

## GEPHE SUMMARY

PRDM9 ( <a href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase+PRDM9+Gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase+PRDM9+Gephebase-summary-title</a> )	Gephebase Gene	GP00001641	GepheID
Published	Entry Status	Prigent	Main curator

## PHENOTYPIC CHANGE

Physiology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait+Category+Physiology+Gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait+Category+Physiology+Gephebase-summary-title</a> )	Trait Category		
Recombination rate (male) ( <a href="https://www.gephebase.org/search-criteria?/and+Trait+Recombination+rate+(male)+Gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait+Recombination+rate+(male)+Gephebase-summary-title</a> )	Trait		
Sperm Crossing-over Rate 1	Trait State in Taxon A		
Sperm Crossing-over Rate 2	Trait State in Taxon B		
Unknown	Ancestral State		
Domesticated ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status+Domesticated+Gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status+Domesticated+Gephebase-summary-title</a> )	Taxonomic Status		
	Taxon A	Taxon B	
	Latin Name	Latin Name	
Bos taurus ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+Bos+taurus+Gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+Bos+taurus+Gephebase-summary-title</a> )	Bos taurus ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+Bos+taurus+Gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+Bos+taurus+Gephebase-summary-title</a> )	Bos taurus ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+Bos+taurus+Gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms+Bos+taurus+Gephebase-summary-title</a> )	
cattle	Common Name	cattle	Common Name
Bos bovis; Bos primigenius taurus; cattle; bovine; cow; dairy cow; domestic cattle; domestic cow; Bos taurus Linnaeus, 1758; Bos Taurus	Synonyms	Bos bovis; Bos primigenius taurus; cattle; bovine; cow; dairy cow; domestic cattle; domestic cow; Bos taurus Linnaeus, 1758; Bos Taurus	Synonyms
species	Rank	species	Rank
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	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	Lineage
Bos (oxen, cattle) - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9903">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9903</a> )	Parent	Bos (oxen, cattle) - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9903">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9903</a> )	Parent
9913 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9913">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9913</a> )	NCBI Taxonomy ID	9913 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9913">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9913</a> )	NCBI Taxonomy ID
Yes	is Taxon A an Intraspecies?	Yes	is Taxon B an Intraspecies?
Bulls from the Netherlands and New-Zealand	Taxon A Description	Bulls from the Netherlands and New-Zealand	Taxon B Description

## GENOTYPIC CHANGE

PRDM9	Generic Gene Name	A6QNW2 ( <a href="http://www.uniprot.org/uniprot/A6QNW2">http://www.uniprot.org/uniprot/A6QNW2</a> )	UniProtKB Bos taurus
ZNF596	Synonyms	0	GenebankID or UniProtKB
-	String		
-	Sequence Similarities		
GO:0046872 : metal ion binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0046872">https://www.ebi.ac.uk/QuickGO/term/GO:0046872</a> )	GO - Molecular Function		
GO:0003676 : nucleic acid binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0003676">https://www.ebi.ac.uk/QuickGO/term/GO:0003676</a> )	GO - Biological Process		
GO:0006355 : regulation of transcription, DNA-templated ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0006355">https://www.ebi.ac.uk/QuickGO/term/GO:0006355</a> )	GO - Cellular Component		

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

Presumptive Null

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

Molecular Type

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

Aberration Type

Nonsynonymous

SNP Coding Change

variation in the C-terminal tandem array of Cys2His2 zinc-finger domains: T68A p.I23K in domain 11 has a major effect. K allele decreasing 30-fold Genome wide hot window usage in Crossing Over compared to I allele

Molecular Details of the Mutation

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	-	-	-

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

Main Reference

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

Authors

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.

Abstract

Additional References

## RELATED GEPHE

11 (CEP55, CPLX1, FMN1, GCLM, MSH4, NEK9, PABPN1, REC114, REC8, RNF212, SMC3) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=~9913^/and+Trait=Recombination rate/and+groupHaplotypes=true#gephebase-summary-title>)

Related Genes

2 (<https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~PRDM9^/and+Taxon ID=~9913^/or+Gene Gephebase=~PRDM9^/and+Taxon ID=~9913^#gephebase-summary-title>)

Related Haplotypes

## EXTERNAL LINKS

## COMMENTS