

## GEPHE SUMMARY

alcohol dehydrogenase (Adh) (<https://www.gephebase.org/search-criteria?/and+Gene>  
Gephebase="alcohol dehydrogenase (Adh)"#gephebase-summary-title) 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

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=)) Trait

Drosophila melanogaster - slow allele - lower enzyme activity Trait State in Taxon A

Drosophila melanogaster - temperature-sensitive allele - high enzyme activity at high temperature and low enzyme activity at low temperature Trait State in Taxon B

Taxon A Ancestral State

Intraspecific (<https://www.gephebase.org/search-criteria?/and+Taxonomic>  
Status="Intraspecific"#gephebase-summary-title) Taxonomic Status

Taxon A	Latin Name	Taxon B	Latin Name
Drosophila melanogaster ( <a drosophila="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=" melanogaster"#gephebase-summary-title"="">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Drosophila melanogaster"#gephebase-summary-title</a> )	Drosophila melanogaster ( <a drosophila="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=" melanogaster"#gephebase-summary-title"="">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Drosophila melanogaster"#gephebase-summary-title</a> )	Drosophila melanogaster ( <a drosophila="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=" melanogaster"#gephebase-summary-title"="">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Drosophila melanogaster"#gephebase-summary-title</a> )	Drosophila melanogaster ( <a drosophila="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=" melanogaster"#gephebase-summary-title"="">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Drosophila melanogaster"#gephebase-summary-title</a> )
fruit fly	fruit fly	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	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	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; Acalypratae; 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; Acalypratae; 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; Acalypratae; 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; Acalypratae; 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> )	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> )	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 is Taxon A an Intraspecies?	No	No	No is Taxon B an Intraspecies?

## GENOTYPIC CHANGE

Adh Generic Gene Name: UniProtKB Drosophila melanogaster P00334 (<http://www.uniprot.org/uniprot/P00334>)  
Synonyms: GenebankID or UniProtKB M22210 (<https://www.ncbi.nlm.nih.gov/nucleotide/M22210>)  
7227.FBpp0100048 String  
([http://string-db.org/newstring.cgi/show\\_network\\_section.pl?identifier=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](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](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](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](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

17 (Acetylcholinesterase (Ace-2), Aldehyde dehydrogenase (Aldh), CG11699, Cyp12d1, Cyp28d1, Cyp28d1-Cyp28d2, cyp6d2, cyp6g1, GSS (glutathione synthetase), GSTE1-E10 cluster, kin of irre (kire), 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](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/FBa0000346>