

GEPHE SUMMARY

	Gephebase Gene		GepheID
Drip (https://www.gephebase.org/search-criteria?/and+GeneGephebase=~Drip^#gephebase-summary-title)	GP00000237		
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Physiology (https://www.gephebase.org/search-criteria?/and+TraitCategory=~Physiology^#gephebase-summary-title)		Trait	
Fertility (https://www.gephebase.org/search-criteria?/and+Trait=~Fertility^#gephebase-summary-title)			
	Trait State in Taxon A		
Drosophila melanogaster - wild		Trait State in Taxon B	
Drosophila melanogaster - wild			
	Ancestral State		
Data not curated		Taxonomic Status	
Intraspecific (https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=~Intraspecific^#gephebase-summary-title)			
	Taxon A		Taxon B
	Latin Name		Latin Name
Drosophila melanogaster (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Drosophila+melanogaster^#gephebase-summary-title)		Drosophila melanogaster (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Drosophila+melanogaster^#gephebase-summary-title)	
	Common Name		Common Name
fruit fly		fruit fly	
	Synonyms		Synonyms
Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster		Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster	
	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; Diptera; Brachycera; Muscomorpha; Eremoneura; Cyclorrhapha; Schizophora; Acalyptratae; Ephydroidea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Protostomia; Ecdysozoa; Panarthropoda; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Dicondylia; Pterygota; Neoptera; Holometabola; Diptera; Brachycera; Muscomorpha; Eremoneura; Cyclorrhapha; Schizophora; Acalyptratae; Ephydroidea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup	
	Parent		Parent
melanogaster subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351)		melanogaster subgroup () - (Rank: species subgroup) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227)		7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Drosophila melanogaster
Drip		Q9V5Z7 (http://www.uniprot.org/uniprot/Q9V5Z7)	
	Synonyms		GenebankID or UniProtKB
anon-48Aa; CG9023; Dmel\CG9023; drip; DRIP; I		AE014298 (https://www.ncbi.nlm.nih.gov/nuccore/AE014298)	
	String		
7227.FBpp0303808 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0303808)			
	Sequence Similarities		
Belongs to the MIP/aquaporin (TC 1.A.8) family.			
	GO - Molecular Function		
GO:0015250 : water channel activity (https://www.ebi.ac.uk/QuickGO/term/GO:0015250)			
	GO - Biological Process		
GO:0055085 : transmembrane transport (https://www.ebi.ac.uk/QuickGO/term/GO:0055085)			

GO:0046662 : regulation of oviposition
(<https://www.ebi.ac.uk/QuickGO/term/GO:0046662>)
GO:0003014 : renal system process (<https://www.ebi.ac.uk/QuickGO/term/GO:0003014>)
GO:0030104 : water homeostasis (<https://www.ebi.ac.uk/QuickGO/term/GO:0030104>)
GO:0006833 : water transport (<https://www.ebi.ac.uk/QuickGO/term/GO:0006833>)
GO - Cellular Component

GO:0016021 : integral component of membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0016021>)
GO:0005886 : plasma membrane (<https://www.ebi.ac.uk/QuickGO/term/GO:0005886>)

	Presumptive Null
Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Unknown^#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
unknown	
	Experimental Evidence
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Linkage Mapping^#gephebase-summary-title)	
	Main Reference
Fine-scale mapping of natural variation in fly fecundity identifies neuronal domain of expression and function of an aquaporin. (2012) (https://pubmed.ncbi.nlm.nih.gov/22509142)	
	Authors
Bergland AO; Chae HS; Kim YJ; Tatar M	

	Abstract
To gain insight into the molecular genetic basis of standing variation in fitness related traits, we identify a novel factor that regulates the molecular and physiological basis of natural variation in female <i>Drosophila melanogaster</i> fecundity. Genetic variation in female fecundity in flies derived from a wild orchard population is heritable and largely independent of other measured life history traits. We map a portion of this variation to a single QTL and then use deficiency mapping to further refine this QTL to 5 candidate genes. Ubiquitous expression of RNAi against only one of these genes, an aquaporin encoded by <i>Drip</i> , reduces fecundity. Within our mapping population <i>Drip</i> mRNA level in the head, but not other tissues, is positively correlated with fecundity. We localize <i>Drip</i> expression to a small population of corazonin producing neurons located in the dorsolateral posterior compartments of the protocerebrum. Expression of <i>Drip</i> -RNAi using both the pan-neuronal ELAV-Gal4 and the <i>Crz</i> -Gal4 drivers reduces fecundity. Low-fecundity RILs have decreased <i>Crz</i> expression and increased expression of <i>pale</i> , the enzyme encoding the rate-limiting step in the production of dopamine, a modulator of insect life histories. Taken together these data suggest that natural variation in <i>Drip</i> expression in the corazonin producing neurons contributes to standing variation in fitness by altering the concentration of two neurohormones.	
	Additional References

RELATED GEPHE

	Related Genes
6 (bab2, PPAR-gamma, Sdic gene cluster, InR, PHGPx, RnrS) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^7227^/and+Trait=Fertility/and+groupHaplotypes=true#gephebase-summary-title)	
	Related Haplotypes
No matches found.	

EXTERNAL LINKS

COMMENTS