GEPHE SUMMARY

Gephebase Gene
RB1 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^RB1^#gephebase-summary-title)

GepheID
GP00000957

Entry Status
Published

Main curator
Martin

PHENOTYPIC CHANGE

Trait #1

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

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

Trait State in Taxon A
Gallus gallus

Trait State in Taxon B
Gallus gallus

Trait #2

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

Trait
Body size (bone length) (https://www.gephebase.org/search-criteria?/and+Trait=^Body size (bone length)^#gephebase-summary-title)

Trait State in Taxon A
-

Trait State in Taxon B
-

Ancestral State
Data not curated

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

Taxon A

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

Common Name
chicken

Synonyms
Gallus gallus domesticus; chicken; bantam; chickens

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; Galliformes; Phasianidae; Phasianinae; Gallus

Parent
Gallus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9030)

NCBI Taxonomy ID
9031 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9031)

is Taxon A an Infraspecies?
No

Taxon B

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

Common Name
chicken

Synonyms
Gallus gallus domesticus; chicken; bantam; chickens

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; Galliformes; Phasianidae; Phasianinae; Gallus

Parent
Gallus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9030)

NCBI Taxonomy ID
9031 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9031)

is Taxon B an Infraspecies?
No

GENOTYPIC CHANGE

Generic Gene Name	UniProtKB
-	GenebankID or UniProtKB
Synonyms	AADN03001469 (https://www.ncbi.nlm.nih.gov/nuccore/AADN03001469)
-	
String	
-	
Sequence Similarities	
-	
GO - Molecular Function	
-	
GO - Biological Process	
-	
GO - Cellular Component	
-	

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

unknown

Experimental Evidence

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

Main Reference

Fine-mapping of quantitative trait loci for body weight and bone traits and positional cloning of the RB1 gene in chicken. (2011) (https://pubmed.ncbi.nlm.nih.gov/21906182)

Authors

Zhang H; Liu SH; Zhang Q; Zhang YD; Wang SZ; Wang QG; Wang YX; Tang ZQ; Li H

Abstract

Previously, a quantitative trait locus (QTL) that affects body weight (BW) at 4-12 weeks of age and carcass weight at 12 weeks of age had been mapped on chicken chromosome 1. After including more markers and individuals, the confidence interval was narrowed down to approximately 5.5 Mbps and located this QTL near a microsatellite marker (ADL328). This QTL is the same as the QTL for 12 bone traits, including metatarsus length and metatarsus circumference at 4, 6, 8, 10 and 12 weeks of age and keel length and metatarsus claw weight at 12 weeks of age, that was identified using the same population. In the current study, 1010 individuals from the Northeast Agricultural University F(2) resource population were used and 14 single-nucleotide polymorphism (SNPs) around ADL328 were developed to construct haplotypes, and an association analysis was performed to fine-map the QTL. The haplotypes were constructed on the basis of a sliding 'window', with three SNP markers included in each 'window'. The association analysis results indicated that the haplotypes in 'windows' 6-12 were significantly associated with BW and bone traits and suggested that the QTL for BW and bone traits was located between SNP8 and SNP14 or was in linkage disequilibrium with this region. The interval from SNP8 to SNP14 was approximately 400 kbps. This region contained five RefSeq genes (RB1, P2RY5, FNDC3A, MLNR and CAB39L) on the University of California Santa Cruz website. The RB1 gene was selected as a candidate gene and five SNPs were identified in the gene. The association results indicated that the RB1 gene was a major gene for BW and bone traits. The SNPs g.39692 G>A and g.77260 A>G in RB1 gene might be two quantitative trait nucleotides for BW and bone traits.

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Additional References

RELATED GEPHE

Related Genes

3 (Growth Hormone Receptor (GHR), miR-15a-16, TMEM263) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^9031^/and+Trait=Body size/or+Taxon ID=^9031^/and+Trait=Body size/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS