

GEPHE SUMMARY

	Gephebase Gene		GephelD
NV10127-NV10128-NV10129 gene cluster (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^NV10127-NV10128-NV10129+gene+cluster^#gephebase-summary-title)		GP00000744	
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=^Physiology^#gephebase-summary-title)		Trait	
Pheromone production (isomeric/chirality divergence) (https://www.gephebase.org/search-criteria?/and+Trait=^Pheromone+production+(isomeric/chirality+divergence)^#gephebase-summary-title)			
	Trait State in Taxon A		
Nasonia vitripennis		Trait State in Taxon B	
Nasonia giraulti			
	Ancestral State		
Data not curated		Taxonomic Status	
Interspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Interspecific^#gephebase-summary-title)			
	Taxon A		Taxon B
	Latin Name		Latin Name
Nasonia vitripennis (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Nasonia+vitripennis^#gephebase-summary-title)		Nasonia giraulti (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Nasonia+giraulti^#gephebase-summary-title)	
	Common Name		Common Name
jewel wasp		-	
	Synonyms		Synonyms
jewel wasp; Nasonia vitripennis (Walker, 1836)		Nasonia giraulti Darling, 1990	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Hymenoptera; Apocrita; Parasitoida; Chalcidoidea; Pteromalidae; Pteromalinae; Nasonia		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Hymenoptera; Apocrita; Parasitoida; Chalcidoidea; Pteromalidae; Pteromalinae; Nasonia	
	Parent		Parent
Nasonia () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7424)		Nasonia () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7424)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
7425 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7425)		7426 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7426)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Nasonia vitripennis
NV10127		L8BRU0 (http://www.uniprot.org/uniprot/L8BRU0)	
	Synonyms		GenebankID or UniProtKB
-		HE962018 (https://www.ncbi.nlm.nih.gov/nuccore/HE962018)	
	String		
-			
	Sequence Similarities		
-			
	GO - Molecular Function		
-			
	GO - Biological Process		
-			
	GO - Cellular Component		
-			
			Presumptive Null
Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive+Null=^Unknown^#gephebase-summary-title)			

Unknown (<a +unknown`#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Molecular+Type=">https://www.gephebase.org/search-criteria?/and+Molecular+Type="+Unknown`#gephebase-summary-title)	Molecular Type
Unknown (<a +unknown`#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Aberration+Type=">https://www.gephebase.org/search-criteria?/and+Aberration+Type="+Unknown`#gephebase-summary-title)	Aberration Type
Not identified. Gene conversion between the three paralogues in tandem	Molecular Details of the Mutation
Linkage Mapping (<a +linkage+mapping`#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=">https://www.gephebase.org/search-criteria?/and+Experimental+Evidence="+Linkage+Mapping`#gephebase-summary-title)	Experimental Evidence
Behavioural and genetic analyses of <i>Nasonia</i> shed light on the evolution of sex pheromones. (2013) (https://pubmed.ncbi.nlm.nih.gov/23407492)	Main Reference
Niehuis O; Buellesbach J; Gibson JD; Pothmann D; Hanner C; Mutti NS; Judson AK; Gadau J; Ruther J; Schmitt T	Authors
Sex pheromones play a pivotal role in the communication of many sexually reproducing organisms. Accordingly, speciation is often accompanied by pheromone diversification enabling proper mate finding and recognition. Current theory implies that chemical signals are under stabilizing selection by the receivers who thereby maintain the integrity of the signals. How the tremendous diversity of sex pheromones seen today evolved is poorly understood. Here we unravel the genetics of a newly evolved pheromone phenotype in wasps and present results from behavioural experiments indicating how the evolution of a new pheromone component occurred in an established sender-receiver system. We show that male <i>Nasonia vitripennis</i> evolved an additional pheromone compound differing only in its stereochemistry from a pre-existing one. Comparative behavioural studies show that conspecific females responded neutrally to the new pheromone phenotype when it evolved. Genetic mapping and gene knockdown show that a cluster of three closely linked genes accounts for the ability to produce this new pheromone phenotype. Our data suggest that new pheromone compounds can persist in a sender's population, without being selected against by the receiver and without the receiver having a pre-existing preference for the new pheromone phenotype, by initially remaining unperceived. Our results thus contribute valuable new insights into the evolutionary mechanisms underlying the diversification of sex pheromones. Furthermore, they indicate that the genetic basis of new pheromone compounds can be simple, allowing them to persist long enough in a population for receivers to evolve chemosensory adaptations for their exploitation.	Abstract
	Additional References

RELATED GEPHE

No matches found.	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

Cluster of paralogous genes @SexualTrait