

GEPHE SUMMARY

<p>bab (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~bab~#gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00002424</p> <p>Courtier</p>	<p>GepheID</p> <p>Main curator</p>
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PHENOTYPIC CHANGE

<p>Behavior, Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Behavior~/and+Trait+Category=~Physiology~#gephebase-summary-title)</p> <p>Insect pheromone attraction (https://www.gephebase.org/search-criteria?/and+Trait=~Insect+pheromone+attraction~#gephebase-summary-title)</p> <p>preference for the Z-strain females (pheromones 97:3 Z:E ratio)</p> <p>preference for the E-strain females (pheromones 1:99 Z:E ratio)</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></p> <p></p> <p></p> <p></p> <p></p> <p></p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p>
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Taxon A	Latin Name	Taxon B	Latin Name
Ostrinia nubilalis (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Ostrinia+nubilalis~#gephebase-summary-title)	Ostrinia nubilalis	Ostrinia nubilalis (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Ostrinia+nubilalis~#gephebase-summary-title)	Ostrinia nubilalis
European corn borer	Common Name	European corn borer	Common Name
Pyralis nubilalis; Pyrausta nubilalis; European corn borer; Ostrinia nubilalis (Hubner, 1796)	Synonyms	Pyralis nubilalis; Pyrausta nubilalis; European corn borer; Ostrinia nubilalis (Hubner, 1796)	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Amphimesnoptera; Lepidoptera; Glossata; Neolepidoptera; Heteroneura; Ditrysia; Obtectomera; Pyraloidea; Crambidae; Pyraustinae; Ostrinia	Lineage	cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Amphimesnoptera; Lepidoptera; Glossata; Neolepidoptera; Heteroneura; Ditrysia; Obtectomera; Pyraloidea; Crambidae; Pyraustinae; Ostrinia	Lineage
Ostrinia () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=29056)	Parent	Ostrinia () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=29056)	Parent
29057 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=29057)	NCBI Taxonomy ID	29057 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=29057)	NCBI Taxonomy ID
No	is Taxon A an Intraspecies?	No	is Taxon B an Intraspecies?

GENOTYPIC CHANGE

<p>bab1</p> <p>anon-WO0118547.639; bab; BAB; BAB-1; bab-l; Bab1; BAB1; bric-a-brac; CG13910; CG9097; Dmel\CG9097</p> <p>7227.FBpp0072538 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0072538)</p> <p>-</p> <p>GO:0003700 : DNA-binding transcription factor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0003700)</p> <p>GO:0003680 : AT DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003680)</p> <p>GO:0006357 : regulation of transcription by RNA polymerase II</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 Drosophila melanogaster</p> <p>Q9W0K7 (http://www.uniprot.org/uniprot/Q9W0K7)</p> <p>()</p> <p>GenebankID or UniProtKB</p>
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(<https://www.ebi.ac.uk/QuickGO/term/GO:0006357>)
 GO:0006355 : regulation of transcription, DNA-templated
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0006355>)
 GO:0007548 : sex differentiation (<https://www.ebi.ac.uk/QuickGO/term/GO:0007548>)
 GO:0006351 : transcription, DNA-templated
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0006351>)
 GO:0048085 : adult chitin-containing cuticle pigmentation
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0048085>)
 GO:0007455 : eye-antennal disc morphogenesis
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0007455>)
 GO:0046660 : female sex differentiation
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0046660>)
 GO:0007478 : leg disc morphogenesis
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0007478>)
 GO:0048086 : negative regulation of developmental pigmentation
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0048086>)
 GO:0048092 : negative regulation of male pigmentation
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0048092>)
 GO:0048070 : regulation of developmental pigmentation
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0048070>)
 GO:0048071 : sex-specific pigmentation
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0048071>)

GO - Cellular Component

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

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

A genome-wide association study of pheromone preference under field conditions indicates that preference is controlled by sequence variation within the 293â€‰%kb bab intron 1.

Experimental Evidence

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

Main Reference

bric Ã brac controls sex pheromone choice by male European corn borer moths. (2021) (<https://pubmed.ncbi.nlm.nih.gov/33990556>)

Authors

Unbehend M; Kozak GM; Koutroumpa F; Coates BS; Dekker T; Groot AT; Heckel DG; Dopman EB

Abstract

The sex pheromone system of ~160,000 moth species acts as a powerful form of assortative mating whereby females attract conspecific males with a species-specific blend of volatile compounds. Understanding how female pheromone production and male preference coevolve to produce this diversity requires knowledge of the genes underlying change in both traits. In the European corn borer moth, pheromone blend variation is controlled by two alleles of an autosomal fatty-acyl reductase gene expressed in the female pheromone gland (pgFAR). Here we show that asymmetric male preference is controlled by cis-acting variation in a sex-linked transcription factor expressed in the developing male antenna, bric Ã brac (bab). A genome-wide association study of preference using pheromone-trapped males implicates variation in the 293â€‰%kb bab intron 1, rather than the coding sequence. Linkage disequilibrium between bab intron 1 and pgFAR further validates bab as the preference locus, and demonstrates that the two genes interact to contribute to assortative mating. Thus, lack of physical linkage is not a constraint for coevolutionary divergence of female pheromone production and male behavioral response genes, in contrast to what is often predicted by evolutionary theory.

Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS

@SexualTrait

