

GEPHE SUMMARY

pastrel (https://www.gephebase.org/search-criteria?/and+GeneGephebase=~pastrel~#gephebase-summary-title)	Gephebase Gene	GP00000854	GepheID
	Entry Status	Martin	Main curator
	Published		

PHENOTYPIC CHANGE

Physiology (https://www.gephebase.org/search-criteria?/and+TraitCategory=~Physiology~#gephebase-summary-title)		Trait Category	
Pathogen resistance (viruses) (https://www.gephebase.org/search-criteria?/and+Trait=~Pathogen resistance (viruses)~#gephebase-summary-title)		Trait	
Drosophila melanogaster - DGRP lines		Trait State in Taxon A	
Drosophila melanogaster - DGRP lines		Trait State in Taxon B	
Data not curated		Ancestral State	
Intraspecific (https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=~Intraspecific~#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
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)	
fruit fly		fruit fly	
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	
species		species	
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	
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)	
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)	
No is Taxon A an Infraspecies?		No is Taxon B an Infraspecies?	

GENOTYPIC CHANGE

Generic Gene Name		UniProtKB Drosophila melanogaster
Q81Q82 (http://www.uniprot.org/uniprot/Q81Q82)		
CG8588; Dm-65; Dmel\CG8588; Pst; Dmel_CG8588		GenebankID or UniProtKB
AE014296 (https://www.ncbi.nlm.nih.gov/nuccore/AE014296)		
String		
-		
Sequence Similarities		
-		
GO - Molecular Function		
-		
GO - Biological Process		
GO:0007616 : long-term memory (https://www.ebi.ac.uk/QuickGO/term/GO:0007616)		
GO:0009306 : protein secretion (https://www.ebi.ac.uk/QuickGO/term/GO:0009306)		
GO - Cellular Component		
GO:0005829 : cytosol (https://www.ebi.ac.uk/QuickGO/term/GO:0005829)		

Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Unknown^#gephebase-summary-title)	Presumptive Null
Unknown (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Unknown^#gephebase-summary-title)	Molecular Type
Unknown (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title)	Aberration Type
unknown	Molecular Details of the Mutation
Association Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Association Mapping^#gephebase-summary-title)	Experimental Evidence
Genome-wide association studies reveal a simple genetic basis of resistance to naturally coevolving viruses in <i>Drosophila melanogaster</i> . (2012) (https://pubmed.ncbi.nlm.nih.gov/23166512)	Main Reference
Magwire MM; Fabian DK; Schweyen H; Cao C; Longdon B; Bayer F; Jiggins FM	Authors
Variation in susceptibility to infectious disease often has a substantial genetic component in animal and plant populations. We have used genome-wide association studies (GWAS) in <i>Drosophila melanogaster</i> to identify the genetic basis of variation in susceptibility to viral infection. We found that there is substantially more genetic variation in susceptibility to two viruses that naturally infect <i>D. melanogaster</i> (DCV and DMelSV) than to two viruses isolated from other insects (FHV and DAffSV). Furthermore, this increased variation is caused by a small number of common polymorphisms that have a major effect on resistance and can individually explain up to 47% of the heritability in disease susceptibility. For two of these polymorphisms, it has previously been shown that they have been driven to a high frequency by natural selection. An advantage of GWAS in <i>Drosophila</i> is that the results can be confirmed experimentally. We verified that a gene called <i>pastrel</i> --which was previously not known to have an antiviral function--is associated with DCV-resistance by knocking down its expression by RNAi. Our data suggest that selection for resistance to infectious disease can increase genetic variation by increasing the frequency of major-effect alleles, and this has resulted in a simple genetic basis to variation in virus resistance.	Abstract
	Additional References

RELATED GEPHE

15 (18-wheeler, CG8492, Diptericin, Drosomycin-like 5, Ge-1, GNBp1, GNBp2, Immune deficiency, Lectin-24A, PGRP-LC, ref(2)P, SR-CII, Tehao, Ubiquitin conjugating enzyme E2H (Ubc-E2H), CHKov1) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^7227^/and+Trait=Pathogen resistance/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

RNAi functional evidence