GEPHE SUMMARY

Gephebase Gene

Endothelin receptor B2 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^Endothelin receptor B2^#gephebase-summary-title)

GepheID

GP00002378

Entry Status

Published

Main curator

Santos

PHENOTYPIC CHANGE

Trait Category

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

Trait

Coloration (feathers ; white-spotting) (https://www.gephebase.org/search-criteria?/and+Trait=^Coloration (feathers ; white-spotting)^#gephebase-summary-title)

Trait State in Taxon A

Plain colour

Trait State in Taxon B

White-spotted

Ancestral State

Taxon A

Taxonomic Status

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

Taxon A

Latin Name

Anas platyrhynchos (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Anas platyrhynchos^#gephebase-summary-title)

Common Name

mallard

Synonyms

Anas boschas; Anas domesticus; Anas platyrhynchos f. domestica; mallard; duck; mallard duck; mallard ducks; Anas platyrhynchos Linnaeus 1758; Anas platyrhynchus

Rank

species

Lineage

cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Sauropsida; Sauria; Archelosauria; Archosauria; Dinosauria; Saurischia; Theropoda; Coelurosauria; Aves; Neognathae; Galloanserae; Anseriformes; Anatidae; Anatinae; Anas

Parent

Anas (ducks) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 8835)

NCBI Taxonomy ID

8839 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 8839)

is Taxon A an Infraspecies?

No

Taxon B

Latin Name

Anas platyrhynchos (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Anas platyrhynchos^#gephebase-summary-title)

Common Name

mallard

Synonyms

Anas boschas; Anas domesticus; Anas platyrhynchos f. domestica; mallard; duck; mallard duck; mallard ducks; Anas platyrhynchos Linnaeus 1758; Anas platyrhynchus

Rank

species

Lineage

cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Sauropsida; Sauria; Archelosauria; Archosauria; Dinosauria; Saurischia; Theropoda; Coelurosauria; Aves; Neognathae; Galloanserae; Anseriformes; Anatidae; Anatinae; Anas

Parent

Anas (ducks) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 8835)

NCBI Taxonomy ID

8839 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 8839)

is Taxon B an Infraspecies?

No

GENOTYPIC CHANGE

Generic Gene Name

EDNRB2

Synonyms

-

String

-

Sequence Similarities

Belongs to the G-protein coupled receptor 1 family.

GO - Molecular Function

GO:0004962 : endothelin receptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004962)

GO - Biological Process

GO:0008217 : regulation of blood pressure (https://www.ebi.ac.uk/QuickGO/term/GO:0008217)
GO:0042310 : vasoconstriction (https://www.ebi.ac.uk/QuickGO/term/GO:0042310)
GO:0048484 : enteric nervous system development

UniProtKB Gallus gallus

W8VUK4 (http://www.uniprot.org/uniprot/W8VUK4)

GenebankID or UniProtKB

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(https://www.ebi.ac.uk/QuickGO/term/GO:0048484)

GO - Cellular Component

GO:0016021 : integral component of membrane
(https://www.ebi.ac.uk/QuickGO/term/GO:0016021)

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

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

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

-

Experimental Evidence

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

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	Arg	His	332

Main Reference

Endothelin Receptor B2 (EDNRB2) Gene Is Associated with Spot Plumage Pattern in Domestic Ducks (Anas platyrhynchos). (2015) (https://pubmed.ncbi.nlm.nih.gov/25955279)

Authors

Li L; Li D; Liu L; Li S; Feng Y; Peng X; Gong Y

Abstract

Endothelin receptor B subtype 2 (EDNRB2) is a seven-transmembrane G-protein coupled receptor. In this study, we investigated EDNRB2 gene as a candidate gene for duck spot plumage pattern according to studies of chicken and Japanese quail. The entire coding region was cloned by the reverse transcription polymerase chain reaction (RT-PCR). Sequence analysis showed that duck EDNRB2 cDNA contained a 1311 bp open reading frame and encoded a putative protein of 436 amino acids residues. The transcript shared 89%-90% identity with the counterparts in other avian species. A phylogenetic tree based on amino acid sequences showed that duck EDNRB2 was evolutionary conserved in avian clade. The entire coding region of EDNRB2 were sequenced in 20 spot and 20 non-spot ducks, and 13 SNPs were identified. Two of them (c.940G>A and c.995G>A) were non-synonymous substitutions, and were genotyped in 647 ducks representing non-spot and spot phenotypes. The c.995G>A mutation, which results in the amino acid substitution of Arg332His, was completely associated with the spot phenotype: all 152 spot ducks were carriers of the AA genotype and the other 495 individuals with non-spot phenotype were carriers of GA or GG genotype, respectively. Segregation in 17 GAÃ—GG and 22 GAÃ—GA testing combinations confirmed this association since the segregation ratios and genotypes of the offspring were in agreement with the hypothesis. In order to investigate the underlying mechanism of the spot phenotype, MITF gene was used as cell type marker of melanocyte progenitor cells while TYR and TYRP1 gene were used as cell type markers of mature melanocytes. Transcripts of MITF, TYR and TYRP1 gene with expected size were identified in all pigmented skin tissues while PCR products were not obtained from non-pigmented skin tissues. It was inferred that melanocytes are absent in non-pigmented skin tissues of spot ducks.

Additional References

RELATED GEPHE

Related Genes

2 (MC1R, Microphtalmia-associated transcription factor) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^8839^/and+Trait=Coloration/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

1 (https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^Endothelin receptor B2^/and+Taxon ID=^8839^/or+Gene Gephebase=^Endothelin receptor B2^/and+Taxon ID=^8839^#gephebase-summary-title)

EXTERNAL LINKS

COMMENTS

@Parallelism