

GEPHE SUMMARY

<p>FST/MOCS2 (<a +fst="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=" mocs2+"#gephebase-summary-title"="">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+FST/MOCS2+"#gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00002125</p> <p>Santos</p>	<p>GepheID</p> <p>Main curator</p>
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PHENOTYPIC CHANGE

<p>Morphology (<a +morphology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait+Category="+Morphology+"#gephebase-summary-title)</p> <p>coloration (head feathers) (<a +coloration+(head+feathers)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+coloration+(head+feathers)+"#gephebase-summary-title)</p> <p>Black head feathers</p> <p>Red head feathers</p> <p>Unknown</p> <p>Intraspecific (<a +intraspecific+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Intraspecific+"#gephebase-summary-title)</p>	<p>Trait Category</p> <p>Trait</p> <p>Trait State in Taxon A</p> <p>Trait State in Taxon B</p> <p>Ancestral State</p> <p>Taxonomic Status</p>
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Taxon A	Latin Name	Taxon B	Latin Name
Erythrura gouldiae (<a +erythrura+gouldiae+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Erythrura+gouldiae+"#gephebase-summary-title)	Erythrura gouldiae	Erythrura gouldiae (<a +erythrura+gouldiae+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Erythrura+gouldiae+"#gephebase-summary-title)	Erythrura gouldiae
Common Name	Common Name	Common Name	Common Name
Gouldian finch	Gouldian finch	Gouldian finch	Gouldian finch
Synonyms	Synonyms	Synonyms	Synonyms
Chloebia gouldiae; Chloebia gouldiae gouldiae; Gouldian finch; Erythrura gouldiae (Gould, 1844)	Chloebia gouldiae; Chloebia gouldiae gouldiae; Gouldian finch; Erythrura gouldiae (Gould, 1844)	Chloebia gouldiae; Chloebia gouldiae gouldiae; Gouldian finch; Erythrura gouldiae (Gould, 1844)	Chloebia gouldiae; Chloebia gouldiae gouldiae; Gouldian finch; Erythrura gouldiae (Gould, 1844)
Rank	Rank	Rank	Rank
species	species	species	species
Lineage	Lineage	Lineage	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; Passeriformes; Passeroidea; Estrildidae; Erythrura	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; Passeriformes; Passeroidea; Estrildidae; Erythrura	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; Passeriformes; Passeroidea; Estrildidae; Erythrura	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; Passeriformes; Passeroidea; Estrildidae; Erythrura
Parent	Parent	Parent	Parent
Erythrura () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=44315)	Erythrura () - (Rank: genus)	Erythrura () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=44315)	Erythrura () - (Rank: genus)
NCBI Taxonomy ID	NCBI Taxonomy ID	NCBI Taxonomy ID	NCBI Taxonomy ID
44316 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=44316)	44316	44316 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=44316)	44316
is Taxon A an Intraspecies?	is Taxon B an Intraspecies?	is Taxon B an Intraspecies?	is Taxon B an Intraspecies?
No	No	No	No

GENOTYPIC CHANGE

<p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>No (<a +no+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Presumptive+Null=">https://www.gephebase.org/search-criteria?/and+Presumptive+Null="+No+"#gephebase-summary-title)</p>	<p>Generic Gene Name</p> <p>Synonyms</p> <p>String</p> <p>Sequence Similarities</p> <p>GO - Molecular Function</p> <p>GO - Biological Process</p> <p>GO - Cellular Component</p>	<p>0</p> <p>0</p>	<p>UniProtKB</p> <p>GenebankID or UniProtKB</p> <p>Presumptive Null</p>
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Cis-regulatory (<https://www.gephebase.org/search-criteria?/and+Molecular+Type=Cis-regulatory#gephebase-summary-title>)

Molecular Type

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

Aberration Type

candidate locus is a small (approx. 70 kb) non-coding region mapping to the Z chromosome near the FST and MOCS2

Molecular Details of the Mutation

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

Experimental Evidence

A non-coding region near Follistatin controls head colour polymorphism in the Gouldian finch. (2018) (<https://pubmed.ncbi.nlm.nih.gov/30282656>)

Main Reference

Toomey MB; Marques CI; Andrade P; AraÃjo PM; Sabatino S; Gazda MA; Afonso S; Lopes RJ; Corbo JC; Carneiro M

Authors

Discrete colour morphs coexisting within a single population are common in nature. In a broad range of organisms, sympatric colour morphs often display major differences in other traits, including morphology, physiology or behaviour. Despite the repeated occurrence of this phenomenon, our understanding of the genetics that underlie multi-trait differences and the factors that promote the long-term maintenance of phenotypic variability within a freely interbreeding population are incomplete. Here, we investigated the genetic basis of red and black head colour in the Gouldian finch (*Erythrura gouldiae*), a classic polymorphic system in which naturally occurring colour morphs also display differences in aggressivity and reproductive success. We show that the candidate locus is a small (approx. 70 kb) non-coding region mapping to the Z chromosome near the Follistatin (FST) gene. Unlike recent findings in other systems where phenotypic morphs are explained by large inversions containing hundreds of genes (so-called supergenes), we did not identify any structural rearrangements between the two haplotypes using linked-read sequencing technology. Nucleotide divergence between the red and black alleles was high when compared to the remainder of the Z chromosome, consistent with their maintenance as balanced polymorphisms over several million years. Our results illustrate how pleiotropic phenotypes can arise from simple genetic variation, probably regulatory in nature.

Abstract

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Additional References

Genetics and evidence for balancing selection of a sex-linked colour polymorphism in a songbird. (2019) (<https://pubmed.ncbi.nlm.nih.gov/31015412>)

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS

@parallelism Candidate locus is a small (approx. 70 kb) non-coding region mapping to the Z chromosome near the FST and MOCS2, it is unclear which one is the causative locus.