

GEPHE SUMMARY

	Gephebase Gene		GepheID
GCNF (NR6A1) (<a +gcnf+(nr6a1)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+GCNF+(NR6A1)+"#gephebase-summary-title)		GP00000386	
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Morphology (<a +morphology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait+Category="+Morphology+"#gephebase-summary-title)			
	Trait		
Vertebrae number (<a +vertebrae+number+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+Vertebrae+number+"#gephebase-summary-title)			
	Trait State in Taxon A		
Sus scrofa			
	Trait State in Taxon B		
Sus scrofa			
	Ancestral State		
Data not curated			
	Taxonomic Status		
Domesticated (<a +domesticated+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Domesticated+"#gephebase-summary-title)			
	Taxon A		Taxon B
	Latin Name		Latin Name
Sus scrofa (<a +sus+scrofa+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Sus+scrofa+"#gephebase-summary-title)		Sus scrofa domesticus (<a +sus+scrofa+domesticus+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Sus+scrofa+domesticus+"#gephebase-summary-title)	
	Common Name		Common Name
pig		domestic pig	
	Synonyms		Synonyms
pig; pigs; swine; wild boar; Sus scrofa Linnaeus, 1758; Sus scrofus		Sus domestica; Sus domesticus; Sus scrofa domestica; domestic pig	
	Rank		Rank
species		subspecies	
	Lineage		Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Laurasiatheria; Cetartiodactyla; Suina; Suidae; Sus		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Laurasiatheria; Cetartiodactyla; Suina; Suidae; Sus; Sus scrofa	
	Parent		Parent
Sus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9822)		Sus scrofa (pig) - (Rank: species) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9823)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
9823 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9823)		9825 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9825)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Mus musculus
Nr6a1		Q64249 (http://www.uniprot.org/uniprot/Q64249)	
	Synonyms		GenebankID or UniProtKB
RTR; Gcnf; NCNF; 1700113M01Rik		BAF37829 (https://www.ncbi.nlm.nih.gov/nuccore/BAF37829)	
	String		
10090.ENSMUSP00000075624 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=10090.ENSMUSP00000075624)			
	Sequence Similarities		
Belongs to the nuclear hormone receptor family. NR6 subfamily.			
	GO - Molecular Function		
GO:0042803 : protein homodimerization activity (https://www.ebi.ac.uk/QuickGO/term/GO:0042803)			
GO:0043565 : sequence-specific DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043565)			
GO:0008270 : zinc ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0008270)			
GO:0003677 : DNA binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003677)			
GO:0004879 : nuclear receptor activity			

(<https://www.ebi.ac.uk/QuickGO/term/GO:0004879>)
GO:0001077 : proximal promoter DNA-binding transcription activator activity, RNA polymerase II-specific (<https://www.ebi.ac.uk/QuickGO/term/GO:0001077>)
GO:0000978 : RNA polymerase II proximal promoter sequence-specific DNA binding (<https://www.ebi.ac.uk/QuickGO/term/GO:0000978>)
GO:0003707 : steroid hormone receptor activity (<https://www.ebi.ac.uk/QuickGO/term/GO:0003707>)

GO - Biological Process

GO:0007275 : multicellular organism development (<https://www.ebi.ac.uk/QuickGO/term/GO:0007275>)
GO:0045944 : positive regulation of transcription by RNA polymerase II (<https://www.ebi.ac.uk/QuickGO/term/GO:0045944>)
GO:0030154 : cell differentiation (<https://www.ebi.ac.uk/QuickGO/term/GO:0030154>)
GO:0000122 : negative regulation of transcription by RNA polymerase II (<https://www.ebi.ac.uk/QuickGO/term/GO:0000122>)
GO:0007283 : spermatogenesis (<https://www.ebi.ac.uk/QuickGO/term/GO:0007283>)
GO:0007276 : gamete generation (<https://www.ebi.ac.uk/QuickGO/term/GO:0007276>)

GO - Cellular Component

GO:0005634 : nucleus (<https://www.ebi.ac.uk/QuickGO/term/GO:0005634>)
GO:0005667 : transcription factor complex (<https://www.ebi.ac.uk/QuickGO/term/GO:0005667>)

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

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

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

Nonsynonymous

Pro192Leu

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

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

Fine mapping of a swine quantitative trait locus for number of vertebrae and analysis of an orphan nuclear receptor, germ cell nuclear factor (NR6A1). (2007) (<https://pubmed.ncbi.nlm.nih.gov/17416745>)

Mikawa S; Morozumi T; Shimanuki S; Hayashi T; Uenishi H; Domukai M; Okumura N; Awata T

The number of vertebrae in pigs varies and is associated with meat productivity. Wild boars, which are ancestors of domestic pigs, have 19 vertebrae. In comparison, European commercial breeds have 21-23 vertebrae, probably owing to selective breeding for enlargement of body size. We previously identified two quantitative trait loci (QTL) for the number of vertebrae on Sus scrofa chromosomes (SSC) 1 and 7. These QTL explained an increase of more than two vertebrae. Here, we performed a map-based study to define the QTL region on SSC1. By using three F2 experimental families, we performed interval mapping and recombination analyses and defined the QTL within a 1.9-cM interval. Then we analyzed the linkage disequilibrium of microsatellite markers in this interval and found that 10 adjacent markers in a 300-kb region were almost fixed in European commercial breeds. Genetic variation of the markers was observed in Asian local breeds or wild boars. This region encoded an orphan nuclear receptor, germ cell nuclear factor (NR6A1, formerly known as GCNF), which contained an amino acid substitution (Pro192Leu) coincident with the QTL. This substitution altered the binding activity of NR6A1 to its corepressors, nuclear receptor-associated protein 80 (RAP80) and nuclear receptor corepressor 1 (NCOR1). In addition, somites of mouse embryos demonstrated expression of NR6A1 protein. Together, these results suggest that NR6A1 is a strong candidate for one of the QTL that influence number of vertebrae in pigs.

RELATED GEPHE

2 (Vertnin (VRTN), Vertnin (VRTN) [possibly a pseudo-replicate of other Pig entry]) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=~9823~/and+Trait=Vertebrae number/or+Taxon ID=~9825~/and+Trait=Vertebrae number/and+groupHaplotypes=true#gephebase-summary-title>)

No matches found.

EXTERNAL LINKS

