

GEPHE SUMMARY

<p>Tyramine receptor 3 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase="Tyramine receptor 3" #gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00001141</p> <p>Martin</p>	<p>GepheID</p> <p>Main curator</p>
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PHENOTYPIC CHANGE

<p>Behavior (https://www.gephebase.org/search-criteria?/and+Trait Category="Behavior" #gephebase-summary-title)</p> <p>Exploration decision (<a "="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="Exploration decision" #gephebase-summary-title)</p> <p>C. elegans</p> <p>C. elegans</p> <p>Data not curated</p> <p>Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status="Intraspecific" #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>Taxon A</p> <p>Caenorhabditis elegans (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Caenorhabditis elegans" #gephebase-summary-title)</p> <p>-</p> <p>roundworm; Rhabditis elegans; Caenorhabditis elegans (Maupas, 1900); Rhabditis elegans Maupas, 1900</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>6239 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6239)</p> <p>is Taxon A an Intraspecies?</p> <p>No</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>Taxon B</p> <p>Caenorhabditis elegans (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Caenorhabditis elegans" #gephebase-summary-title)</p> <p>-</p> <p>roundworm; Rhabditis elegans; Caenorhabditis elegans (Maupas, 1900); Rhabditis elegans Maupas, 1900</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>6239 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=6239)</p> <p>is Taxon B an Intraspecies?</p> <p>No</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>
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GENOTYPIC CHANGE

<p>tyra-3</p> <p>CELE_M03F4.3; M03F4.3</p> <p>6239.M03F4.3b (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=6239.M03F4.3b)</p> <p>Belongs to the G-protein coupled receptor 1 family.</p> <p>GO:0004930 : G protein-coupled receptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004930)</p> <p>GO:0030594 : neurotransmitter receptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0030594)</p> <p>GO:0004993 : G protein-coupled serotonin receptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004993)</p> <p>GO:0007268 : chemical synaptic transmission</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>UniProtKB Caenorhabditis elegans</p> <p>Q7JNP9 (http://www.uniprot.org/uniprot/Q7JNP9)</p> <p>GenebankID or UniProtKB</p> <p>BX284606 (https://www.ncbi.nlm.nih.gov/nucleotide/BX284606)</p>
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(<https://www.ebi.ac.uk/QuickGO/term/GO:0007268>)
GO:0007187 : G protein-coupled receptor signaling pathway, coupled to cyclic nucleotide second messenger (<https://www.ebi.ac.uk/QuickGO/term/GO:0007187>)
GO - Cellular Component

GO:0005887 : integral component of plasma membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0005887>)

GO:0030425 : dendrite (<https://www.ebi.ac.uk/QuickGO/term/GO:0030425>)

Presumptive Null

Unknown (<https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Unknown^#gephebase-summary-title>)

Molecular Type

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

Aberration Type

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

Molecular Details of the Mutation

Non-coding

Experimental Evidence

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

Main Reference

Catecholamine receptor polymorphisms affect decision-making in *C. elegans*. (2011) (<https://pubmed.ncbi.nlm.nih.gov/21412235>)

Authors

Bendesky A; Tsunozaki M; Rockman MV; Kruglyak L; Bargmann CI

Abstract

Innate behaviours are flexible: they change rapidly in response to transient environmental conditions, and are modified slowly by changes in the genome. A classical flexible behaviour is the exploration-exploitation decision, which describes the time at which foraging animals choose to abandon a depleting food supply. We have used quantitative genetic analysis to examine the decision to leave a food patch in *Caenorhabditis elegans*. Here we show that patch-leaving is a multigenic trait regulated in part by naturally occurring non-coding polymorphisms in *tyra-3* (tyramine receptor 3), which encodes a G-protein-coupled catecholamine receptor related to vertebrate adrenergic receptors. *tyra-3* acts in sensory neurons that detect environmental cues, suggesting that the internal catecholamines detected by *tyra-3* regulate responses to external conditions. These results indicate that genetic variation and environmental cues converge on common circuits to regulate behaviour, and suggest that catecholamines have an ancient role in regulating behavioural decisions.

Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS