

GEPHE SUMMARY

CG8492 ( <a href="https://www.gephebase.org/search-criteria?/and+Gene">https://www.gephebase.org/search-criteria?/and+Gene</a> Gephebase= <sup>^</sup> CG8492#gephebase-summary-title)	Gephebase Gene	GP00001481	Gephebase ID
	Entry Status	Prigent	Main curator
Published			

## PHENOTYPIC CHANGE

	Trait Category
Physiology ( <a href="https://www.gephbase.org/search-criteria?/and+Trait">https://www.gephbase.org/search-criteria?/and+Trait</a> Category=^Physiology^#gephbase-summary-title)	
Pathogen resistance (Drosophila C virus & flock house virus) ( <a href="https://www.gephbase.org/search-criteria?/and+Trait=Pathogen+resistance+(Drosophila+C+virus+&amp;+flock+house+virus)^#gephbase-summary-title">https://www.gephbase.org/search-criteria?/and+Trait=Pathogen+resistance+(Drosophila+C+virus+&amp;+flock+house+virus)^#gephbase-summary-title</a> )	Trait
D. melanogaster mostly sensitive without selection	Trait State in Taxon A
D. melanogaster resistant after selection	Trait State in Taxon B
Taxon A	Ancestral State
Experimental Evolution ( <a href="https://www.gephbase.org/search-criteria?/and+Taxonomic+Status=Experimental+Evolution^#gephbase-summary-title">https://www.gephbase.org/search-criteria?/and+Taxonomic Status=Experimental Evolution^#gephbase-summary-title</a> )	Taxonomic Status

Taxon A	Latin Name	Taxon B	Latin Name
	Common Name		Common Name
	Synonyms		Synonyms
eria?/and+Taxon and Synonyms=^Drosophila le)	Drosophila melanogaster ( <a href="https://www.gephbase.org/search-criteria?/and+Taxon and Synonyms=^Drosophila melanogaster">#gephbase-summary-title)</a>	Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melanogaster	Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melanogaster
	Rank	Rank	Rank
	Lineage	Lineage	Lineage
onta; Metazoa; Eumetazoa; Bilateria; Protostomia; Mandibulata; Pancrustacea; Hexapoda; Insecta; metabola; Diptera; Brachycera; Muscomorpha; Acalyptratae; Ephydroidea; Drosophilidae; Sophophora; melanogaster group; melanogaster species 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) ( <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> )	melanogaster subgroup () - (Rank: species subgroup) ( <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> )
ny/Browser/wwwtax.cgi?id= 32351 )	NCBI Taxonomy ID	NCBI Taxonomy ID	NCBI Taxonomy ID
ny/Browser/wwwtax.cgi?id= 7227 )	is Taxon A an Infraspecies?	No	is Taxon B an Infraspecies?

## GENOTYPIC CHANGE

Generic Gene Name	UniProtKB Drosophila melanogaster
Dmel\CG8492	Q9VSA5 ( <a href="http://www.uniprot.org/uniprot/Q9VSA5">http://www.uniprot.org/uniprot/Q9VSA5</a> )
Synonyms	GenebankID or UniProtKB
Dmel\CG8492; CG8492; Dmel\_CG8492	NM_139894.3 ( <a href="https://www.ncbi.nlm.nih.gov/nucleotide/NM_139894.3">https://www.ncbi.nlm.nih.gov/nucleotide/NM_139894.3</a> )
String	
7227.FBpp0297621 ( <a href="http://string-db.org/newstring_cgi/show_network_section.pl?identifier=7227.FBpp0297621">http://string-db.org/newstring_cgi/show_network_section.pl?identifier=7227.FBpp0297621</a> )	
Sequence Similarities	
Belongs to the glycosyl hydrolase 22 family.	
GO - Molecular Function	
GO:0003796 : lysozyme activity ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0003796">https://www.ebi.ac.uk/QuickGO/term/GO:0003796</a> )	
GO - Biological Process	
GO:0050829 : defense response to Gram-negative bacterium	

(<https://www.ebi.ac.uk/QuickGO/term/GO:0050829>)

GO:0008152 : metabolic process (<https://www.ebi.ac.uk/QuickGO/term/GO:0008152>)

GO - Cellular Component

GO:0005615 : extracellular space (<https://www.ebi.ac.uk/QuickGO/term/GO:0005615>)

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

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

Main Reference

Host adaptation to viruses relies on few genes with different cross-resistance properties. (2014) (<https://pubmed.ncbi.nlm.nih.gov/24711428>)

Authors

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Abstract

Host adaptation to one parasite may affect its response to others. However, the genetics of these direct and correlated responses remains poorly studied. The overlap between these responses is instrumental for the understanding of host evolution in multiparasite environments. We determined the genetic and phenotypic changes underlying adaptation of *Drosophila melanogaster* to *Drosophila* C virus (DCV). Within 20 generations, flies selected with DCV showed increased survival after DCV infection, but also after cricket paralysis virus (CrPV) and flock house virus (FHV) infection. Whole-genome sequencing identified two regions of significant differentiation among treatments, from which candidate genes were functionally tested with RNAi. Three genes were validated--*pastrel*, a known DCV-response gene, and two other loci, *Ubc-E2H* and *CG8492*. Knockdown of *Ubc-E2H* and *pastrel* also led to increased sensitivity to CrPV, whereas knockdown of *CG8492* increased susceptibility to FHV infection. Therefore, *Drosophila* adaptation to DCV relies on few major genes, each with different cross-resistance properties, conferring host resistance to several parasites.

Additional References

## RELATED GEPHE

Related Genes

15 (18-wheeler, Diptericin, Drosomycin-like 5, Ge-1, GNBP1, GNBP2, Immune deficiency, Lectin-24A, *pastrel*, 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 Haplotypes

No matches found.

## EXTERNAL LINKS

## COMMENTS

Validated by functional test with RNAi