

GEPHE SUMMARY

<p>IGF2BP1 (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^IGF2BP1^#gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00002128</p> <p>Santos</p>	<p>GepheID</p> <p>Main curator</p>
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PHENOTYPIC CHANGE

<p>Morphology (https://www.gephebase.org/search-criteria?/and+Trait+Category=^Morphology^#gephebase-summary-title)</p> <p>Body size (weight) (https://www.gephebase.org/search-criteria?/and+Trait=^Body size (weight)^#gephebase-summary-title)</p> <p>smaller body size</p> <p>larger body size</p> <p>Taxon A</p> <p>Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Domesticated^#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>	<p>Taxon A</p> <p>Latin Name</p> <p>Anas platyrhynchos (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Anas+platyrhynchos^#gephebase-summary-title)</p> <p>Common Name</p> <p>mallard</p> <p>Synonyms</p> <p>Anas boschas; Anas domesticus; Anas platyrhynchos f. domestica; mallard; duck; mallard duck; mallard ducks; Anas platyrhynchos Linnaeus 1758; Anas platyrhynchos</p> <p>Rank</p> <p>species</p> <p>Lineage</p> <p>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</p> <p>Parent</p> <p>Anas (ducks) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=8835)</p> <p>NCBI Taxonomy ID</p> <p>8839 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=8839)</p> <p>is Taxon A an Intraspecies?</p> <p>Yes</p> <p>Taxon A Description</p> <p>Wild mallard ducks</p>	<p>Taxon B</p> <p>Latin Name</p> <p>Anas platyrhynchos (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Anas+platyrhynchos^#gephebase-summary-title)</p> <p>Common Name</p> <p>mallard</p> <p>Synonyms</p> <p>Anas boschas; Anas domesticus; Anas platyrhynchos f. domestica; mallard; duck; mallard duck; mallard ducks; Anas platyrhynchos Linnaeus 1758; Anas platyrhynchos</p> <p>Rank</p> <p>species</p> <p>Lineage</p> <p>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</p> <p>Parent</p> <p>Anas (ducks) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=8835)</p> <p>NCBI Taxonomy ID</p> <p>8839 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=8839)</p> <p>is Taxon B an Intraspecies?</p> <p>Yes</p> <p>Taxon B Description</p> <p>Domesticated breed - Pekin duck</p>
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GENOTYPIC CHANGE

<p>IGF2BP1</p> <p>ZBP1; VICKZ1</p> <p>9031.ENS GALP00000001973 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=9031.ENS GALP00000001973)</p> <p>Belongs to the RRM IMP/VICKZ family.</p> <p>GO:0003729 : mRNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003729)</p> <p>GO:0003730 : mRNA 3'-UTR binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003730)</p>	<p>Generic Gene Name</p> <p>Synonyms</p> <p>String</p> <p>Sequence Similarities</p> <p>GO - Molecular Function</p>	<p>UniProtKB Gallus gallus</p> <p>O42254 (http://www.uniprot.org/uniprot/O42254)</p> <p>GenebankID or UniProtKB</p> <p>0</p>
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GO - Biological Process

GO:0010976 : positive regulation of neuron projection development

(<https://www.ebi.ac.uk/QuickGO/term/GO:0010976>)

GO:0017148 : negative regulation of translation

(<https://www.ebi.ac.uk/QuickGO/term/GO:0017148>)

GO:0051028 : mRNA transport (<https://www.ebi.ac.uk/QuickGO/term/GO:0051028>)

GO - Cellular Component

GO:0005634 : nucleus (<https://www.ebi.ac.uk/QuickGO/term/GO:0005634>)

GO:0030175 : filopodium (<https://www.ebi.ac.uk/QuickGO/term/GO:0030175>)

GO:0030027 : lamellipodium (<https://www.ebi.ac.uk/QuickGO/term/GO:0030027>)

GO:0048471 : perinuclear region of cytoplasm

(<https://www.ebi.ac.uk/QuickGO/term/GO:0048471>)

GO:0070937 : CRD-mediated mRNA stability complex

(<https://www.ebi.ac.uk/QuickGO/term/GO:0070937>)

GO:0030426 : growth cone (<https://www.ebi.ac.uk/QuickGO/term/GO:0030426>)

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=))

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=))

Aberration Type

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

Molecular Details of the Mutation

We found that the phenotypic values of body size related traits together with IGF2BP1 expression levels were successfully fine-mapped of the causal variation in an ~100-kb region (chr28: 4,413,785-4,513,671) located on the 148 kb upstream of the IGF2BP1 gene

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=))

Main Reference

An intercross population study reveals genes associated with body size and plumage color in ducks. (2018) (<https://pubmed.ncbi.nlm.nih.gov/30018292>)

Authors

Zhou Z; Li M; Cheng H; Fan W; Yuan Z; Gao Q; Xu Y; Guo Z; Zhang Y; Hu J; Liu H; Liu D; Chen W; Zheng Z; Jiang Y; Wen Z; Liu Y; Chen H; Xie M; Zhang Q; Huang W; Wang W; Hou S; Jiang Y

Abstract

Comparative population genomics offers an opportunity to discover the signatures of artificial selection during animal domestication, however, their function cannot be directly revealed. We discover the selection signatures using genome-wide comparisons among 40 mallards, 36 indigenous-breed ducks, and 30 Pekin ducks. Then, the phenotypes are fine-mapped based on resequencing of 1026 ducks from an F segregating population generated by wild-domestic crosses. Interestingly, the two key economic traits of Pekin duck are associated with two selective sweeps with fixed mutations. A novel intronic insertion most possibly leads to a splicing change in MITF accounted for white duck down feathers. And a putative long-distance regulatory mutation causes continuous expression of the IGF2BP1 gene after birth which increases body size by 15% and feed efficiency by 6%. This study provides new insights into genotype-phenotype associations in animal research and constitutes a promising resource on economically important genes in fowl.

Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS