

## GEPHE SUMMARY

zeb1a ( <a href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~zeb1a~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~zeb1a~#gephebase-summary-title</a> )	Gephebase Gene	GP00001418	GepheID
Published	Entry Status	Prigent	Main curator

## PHENOTYPIC CHANGE

Morphology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait+Category=~Morphology~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait+Category=~Morphology~#gephebase-summary-title</a> )	Trait Category		
Coloration (fish fins) ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=~Coloration+(fish+fins)~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=~Coloration+(fish+fins)~#gephebase-summary-title</a> )	Trait		
Labeotropheus fuelleborni without black barring along the dorsal fin	Trait State in Taxon A		
Tropheops red cheek with a black barring along the dorsal fin	Trait State in Taxon B		
Unknown	Ancestral State		
Interspecific ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Interspecific~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Interspecific~#gephebase-summary-title</a> )	Taxonomic Status		
	Taxon A		Taxon B
Labeotropheus fuelleborni ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Labeotropheus+fuelleborni~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Labeotropheus+fuelleborni~#gephebase-summary-title</a> )	Latin Name	Tropheops sp. 'red cheek' ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Tropheops+sp.+&amp;#039;red+cheek&amp;#039;~#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Tropheops+sp.+&amp;#039;red+cheek&amp;#039;~#gephebase-summary-title</a> )	Latin Name
blue mbuna	Common Name	-	Common Name
blue mbuna; Labeotropheus fuelleborni Ahl, 1926	Synonyms	Tropheops redcheek	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Actinopterygii; Actinopteri; Neopterygii; Teleostei; Osteoglossocephalai; Clupecocephala; Euteleosteorpha; Neoteleostei; Eurypterygia; Ctenosquamata; Acanthomorpha; Euacanthomorpha; Percomorphaceae; Ovalentaria; Cichlomorphae; Cichliformes; Cichlidae; African cichlids; Pseudocrenilabrinae; Haplochromini; Labeotropheus	Lineage	cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Actinopterygii; Actinopteri; Neopterygii; Teleostei; Osteoglossocephalai; Clupecocephala; Euteleosteorpha; Neoteleostei; Eurypterygia; Ctenosquamata; Acanthomorpha; Euacanthomorpha; Percomorphaceae; Ovalentaria; Cichlomorphae; Cichliformes; Cichlidae; African cichlids; Pseudocrenilabrinae; Haplochromini; Tropheops	Lineage
Labeotropheus () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=57306">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=57306</a> )	Parent	Tropheops () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=702376">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=702376</a> )	Parent
57307 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=57307">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=57307</a> )	NCBI Taxonomy ID	702379 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=702379">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=702379</a> )	NCBI Taxonomy ID
No	is Taxon A an Intraspecies?	No	is Taxon B an Intraspecies?

## GENOTYPIC CHANGE

zeb1a	Generic Gene Name	F1QMZ5 ( <a href="http://www.uniprot.org/uniprot/F1QMZ5">http://www.uniprot.org/uniprot/F1QMZ5</a> )	UniProtKB Danio rerio
si:ch211-159p3.1	Synonyms	0	GenebankID or UniProtKB
7955.ENSDDARP00000114082 ( <a href="http://string-db.org/newstring_cgi/show_network_section.pl?identifier=7955.ENSDDARP00000114082">http://string-db.org/newstring_cgi/show_network_section.pl?identifier=7955.ENSDDARP00000114082</a> )	String		
-	Sequence Similarities		
GO:0003677 : DNA binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0003677">https://www.ebi.ac.uk/QuickGO/term/GO:0003677</a> )	GO - Molecular Function		
GO:0048745 : smooth muscle tissue development ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0048745">https://www.ebi.ac.uk/QuickGO/term/GO:0048745</a> )	GO - Biological Process		
GO:0070587 : regulation of cell-cell adhesion involved in gastrulation			

(<https://www.ebi.ac.uk/QuickGO/term/GO:0070587>)  
GO:0010470 : regulation of gastrulation  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0010470>)

GO - Cellular Component

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Presumptive Null

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))

Molecular Type

Cis-regulatory ([https://www.gephebase.org/search-criteria?/and+Molecular Type=Cis-regulatory+Gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular+Type+Cis-regulatory+Gephebase-summary-title))

Aberration Type

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

Molecular Details of the Mutation

intronic SNP

Experimental Evidence

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))

Main Reference

Genetic basis of continuous variation in the levels and modular inheritance of pigmentation in cichlid fishes. (2014) (<https://pubmed.ncbi.nlm.nih.gov/25156298>)

Authors

Albertson RC; Powder KE; Hu Y; Coyle KP; Roberts RB; Parsons KJ

Abstract

Variation in pigmentation type and levels is a hallmark of myriad evolutionary radiations, and biologists have long been fascinated by the factors that promote and maintain variation in coloration across populations. Here, we provide insights into the genetic basis of complex and continuous patterns of colour variation in cichlid fishes, which offer a vast diversity of pigmentation patterns that have evolved in response to both natural and sexual selection. Specifically, we crossed two divergent cichlid species to generate an F2 mapping population that exhibited extensive variation in pigmentation levels and patterns. Our experimental design is robust in that it combines traditional quantitative trait locus (QTL) analysis with population genomics, which has allowed us to move efficiently from QTL interval to candidate gene. In total, we detected 41 QTL and 13 epistatic interactions that underlie melanocyte- and xanthophore-based coloration across the fins and flanks of these fishes. We also identified 2 QTL and 1 interaction for variation in the magnitude of integration among these colour traits. This finding in particular is notable as there are marked differences both within and between species with respect to the complexity of pigmentation patterns. While certain individuals are characterized by more uniform 'integrated' colour patterns, others exhibit many more degrees of freedom with respect to the distribution of colour 'modules' across the fins and flank. Our data reveal, for the first time, a genetic basis for this difference. Finally, we implicate *pax3a* as a mediator of continuous variation in the levels of xanthophore-based colour along the cichlid flank.

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Additional References

## RELATED GEPHE

Related Genes

4 (ephrin-a4, *pax3a*, *pax3b*, *Pax7*) ([https://www.gephebase.org/search-criteria?/or+Taxon ID=57307+and+Trait=Coloration+or+Taxon ID=702379+and+Trait=Coloration+and+groupHaplotypes=true#Gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Taxon+ID+57307+and+Trait+Coloration+or+Taxon+ID+702379+and+Trait+Coloration+and+groupHaplotypes=true#Gephebase-summary-title))

Related Haplotypes

No matches found.

## EXTERNAL LINKS

## COMMENTS