

GEPHE SUMMARY

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

PHENOTYPIC CHANGE

|                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Physiology ( <a href="https://www.gephebase.org/search-criteria?/and+TraitCategory=~Physiology~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+TraitCategory=~Physiology~#gephebase-summary-title</a> )                                                                                                                                                                                                              |  | Trait Category                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| Pathogen resistance (Drosophila C virus & flock house virus) ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=~Pathogen resistance (Drosophila C virus &amp; flock house virus)~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=~Pathogen resistance (Drosophila C virus &amp; flock house virus)~#gephebase-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.gephebase.org/search-criteria?/and+TaxonomicStatus=~Experimental Evolution~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=~Experimental Evolution~#gephebase-summary-title</a> )                                                                                                                                                                      |  | Taxonomic Status                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| Taxon A                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Taxon B                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| Drosophila melanogaster ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Drosophila melanogaster~#gephebase-summary-title">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">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=~Drosophila melanogaster~#gephebase-summary-title</a> )                                                                                                                                                             |  |
| 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) ( <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= 32351">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 32351</a> )                                                                                                                                                                                                                                   |  |
| 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> )                                                                                                                                                                                                                                                                                    |  | 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> )                                                                                                                                                                                                                                                                                    |  |
| No                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | No                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |

GENOTYPIC CHANGE

|                                                                                                                                                                                                                    |                         |                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dmel\CG8492                                                                                                                                                                                                        | Generic Gene Name       | UniProtKB Drosophila melanogaster Q9VSA5 ( <a href="http://www.uniprot.org/uniprot/Q9VSA5">http://www.uniprot.org/uniprot/Q9VSA5</a> )                  |
| Dmel\CG8492; CG8492; Dmel_CG8492                                                                                                                                                                                   | Synonyms                | GenebankID or UniProtKB NM_139894.3 ( <a href="https://www.ncbi.nlm.nih.gov/nuccore/NM_139894.3">https://www.ncbi.nlm.nih.gov/nuccore/NM_139894.3</a> ) |
| 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> ) | String                  |                                                                                                                                                         |
| Belongs to the glycosyl hydrolase 22 family.                                                                                                                                                                       | Sequence Similarities   |                                                                                                                                                         |
| 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 - Molecular Function |                                                                                                                                                         |
| GO:0050829 : defense response to Gram-negative bacterium                                                                                                                                                           | GO - Biological Process |                                                                                                                                                         |

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0050829">https://www.ebi.ac.uk/QuickGO/term/GO:0050829</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |
| GO:0008152 : metabolic process ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0008152">https://www.ebi.ac.uk/QuickGO/term/GO:0008152</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |
| GO - Cellular Component                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |
| GO:0005615 : extracellular space ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0005615">https://www.ebi.ac.uk/QuickGO/term/GO:0005615</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Presumptive Null                  |
| Unknown ( <a href="https://www.gephebase.org/search-criteria?/and+Presumptive Null=~Unknown^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Presumptive Null=~Unknown^#gephebase-summary-title</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Molecular Type                    |
| Unknown ( <a href="https://www.gephebase.org/search-criteria?/and+Molecular Type=~Unknown^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Molecular Type=~Unknown^#gephebase-summary-title</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Aberration Type                   |
| Unknown ( <a href="https://www.gephebase.org/search-criteria?/and+Aberration Type=~Unknown^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Aberration Type=~Unknown^#gephebase-summary-title</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Molecular Details of the Mutation |
| unknown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Experimental Evidence             |
| Association Mapping ( <a href="https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Association Mapping^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Association Mapping^#gephebase-summary-title</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Main Reference                    |
| Host adaptation to viruses relies on few genes with different cross-resistance properties. (2014) ( <a href="https://pubmed.ncbi.nlm.nih.gov/24711428">https://pubmed.ncbi.nlm.nih.gov/24711428</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Authors                           |
| Martins NE; Faria VG; Nolte V; SchiÃ¶tterer C; Teixeira L; Sucena Ã%; MagalhÃ¶es 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 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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |
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| 15 (18-wheeler, Dipteracin, Drosomycin-like 5, Ge-1, GGBP1, GGBP2, Immune deficiency, Lectin-24A, pastrel, PGRP-LC, ref(2)P, SR-CII, Tehao, Ubiquitin conjugating enzyme E2H (Ubc-E2H), CHKov1) ( <a href="https://www.gephebase.org/search-criteria?/or+Taxon ID=~7227~/and+Trait=Pathogen resistance/and+groupHaplotypes=true#gephebase-summary-title">https://www.gephebase.org/search-criteria?/or+Taxon ID=~7227~/and+Trait=Pathogen resistance/and+groupHaplotypes=true#gephebase-summary-title</a> ) | Related Genes      |
| No matches found.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Related Haplotypes |

EXTERNAL LINKS

COMMENTS

Validated by functional test with RNAi