

GEPHE SUMMARY

Ubiquitin conjugating enzyme E2H (Ubc-E2H) ([https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^Ubiquitin+conjugating+enzyme+E2H+\(Ubc-E2H\)^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^Ubiquitin+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
Trait
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 State in Taxon A
D. melanogaster mostly sensitive without selection

Trait State in Taxon B
D. melanogaster resistant after selection

Ancestral State
Taxon A
Taxonomic Status
Experimental Evolution (<https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Experimental+Evolution^#gephebase-summary-title>)

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)
NCBI Taxonomy ID 7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227)	NCBI Taxonomy ID 7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227)
is Taxon A an Infrappecies? No	is Taxon B an Infrappecies? No

GENOTYPIC CHANGE

UbcE2H

Generic Gene Name UniProtKB Drosophila melanogaster
Q7JW03 (<http://www.uniprot.org/uniprot/Q7JW03>)
Synonyms GenebankID or UniProtKB
CG2257; Dmel\CG2257; dUbc-E2H; Ubc-2EH; Ubc-E2H; Ubc-E2Hs; UbcDE2H; ubcE2h; NM_167145.2 (https://www.ncbi.nlm.nih.gov/nucore/NM_167145.2)
Dmel_CG2257

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

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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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
Host adaptation to viruses relies on few genes with different cross-resistance properties. (2014) (https://pubmed.ncbi.nlm.nih.gov/24711428)	Main Reference
Martins NE; Faria VG; Nolte V; Schl�tterer C; Teixeira L; Sucena �; Magalh�es S	Authors
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.	Abstract
	Additional References

RELATED GEPHE

15 (18-wheeler, CG8492, Dipteracin, Drosomycin-like 5, Ge-1, GGBP1, GGBP2, 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 Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

Validated by functional test with RNAi