GEPHE SUMMARY

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

GepheID
GP00000535

Entry Status
Published

Main curator
Martin

PHENOTYPIC CHANGE

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

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

Trait State in Taxon A
Bos bovis

Trait State in Taxon B
Bos bovis

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
Bos taurus (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Bos taurus^#gephebase-summary-title)

Common Name
cattle

Synonyms
Bos bovis; Bos primigenius taurus; cattle; bovine; cow; dairy cow; domestic cattle; domestic cow; Bos taurus Linnaeus, 1758; Bos Tauurus

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Laurasiatheria; Artiodactyla; Ruminantia; Pecora; Bovidae; Bovinae; Bos

Parent
Bos (oxen, cattle) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9903)

NCBI Taxonomy ID
9913 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9913)

is Taxon A an Infraspecies?
No

Taxon B

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

Common Name
cattle

Synonyms
Bos bovis; Bos primigenius taurus; cattle; bovine; cow; dairy cow; domestic cattle; domestic cow; Bos taurus Linnaeus, 1758; Bos Tauurus

Rank
species

Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Laurasiatheria; Artiodactyla; Ruminantia; Pecora; Bovidae; Bovinae; Bos

Parent
Bos (oxen, cattle) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9903)

NCBI Taxonomy ID
9913 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9913)

is Taxon B an Infraspecies?
No

GENOTYPIC CHANGE

Generic Gene Name
LCORL

Synonyms
MLR1

String
9606.ENSP00000371661 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=9606.ENSP00000371661)

Sequence Similarities
-

GO - Molecular Function
GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)
GO:0000981 : DNA-binding transcription factor activity, RNA polymerase II-specific (https://www.ebi.ac.uk/QuickGO/term/GO:0000981)

GO - Biological Process
GO:0006366 : transcription by RNA polymerase II (https://www.ebi.ac.uk/QuickGO/term/GO:0006366)

UniProtKB Homo sapiens
Q8N3X6 (http://www.uniprot.org/uniprot/Q8N3X6)

GenebankID or UniProtKB
DAA28765 (https://www.ncbi.nlm.nih.gov/nuccore/DAA28765)

GO - Cellular Component

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

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

Not identified

Experimental Evidence

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

Main Reference

Association, effects and validation of polymorphisms within the NCAPG - LCORL locus located on BTA6 with feed intake, gain, meat and carcass traits in beef cattle. (2011) (https://pubmed.ncbi.nlm.nih.gov/22168586)

Authors

Lindholm-Perry AK; Sexten AK; Kuehn LA; Smith TP; King DA; Shackelford SD; Wheeler TL; Ferrell CL; Jenkins TG; Snelling WM; Freetly HC

Abstract

In a previously reported genome-wide association study based on a high-density bovine SNP genotyping array, 8 SNP were nominally associated (P â‰¤ 0.003) with average daily gain (ADG) and 3 of these were also associated (P â‰¤ 0.002) with average daily feed intake (ADFI) in a population of crossbred beef cattle. The SNP were clustered in a 570 kb region around 38 Mb on the draft sequence of bovine chromosome 6 (BTA6), an interval containing several positional and functional candidate genes including the bovine LAP3, NCAPG, and LCORL genes. The goal of the present study was to develop and examine additional markers in this region to optimize the ability to distinguish favorable alleles, with potential to identify functional variation.

Animals from the original study were genotyped for 47 SNP within or near the gene boundaries of the three candidate genes. Sixteen markers in the NCAPG-LCORL locus displayed significant association with both ADFI and ADG even after stringent correction for multiple testing (P â‰¤ 005). These markers were evaluated for their effects on meat and carcass traits. The alleles associated with higher ADFI and ADG were also associated with higher hot carcass weight (HCW) and ribeye area (REA), and lower adjusted fat thickness (AFT). A reduced set of markers was genotyped on a separate, crossbred population including genetic contributions from 14 beef cattle breeds. Two of the markers located within the LCORL gene locus remained significant for ADG (P â‰¤ 0.04).

Several markers within the NCAPG-LCORL locus were significantly associated with feed intake and body weight gain phenotypes. These markers were also associated with HCW, REA and AFT suggesting that they are involved with lean growth and reduced fat deposition. Additionally, the two markers significant for ADG in the validation population of animals may be more robust for the prediction of ADG and possibly the correlated trait ADFI, across multiple breeds and populations of cattle.

Additional References

RELATED GEPHE

Related Genes

5 (aggrecan, GH, PLAG1, PRKG2, RNF11) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^9913^/and+Trait=Body size/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS