## GEPHE SUMMARY

Gephebase Gene
ccdc170 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^ccdc170^#gephebase-summary-title)
Entry Status
Published

GepheID
GP00002363
Main curator
Santos

## PHENOTYPIC CHANGE

Trait Category
Morphology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Morphology^#gephebase-summary-title)
Trait
Coloration (https://www.gephebase.org/search-criteria?/and+Trait=^Coloration^#gephebase-summary-title)
Trait State in Taxon A
Diamond morph
Trait State in Taxon B
Chevron morph
Ancestral State
Unknown
Taxonomic Status
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Intraspecific^#gephebase-summary-title)

### Taxon A

Latin Name
Anolis sagrei (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Anolis sagrei^#gephebase-summary-title)
Common Name
Brown anole
Synonyms
Norops sagrei; Brown anole; Anolis sagrei Dumeril & Bibron, 1837; Anolis sagrei DumeÌril & Bibron, 1837; MNHN 2340; MNHN:2340
Rank
species
Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Sauropsida; Sauria; Lepidosauria; Squamata; Bifurcata; Unidentata; Episquamata; Toxicofera; Iguania; Dactyloidae; Anolis
Parent
Anolis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 28376 )
NCBI Taxonomy ID
38937 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 38937 )
is Taxon A an Infraspecies?
No

### Taxon B

Latin Name
Anolis sagrei (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Anolis sagrei^#gephebase-summary-title)
Common Name
Brown anole
Synonyms
Norops sagrei; Brown anole; Anolis sagrei Dumeril & Bibron, 1837; Anolis sagrei DumeÌril & Bibron, 1837; MNHN 2340; MNHN:2340
Rank
species
Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Sauropsida; Sauria; Lepidosauria; Squamata; Bifurcata; Unidentata; Episquamata; Toxicofera; Iguania; Dactyloidae; Anolis
Parent
Anolis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 28376 )
NCBI Taxonomy ID
38937 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 38937 )
is Taxon B an Infraspecies?
No

## GENOTYPIC CHANGE

Generic Gene Name
Ccdc170
Synonyms
Gm221
String
10090.ENSMUSP00000115997 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier= 10090.ENSMUSP00000115997 )
Sequence Similarities
-
GO - Molecular Function
GO:0008017 : microtubule binding (https://www.ebi.ac.uk/QuickGO/term/GO:0008017)
GO - Biological Process
GO:0000226 : microtubule cytoskeleton organization (https://www.ebi.ac.uk/QuickGO/term/GO:0000226)
GO - Cellular Component
GO:0005794 : Golgi apparatus (https://www.ebi.ac.uk/QuickGO/term/GO:0005794)

UniProtKB Mus musculus
D3YXL0 (http://www.uniprot.org/uniprot/D3YXL0)
GenebankID or UniProtKB
()

GO:0036064 : ciliary basal body (https://www.ebi.ac.uk/QuickGO/term/GO:0036064)

Presumptive Null

Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Unknown^#gephebase-summary-title)

Molecular Type

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

Aberration Type

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

Molecular Details of the Mutation

-

Experimental Evidence

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

Main Reference

A single locus regulates a female-limited color pattern polymorphism in a reptile. (2022) (https://pubmed.ncbi.nlm.nih.gov/35263124)

Authors

Feiner N; Brun-Usan M; Andrade P; Pranter R; Park S; Menke DB; Geneva AJ; Uller T

Abstract

Animal coloration is often expressed in periodic patterns that can arise from differential cell migration, yet how these processes are regulated remains elusive. We show that a female-limited polymorphism in dorsal patterning (diamond/chevron) in the brown anole is controlled by a single Mendelian locus. This locus contains the gene CCDC170 that is adjacent to, and coexpressed with, the Estrogen receptor-1 gene, explaining why the polymorphism is female limited. CCDC170 is an organizer of the Golgi-microtubule network underlying a cell's ability to migrate, and the two segregating alleles encode structurally different proteins. Our agent-based modeling of skin development demonstrates that, in principle, a change in cell migratory behaviors is sufficient to switch between the two morphs. These results suggest that CCDC170 might have been co-opted as a switch between color patterning morphs, likely by modulating cell migratory behaviors.

Additional References

## RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

## EXTERNAL LINKS

## COMMENTS