

GEPHE SUMMARY

Ubiqutin conjugating enzyme E2H (Ubc-E2H) ([https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^Ubiqutin+conjugating+enzyme+E2H+\(Ubc-E2H\)^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^Ubiqutin+conjugating+enzyme+E2H+(Ubc-E2H)^#gephebase-summary-title))

Gephebase Gene GP00001480 GepheID

Prigent Main curator

Entry Status

Published

PHENOTYPIC CHANGE

Physiology (<https://www.gephebase.org/search-criteria?/and+Trait+Category=^Physiology^#gephebase-summary-title>)

Trait Category

Pathogen resistance (Drosophila C virus & cricket paralysis virus) ([https://www.gephebase.org/search-criteria?/and+Trait=^Pathogen+resistance+\(Drosophila+C+virus+&+cricket+paralysis+virus\)^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Trait=^Pathogen+resistance+(Drosophila+C+virus+&+cricket+paralysis+virus)^#gephebase-summary-title))

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 (<https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Experimental+Evolution^#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; Acalyptera; 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; Acalyptera; 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 Infrappecies?	No is Taxon B an Infrappecies?

GENOTYPIC CHANGE

UbcE2H

Generic Gene Name UniProtKB Drosophila melanogaster

CG2257; Dmel\CG2257; dUbc-E2H; Ubc-2EH; Ubc-E2H; Ubc-E2Hs; UbcDE2H; ubcE2h; Dmel_CG2257

Synonyms Q7JW03 (<http://www.uniprot.org/uniprot/Q7JW03>) GenebankID or UniProtKB

7227.FBpp0071067 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0071067)

String NM_167145.2 (https://www.ncbi.nlm.nih.gov/nucleotide/NM_167145.2)

Sequence Similarities

Belongs to the ubiquitin-conjugating enzyme family.

GO - Molecular Function

GO:0005524 : ATP binding (<https://www.ebi.ac.uk/QuickGO/term/GO:0005524>)

GO:0004842 : ubiquitin-protein transferase activity
(<https://www.ebi.ac.uk/QuickGO/term/GO:0004842>)
GO:0061631 : ubiquitin conjugating enzyme activity
(<https://www.ebi.ac.uk/QuickGO/term/GO:0061631>)

GO - Biological Process

GO:0006511 : ubiquitin-dependent protein catabolic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006511>)
GO:0000209 : protein polyubiquitination
(<https://www.ebi.ac.uk/QuickGO/term/GO:0000209>)

GO - Cellular Component

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	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
Martins NE; Faria VG; Nolte V; Schlatterer C; Teixeira L; Sucena A; Magalhães S	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 <i>Drosophila melanogaster</i> to <i>Drosophila C virus</i> (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, <i>Drosophila</i> 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, CG8492, Dipteracin, Drosomycin-like 5, Ge-1, GNBP1, GNBP2, Immune deficiency, Lectin-24A, pastrel, PGRP-LC, ref(2)P, SR-CII, Tehao, 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