GEPHE SUMMARY

Gephebase Gene
opsin - (SWS1) (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^opsin - (SWS1)^#gephebase-summary-title)

GepheID
GP00000759

Entry Status
Published

Main curator
Martin

PHENOTYPIC CHANGE

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

Trait
Color vision (loss of violet-range sensitivity) (https://www.gephebase.org/search-criteria?/and+Trait=^Color vision (loss of violet-range sensitivity)^#gephebase-summary-title)

Trait State in Taxon A
Sciurus carolinensis; diurnal

Trait State in Taxon B
Pteromys volans; nocturnal

Ancestral State
Taxon A

Taxonomic Status
Intergeneric or Higher (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Intergeneric or Higher^#gephebase-summary-title)

Taxon A

Latin Name
Sciurus carolinensis (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Sciurus carolinensis^#gephebase-summary-title)

Common Name
gray squirrel

Synonyms
gray squirrel; eastern gray squirrel; Sciurus carolinensis Gmelin, 1788; Sciurus carolinensus

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Euarchontoglires; Glires; Rodentia; Sciuromorpha; Sciuridae; Sciurinae; Sciurini; Sciurus

Parent
Sciurus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 10001)

NCBI Taxonomy ID
30640 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 30640)

is Taxon A an Infraspecies?
No

Taxon B

Latin Name
Sciurus carolinensis (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Sciurus carolinensis^#gephebase-summary-title)

Common Name
gray squirrel

Synonyms
gray squirrel; eastern gray squirrel; Sciurus carolinensis Gmelin, 1788; Sciurus carolinensus

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Euarchontoglires; Glires; Rodentia; Sciuromorpha; Sciuridae; Sciurinae; Sciurini; Sciurus

Parent
Sciurus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 10001)

NCBI Taxonomy ID
30640 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 30640)

is Taxon B an Infraspecies?
No

GENOTYPIC CHANGE

Generic Gene Name
OPN1SW

Synonyms
BCP; BOP; CBT

String
9606.ENSP00000249389 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=9606.ENSP00000249389)

Sequence Similarities
Belongs to the G-protein coupled receptor 1 family. Opsin subfamily.

GO - Molecular Function
GO:0038023 : signaling receptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0038023)
GO:0008020 : G protein-coupled photoreceptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0008020)

GO - Biological Process
GO:0007165 : signal transduction (https://www.ebi.ac.uk/QuickGO/term/GO:0007165)

UniProtKB Homo sapiens
P03999 (http://www.uniprot.org/uniprot/P03999)

GenebankID or UniProtKB
ABC26410 (https://www.ncbi.nlm.nih.gov/nuccore/ABC26410)

GO:0007186 : G protein-coupled receptor signaling pathway
(https://www.ebi.ac.uk/QuickGO/term/GO:0007186)
GO:0001523 : retinoid metabolic process
(https://www.ebi.ac.uk/QuickGO/term/GO:0001523)
GO:0018298 : protein-chromophore linkage
(https://www.ebi.ac.uk/QuickGO/term/GO:0018298)
GO:0007601 : visual perception (https://www.ebi.ac.uk/QuickGO/term/GO:0007601)
GO:0071482 : cellular response to light stimulus
(https://www.ebi.ac.uk/QuickGO/term/GO:0071482)
GO:0007602 : phototransduction (https://www.ebi.ac.uk/QuickGO/term/GO:0007602)

GO - Cellular Component

GO:0005887 : integral component of plasma membrane
(https://www.ebi.ac.uk/QuickGO/term/GO:0005887)
GO:0001750 : photoreceptor outer segment
(https://www.ebi.ac.uk/QuickGO/term/GO:0001750)
GO:0097381 : photoreceptor disc membrane
(https://www.ebi.ac.uk/QuickGO/term/GO:0097381)

Presumptive Null

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

Molecular Type

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

Aberration Type

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

Deletion Size

1-9 bp

Molecular Details of the Mutation

9bp deletion (residues 93-95)

Experimental Evidence

Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title)

Main Reference

Shortwave visual sensitivity in tree and flying squirrels reflects changes in lifestyle. (2006) (https://pubmed.ncbi.nlm.nih.gov/16461266)

Authors

Carvalho Ldos S; Cowing JA; Wilkie SE; Bowmaker JK; Hunt DM

Abstract

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Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

2 (https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^opsin - (SWS1)^/and+Taxon ID=^30640^/or+Gene Gephebase=^opsin - (SWS1)^/and+Taxon ID=^30640^#gephebase-summary-title)

EXTERNAL LINKS

COMMENTS