

GEPHE SUMMARY

alcohol dehydrogenase (Adh) (<https://www.gephebase.org/search-criteria?/and+Gene>
 Gephebase=[^]alcohol dehydrogenase (Adh)[^]#gephebase-summary-title) Gephebase Gene GP00001988 GepheID
 Entry Status: Courtier Main curator
 Published

PHENOTYPIC CHANGE

Physiology (<https://www.gephebase.org/search-criteria?/and+Trait>
 Category=[^]Physiology[^]#gephebase-summary-title) Trait Category
 Trait: Xenobiotic resistance (alcohol) ([https://www.gephebase.org/search-criteria?/and+Trait=[^]Xenobiotic resistance \(alcohol\)[^]#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Trait=[^]Xenobiotic resistance (alcohol)[^]#gephebase-summary-title))
 Trait State in Taxon A: Drosophila melanogaster - slow allele - lower enzyme activity
 Trait State in Taxon B: Drosophila melanogaster - temperature-sensitive allele - high enzyme activity at high temperature and low enzyme activity at low temperature
 Ancestral State: Taxon A
 Taxonomic Status: Intraspecific (<https://www.gephebase.org/search-criteria?/and+Taxonomic>
 Status=[^]Intraspecific[^]#gephebase-summary-title)

Taxon A	Latin Name	Common Name	Synonyms	Rank	Lineage	Parent	NCBI Taxonomy ID	is Taxon A an Intraspecies?
Drosophila melanogaster (<a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=<sup>^</sup>Drosophila melanogaster<sup>^</sup>#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=[^]Drosophila melanogaster[^]#gephebase-summary-title)		fruit fly	Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster	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; Acalypratae; 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)	7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227)	No

Taxon B	Latin Name	Common Name	Synonyms	Rank	Lineage	Parent	NCBI Taxonomy ID	is Taxon B an Intraspecies?
Drosophila melanogaster (<a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=<sup>^</sup>Drosophila melanogaster<sup>^</sup>#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=[^]Drosophila melanogaster[^]#gephebase-summary-title)		fruit fly	Sophophora melanogaster; fruit fly; Drosophila melanogaster Meigen, 1830; Sophophora melanogaster (Meigen, 1830); Drosophila melangaster	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; Acalypratae; 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)	7227 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=7227)	No

GENOTYPIC CHANGE

Adh Generic Gene Name P00334 (<http://www.uniprot.org/uniprot/P00334>) UniProtKB Drosophila melanogaster
 Synonyms: adh; ADH; Adh3; BG:DS01486.8; CG32954; CG3481; dADH; DM-ADH; DmADH; Dmel\CG3481; Dreg-1; Reg-1; T16 GenebankID or UniProtKB
 String: 7227.FBpp0100048 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=7227.FBpp0100048)
 Sequence Similarities: Belongs to the short-chain dehydrogenases/reductases (SDR) family.
 GO - Molecular Function: GO:0042803 : protein homodimerization activity (<https://www.ebi.ac.uk/QuickGO/term/GO:0042803>)

GO:0008774 : acetaldehyde dehydrogenase (acetylating) activity
(<https://www.ebi.ac.uk/QuickGO/term/GO:0008774>)
GO:0004022 : alcohol dehydrogenase (NAD) activity
(<https://www.ebi.ac.uk/QuickGO/term/GO:0004022>)
GO:0016491 : oxidoreductase activity (<https://www.ebi.ac.uk/QuickGO/term/GO:0016491>)
GO - Biological Process

GO:0006117 : acetaldehyde metabolic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006117>)
GO:0046164 : alcohol catabolic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0046164>)
GO:0006066 : alcohol metabolic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006066>)
GO:0048149 : behavioral response to ethanol
(<https://www.ebi.ac.uk/QuickGO/term/GO:0048149>)
GO:0006067 : ethanol metabolic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006067>)
GO:0006069 : ethanol oxidation (<https://www.ebi.ac.uk/QuickGO/term/GO:0006069>)
GO:0055114 : oxidation-reduction process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0055114>)

GO - Cellular Component

GO:0005829 : cytosol (<https://www.ebi.ac.uk/QuickGO/term/GO:0005829>)
GO:0032991 : protein-containing complex
(<https://www.ebi.ac.uk/QuickGO/term/GO:0032991>)

No (<https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title>)

Presumptive Null

Coding (<https://www.gephebase.org/search-criteria?/and+Molecular Type=^Coding^#gephebase-summary-title>)

Molecular Type

Unknown (<https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title>)

Aberration Type

Activity of the purified enzyme is temperature-sensitive; as opposed to the other allele which is not. Exact coding mutation(s) unknown.

Molecular Details of the Mutation

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

Experimental Evidence

Adh-n5: a temperature-sensitive mutant at the Adh locus in *Drosophila*. (1974) (<https://pubmed.ncbi.nlm.nih.gov/4210301>)

Main Reference

Vigue C; Sofer W

Authors

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Abstract

Additional References

RELATED GEPHE

19 (Acetylcholinesterase (Ace-2), Aldehyde dehydrogenase (Aldh), CG11699, Cyp12d1, Cyp28d1, Cyp28d1-Cyp28d2, cyp6d2, cyp6g1, glutamate-gated chloride channel (GluCl), GSS (glutathione synthetase), GSTE1-E10 cluster, kin of irre (kire), para (kdr), PHGPx, resistance to dieldrin, RnrS, SOD1, Ugt86Dd, CHKov1) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=^7227^/and+Trait=Xenobiotic resistance/and+groupHaplotypes=true#gephebase-summary-title>)

Related Genes

4 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^alcohol dehydrogenase \(Adh\)^/and+Taxon ID=^7227^/or+Gene Gephebase=^alcohol dehydrogenase \(Adh\)^/and+Taxon ID=^7227^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^alcohol dehydrogenase (Adh)^/and+Taxon ID=^7227^/or+Gene Gephebase=^alcohol dehydrogenase (Adh)^/and+Taxon ID=^7227^#gephebase-summary-title))

Related Haplotypes

EXTERNAL LINKS

COMMENTS

<http://flybase.org/reports/FBal0000346>