

## GEPHE SUMMARY

Tehao ( <a href="https://www.gephebase.org/search-criteria?/and+Gene">https://www.gephebase.org/search-criteria?/and+Gene</a> Gephebase=^Tehao "#gephebase-summary-title")	Gephebase Gene	GP00001115	GephelD
Published	Entry Status	Martin	Main curator

## PHENOTYPIC CHANGE

	Trait Category		
Physiology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait">https://www.gephebase.org/search-criteria?/and+Trait</a> Category=^Physiology "#gephebase-summary-title")		Trait	
Pathogen resistance ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=^Pathogen">https://www.gephebase.org/search-criteria?/and+Trait=^Pathogen</a> resistance "#gephebase-summary-title")		Trait State in Taxon A	
Drosophila melanogaster		Trait State in Taxon B	
Drosophila melanogaster		Ancestral State	
Data not curated		Taxonomic Status	
Intraspecific ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic">https://www.gephebase.org/search-criteria?/and+Taxonomic</a> Status=^Intraspecific "#gephebase-summary-title")			
Taxon A	Latin Name	Taxon B	Latin Name
Drosophila melanogaster ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Drosophila+melanogaster">#gephebase-summary-title")</a>		Drosophila melanogaster ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Drosophila+melanogaster">#gephebase-summary-title")</a>	
fruit fly	Common Name	fruit fly	Common Name
Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melanogaster	Synonyms	Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melanogaster	Synonyms
species	Rank	species	Rank
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; Ephydriodea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup	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; Ephydriodea; Drosophilidae; Drosophilinae; Drosophilini; Drosophila; Sophophora; melanogaster group; melanogaster subgroup	Lineage
melanogaster subgroup () - (Rank: species subgroup) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351</a> )	Parent	melanogaster subgroup () - (Rank: species subgroup) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=32351</a> )	Parent
7227 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227</a> )	NCBI Taxonomy ID	7227 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227</a> )	NCBI Taxonomy ID
No	is Taxon A an Infraspecies?	No	is Taxon B an Infraspecies?

## GENOTYPIC CHANGE

Tehao	Generic Gene Name	UniProtKB Drosophila melanogaster
toll; CG7121; CT22017; Dmel\CG7121; dTLR5; dToll5; tehao; Tho; Tl-5; Toll 5; Toll-5; Dmel\_CG7121	Synonyms	GenebankID or UniProtKB
7227.FBpp0080080 ( <a href="http://string-db.org/newstring_cgi/show_network_section.pl?identifier=7227.FBpp0080080">http://string-db.org/newstring_cgi/show_network_section.pl?identifier=7227.FBpp0080080</a> )	String	AE014134 ( <a href="https://www.ncbi.nlm.nih.gov/nuccore/AE014134">https://www.ncbi.nlm.nih.gov/nuccore/AE014134</a> )
-	Sequence Similarities	
	GO - Molecular Function	
GO:0019901 : protein kinase binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0019901">https://www.ebi.ac.uk/QuickGO/term/GO:0019901</a> )		
GO:0015026 : coreceptor activity ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0015026">https://www.ebi.ac.uk/QuickGO/term/GO:0015026</a> )		
GO:0005121 : Toll binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005121">https://www.ebi.ac.uk/QuickGO/term/GO:0005121</a> )		

## GO - Biological Process

GO:0045087 : innate immune response  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0045087>)  
 GO:0006954 : inflammatory response  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0006954>)  
 GO:0006967 : positive regulation of antifungal peptide biosynthetic process  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0006967>)  
 GO:0002807 : positive regulation of antimicrobial peptide biosynthetic process  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0002807>)  
 GO:0008063 : Toll signaling pathway  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0008063>)  
 GO:0002224 : toll-like receptor signaling pathway  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0002224>)

## GO - Cellular Component

GO:0005886 : plasma membrane (<https://www.ebi.ac.uk/QuickGO/term/GO:0005886>)  
 GO:0005887 : integral component of plasma membrane  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0005887>)  
 GO:0009986 : cell surface (<https://www.ebi.ac.uk/QuickGO/term/GO:0009986>)

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

unknown

Experimental Evidence

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

Main Reference

Genetic variation in *Drosophila melanogaster* resistance to infection: a comparison across bacteria. (2006) (<https://pubmed.ncbi.nlm.nih.gov/16888344>)

Authors

Lazzaro BP; Sackton TB; Clark AG

Abstract

Insects use a generalized immune response to combat bacterial infection. We have previously noted that natural populations of *D. melanogaster* harbor substantial genetic variation for antibacterial immunocompetence and that much of this variation can be mapped to genes that are known to play direct roles in immunity. It was not known, however, whether the phenotypic effects of variation in these genes are general across the range of potentially infectious bacteria. To address this question, we have reinfected the same set of *D. melanogaster* lines with *Serratia marcescens*, the bacterium used in the previous study, and with three additional bacteria that were isolated from the hemolymph of wild-caught *D. melanogaster*. Two of the new bacteria, *Enterococcus faecalis* and *Lactococcus lactis*, are gram positive. The third, *Providencia burhopogranaria*, is gram negative like *S. marcescens*. *Drosophila* genotypes vary highly significantly in bacterial load sustained after infection with each of the four bacteria, but mean loads are largely uncorrelated across bacteria. We have tested statistical associations between immunity phenotypes and nucleotide polymorphism in 21 candidate immunity genes. We find that molecular variation in some genes, such as *Tehao*, contributes to phenotypic variation in the suppression of only a subset of the pathogens. Variation in *SR-CII* and *18-wheeler*, however, has effects that are more general. Although markers in *SR-CII* and *18-wheeler* explain >20% of the phenotypic variation in resistance to *L. lactis* and *E. faecalis*, respectively, most of the molecular polymorphisms tested explain <10% of the total variance in bacterial load sustained after infection.

Additional References

## RELATED GEPHE

## Related Genes

15 (18-wheeler, CG8492, Diptericin, Drosomycin-like 5, Ge-1, GNBP1, GNBP2, Immune deficiency, Lectin-24A, pastrel, PGRP-LC, ref(2)P, SR-CII, 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 Haplotypes

No matches found.

## EXTERNAL LINKS

## COMMENTS