GEPHE SUMMARY

Gephebase Gene

RNF212 (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^RNF212^#gephebase-summary-title)

Entry Status

Published

GepheID

GP00001639

Main curator

Prigent

PHENOTYPIC CHANGE

Trait Category

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

Trait

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

Trait State in Taxon A

Sperm Crossing-over Rate 1

Trait State in Taxon B

Sperm Crossing-over Rate 2

Ancestral State

Unknown

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?

Yes

Taxon A Description

Bulls from the Netherlands and New-Zealand

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?

Yes

Taxon B Description

Bulls from the Netherlands and New-Zealand

GENOTYPIC CHANGE

Generic Gene Name

RNF212

Synonyms

ZHP3

String

9606.ENSP00000389709 (http://string-db.org/newstring_cgi/show_network_section.pl?identifier=9606.ENSP00000389709)

Sequence Similarities

-

GO - Molecular Function

GO:0046872 : metal ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0046872)
GO:0019789 : SUMO transferase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0019789)

GO - Biological Process

UniProtKB Homo sapiens

Q495C1 (http://www.uniprot.org/uniprot/Q495C1)

GenebankID or UniProtKB

()

GO:0016925 : protein sumoylation (https://www.ebi.ac.uk/QuickGO/term/GO:0016925)
GO:0006311 : meiotic gene conversion
(https://www.ebi.ac.uk/QuickGO/term/GO:0006311)
GO:0051026 : chiasma assembly (https://www.ebi.ac.uk/QuickGO/term/GO:0051026)
GO:0007131 : reciprocal meiotic recombination
(https://www.ebi.ac.uk/QuickGO/term/GO:0007131)
GO:0007129 : synapsis (https://www.ebi.ac.uk/QuickGO/term/GO:0007129)

GO - Cellular Component

GO:0000795 : synaptonemal complex
(https://www.ebi.ac.uk/QuickGO/term/GO:0000795)

Presumptive Null

No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)

Molecular Type

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

Aberration Type

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

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

T>C p.P259S in exon 12 with reduction in Genome-wide recombination rate

Experimental Evidence

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

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	-	-	-

Main Reference

Genetic variants in REC8, RNF212, and PRDM9 influence male recombination in cattle. (2012) (https://pubmed.ncbi.nlm.nih.gov/22844258)

Authors

Sandor C; Li W; Coppieters W; Druet T; Charlier C; Georges M

Abstract

We use >250,000 cross-over events identified in >10,000 bovine sperm cells to perform an extensive characterization of meiotic recombination in male cattle. We map Quantitative Trait Loci (QTL) influencing genome-wide recombination rate, genome-wide hotspot usage, and locus-specific recombination rate. We fine-map three QTL and present strong evidence that genetic variants in REC8 and RNF212 influence genome-wide recombination rate, while genetic variants in PRDM9 influence genome-wide hotspot usage.

Additional References

RELATED GEPHE

Related Genes

11 (CEP55, CPLX1, FMN1, GCLM, MSH4, NEK9, PABPN1, PRDM9, REC114, REC8, SMC3) (https://www.gephebase.org/search-criteria?/or+Taxon ID=^9913^/and+Trait=Recombination rate/and+groupHaplotypes=true#gephebase-summary-title)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS