

GEPHE SUMMARY

<p>srg-34 (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase+^srg-34^#gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00001074</p> <p>Martin</p>	<p>GepheID</p> <p>Main curator</p>
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PHENOTYPIC CHANGE

<p>Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=^Physiology^#gephebase-summary-title)</p> <p>Diapause (resistance to dauer-inducing pheromone) (https://www.gephebase.org/search-criteria?/and+Trait=^Diapause+(resistance+to+dauer-inducing+pheromone)^#gephebase-summary-title)</p> <p>C...briggsae - AF16</p> <p>C...briggsae DR1690</p> <p>Data not curated</p> <p>Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Domesticated^#gephebase-summary-title)</p>	<p>Trait Category</p> <p>Trait</p> <p>Trait State in Taxon A</p> <p>Trait State in Taxon B</p> <p>Ancestral State</p> <p>Taxonomic Status</p>	<p>Caenorhabditis briggsae (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Caenorhabditis+briggsae^#gephebase-summary-title)</p> <p>-</p> <p>Caenorhabditis briggsae Dougherty & Nigon, 1949</p> <p>species</p> <p>cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis</p> <p>Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6237)</p> <p>6238 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6238)</p> <p>is Taxon A an Intraspecies?</p> <p>Yes</p> <p>C...briggsae - AF16</p>	<p>Taxon A</p> <p>Latin Name</p> <p>Common Name</p> <p>Synonyms</p> <p>Rank</p> <p>Lineage</p> <p>Parent</p> <p>NCBI Taxonomy ID</p> <p>is Taxon A an Intraspecies?</p> <p>Taxon A Description</p>	<p>Caenorhabditis briggsae (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Caenorhabditis+briggsae^#gephebase-summary-title)</p> <p>-</p> <p>Caenorhabditis briggsae Dougherty & Nigon, 1949</p> <p>species</p> <p>cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Nematoda; Chromadorea; Rhabditida; Rhabditina; Rhabditomorpha; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis</p> <p>Caenorhabditis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6237)</p> <p>6238 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6238)</p> <p>is Taxon B an Intraspecies?</p> <p>Yes</p> <p>C...briggsae DR1690</p>	<p>Taxon B</p> <p>Latin Name</p> <p>Common Name</p> <p>Synonyms</p> <p>Rank</p> <p>Lineage</p> <p>Parent</p> <p>NCBI Taxonomy ID</p> <p>is Taxon B an Intraspecies?</p> <p>Taxon B Description</p>
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GENOTYPIC CHANGE

<p>srg-34</p> <p>CELE_Y51A2D.12; Y51A2D.12</p> <p>6239.Y51A2D.12 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=6239.Y51A2D.12)</p> <p>Belongs to the nematode receptor-like protein srg family.</p> <p>GO:0004888 : transmembrane signaling receptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004888)</p> <p>GO:0007606 : sensory perception of chemical stimulus (https://www.ebi.ac.uk/QuickGO/term/GO:0007606)</p>	<p>Generic Gene Name</p> <p>Synonyms</p> <p>String</p> <p>Sequence Similarities</p> <p>GO - Molecular Function</p> <p>GO - Biological Process</p> <p>GO - Cellular Component</p>	<p>UniProtKB Caenorhabditis elegans</p> <p>Q9XXQ5 (http://www.uniprot.org/uniprot/Q9XXQ5)</p> <p>GenebankID or UniProtKB</p> <p>CAA16409 (https://www.ncbi.nlm.nih.gov/nuccore/CAA16409)</p>
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GO:0016021 : integral component of membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0016021>)

Presumptive Null

Yes ([https://www.gephebase.org/search-criteria?/and+Presumptive Null=~Yes^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=~Yes^#gephebase-summary-title))

Molecular Type

Gene Loss ([https://www.gephebase.org/search-criteria?/and+Molecular Type=~Gene Loss^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular+Type=~Gene+Loss^#gephebase-summary-title))

Aberration Type

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

Deletion Size

1-10 kb

Molecular Details of the Mutation

33kb deletion

Experimental Evidence

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

Main Reference

Parallel evolution of domesticated *Caenorhabditis* species targets pheromone receptor genes. (2011) (<https://pubmed.ncbi.nlm.nih.gov/21849976>)

Authors

McGrath PT; Xu Y; Ailion M; Garrison JL; Butcher RA; Bargmann CI

Abstract

Evolution can follow predictable genetic trajectories, indicating that discrete environmental shifts can select for reproducible genetic changes. Conspecific individuals are an important feature of an animal's environment, and a potential source of selective pressures. Here we show that adaptation of two *Caenorhabditis* species to growth at high density, a feature common to domestic environments, occurs by reproducible genetic changes to pheromone receptor genes. Chemical communication through pheromones that accumulate during high-density growth causes young nematode larvae to enter the long-lived but non-reproductive dauer stage. Two strains of *Caenorhabditis elegans* grown at high density have independently acquired multigenic resistance to pheromone-induced dauer formation. In each strain, resistance to the pheromone ascaroside C3 results from a deletion that disrupts the adjacent chemoreceptor genes serpentine receptor class g (srg)-36 and -37. Through misexpression experiments, we show that these genes encode redundant G-protein-coupled receptors for ascaroside C3. Multigenic resistance to dauer formation has also arisen in high-density cultures of a different nematode species, *Caenorhabditis briggsae*, resulting in part from deletion of an srg gene paralogous to srg-36 and srg-37. These results demonstrate rapid remodelling of the chemoreceptor repertoire as an adaptation to specific environments, and indicate that parallel changes to a common genetic substrate can affect life-history traits across species.

Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS

Cluster of paralogous genes