

Synonyms
roundworm; Rhabditis elegans; Caenorhabditis elegans (Maupas, 1900); Rhabditis elegans Maupas, 1900

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis

Parent
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)

is Taxon B an Infraspecies?
No

(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 31234)

is Taxon A an Infraspecies?

No

Taxon A #3

Latin Name

Caenorhabditis japonica
(https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Caenorhabditis japonica^#gephebase-summary-title)

Common Name

-

Synonyms

-

Rank

species

Lineage

cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis

Parent

Caenorhabditis () - (Rank: genus)
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 6237)

NCBI Taxonomy ID

281687
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 281687)

is Taxon A an Infraspecies?

No

GENOTYPIC CHANGE

Generic Gene Name

lin-48

Synonyms

CELE_F34D10.5; F34D10.5

String

6239.F34D10.5
(http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 6239.F34D10.5)

Sequence Similarities

-

GO - Molecular Function

GO:0001228 : DNA-binding transcription activator activity, RNA polymerase II-specific (https://www.ebi.ac.uk/QuickGO/term/GO:0001228)
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:0001078 : proximal promoter DNA-binding transcription repressor activity, RNA polymerase II-specific (https://www.ebi.ac.uk/QuickGO/term/GO:0001078)

GO - Biological Process

GO:0006355 : regulation of transcription, DNA-templated (https://www.ebi.ac.uk/QuickGO/term/GO:0006355)
GO:0045892 : negative regulation of transcription, DNA-templated (https://www.ebi.ac.uk/QuickGO/term/GO:0045892)
GO:0009913 : epidermal cell differentiation (https://www.ebi.ac.uk/QuickGO/term/GO:0009913)
GO:0007442 : hindgut morphogenesis (https://www.ebi.ac.uk/QuickGO/term/GO:0007442)
GO:0045138 : nematode male tail tip morphogenesis (https://www.ebi.ac.uk/QuickGO/term/GO:0045138)

GO - Cellular Component

GO:0005634 : nucleus (https://www.ebi.ac.uk/QuickGO/term/GO:0005634)

UniProtKB Caenorhabditis elegans

G5EDU6 (http://www.uniprot.org/uniprot/G5EDU6)

GenebankID or UniProtKB

BX284603 (https://www.ncbi.nlm.nih.gov/nuccore/BX284603)

Mutation #1

Presumptive Null

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

Molecular Type

Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title)

Aberration Type

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

Molecular Details of the Mutation

Exact mutations unknown - region 1 of 4 regions identified based on chimeric constructs

Experimental Evidence

Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title)

Main Reference

Multiple regulatory changes contribute to the evolution of the Caenorhabditis lin-48 ovo gene. (2002) (https://pubmed.ncbi.nlm.nih.gov/12231624)

Authors

Wang X; Chamberlin HM

Abstract

Recent work points to the importance of changes in gene expression patterns in species-specific differences. Here, we investigate the evolution of the nematode lin-48 ovo gene. lin-48 is expressed in several cells in both Caenorhabditis elegans and Caenorhabditis briggsae, but acts in the excretory duct cell only in C. elegans. We find the differences result both from alterations in the cis-regulatory sequences and in proteins that mediate lin-48 expression. One factor that contributes to the species differences is the bZip protein CES-2. Our results indicate the accumulation of several regulatory changes affecting one gene can contribute to evolutionary change.

Additional References

Evolutionary innovation of the excretory system in Caenorhabditis elegans. (2004) (https://pubmed.ncbi.nlm.nih.gov/14758362)

Mutation #2

Presumptive Null

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

Molecular Type

Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title)

Aberration Type

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

Molecular Details of the Mutation

Exact mutations unknown - region 2 of 4 regions identified based on chimeric constructs

Experimental Evidence

Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title)

Main Reference

Multiple regulatory changes contribute to the evolution of the Caenorhabditis lin-48 ovo gene. (2002) (https://pubmed.ncbi.nlm.nih.gov/12231624)

Authors

Wang X; Chamberlin HM

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Additional References

Evolutionary innovation of the excretory system in Caenorhabditis elegans. (2004) (https://pubmed.ncbi.nlm.nih.gov/14758362)

Mutation #3

Presumptive Null

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

Molecular Type

Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title)

Aberration Type

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

Molecular Details of the Mutation

Exact mutations unknown - region 3 of 4 regions identified based on chimeric constructs

Experimental Evidence

Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title)

Main Reference

Multiple regulatory changes contribute to the evolution of the Caenorhabditis lin-48 ovo gene. (2002) (https://pubmed.ncbi.nlm.nih.gov/12231624)

Authors

Wang X; Chamberlin HM

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Additional References

Evolutionary innovation of the excretory system in Caenorhabditis elegans. (2004) (https://pubmed.ncbi.nlm.nih.gov/14758362)

Mutation #4

Presumptive Null

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

Molecular Type

Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Cis-regulatory^#gephebase-summary-title)

Aberration Type

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

Molecular Details of the Mutation

Exact mutations unknown - region 4 of 4 regions identified based on chimeric constructs

Experimental Evidence

Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title)

Main Reference

Multiple regulatory changes contribute to the evolution of the Caenorhabditis lin-48 ovo gene. (2002) (https://pubmed.ncbi.nlm.nih.gov/12231624)

Authors

Wang X; Chamberlin HM

Abstract

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Additional References

Evolutionary innovation of the excretory system in Caenorhabditis elegans. (2004) (https://pubmed.ncbi.nlm.nih.gov/14758362)

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

@SeveralMutationsWithEffect