

GEPHE SUMMARY

VPS13A (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~VPS13A^#gephebase-summary-title)	Gephebase Gene	GP00001571	GepheID
Published	Entry Status	Prigent	Main curator

PHENOTYPIC CHANGE

Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Physiology^#gephebase-summary-title)	Trait Category		
Latitudinal adaptation (https://www.gephebase.org/search-criteria?/and+Trait=~Latitudinal+adaptation^#gephebase-summary-title)	Trait		
Pig breed from Northern China	Trait State in Taxon A		
Pig breed from Southern China	Trait State in Taxon B		
Taxon A	Ancestral State		
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Domesticated^#gephebase-summary-title)	Taxonomic Status		
	Taxon A	Taxon B	
Sus scrofa (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Sus+scrofa^#gephebase-summary-title)	Latin Name	Sus scrofa (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Sus+scrofa^#gephebase-summary-title)	Latin Name
pig	Common Name	pig	Common Name
pig; pigs; swine; wild boar; Sus scrofa Linnaeus, 1758; Sus scrofaus	Synonyms	pig; pigs; swine; wild boar; Sus scrofa Linnaeus, 1758; Sus scrofaus	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; Cetartiodactyla; Suina; Suidae; Sus	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	Lineage
Sus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9822)	Parent	Sus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9822)	Parent
9823 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9823)	NCBI Taxonomy ID	9823 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9823)	NCBI Taxonomy ID
Yes	is Taxon A an Intraspecies?	Yes	is Taxon B an Intraspecies?
Pig breed from Northern China	Taxon A Description	Pig breed from Southern China	Taxon B Description

GENOTYPIC CHANGE

VPS13A	Generic Gene Name	F1SIL5 (http://www.uniprot.org/uniprot/F1SIL5)	UniProtKB Sus scrofa
-	Synonyms	0	GenebankID or UniProtKB
9823.ENSSSCP00000005673 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=9823.ENSSSCP00000005673)	String		
-	Sequence Similarities		
-	GO - Molecular Function		
-	GO - Biological Process		
GO:0007399 : nervous system development (https://www.ebi.ac.uk/QuickGO/term/GO:0007399)			
GO:0035176 : social behavior (https://www.ebi.ac.uk/QuickGO/term/GO:0035176)			

GO:0007626 : locomotory behavior (<https://www.ebi.ac.uk/QuickGO/term/GO:0007626>)

GO:0006623 : protein targeting to vacuole
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006623>)

GO:0006914 : autophagy (<https://www.ebi.ac.uk/QuickGO/term/GO:0006914>)

GO:0045053 : protein retention in Golgi apparatus
(<https://www.ebi.ac.uk/QuickGO/term/GO:0045053>)

GO - Cellular Component

GO:0019898 : extrinsic component of membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0019898>)

GO:0031045 : dense core granule (<https://www.ebi.ac.uk/QuickGO/term/GO:0031045>)

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

two nonsynonymous substitutions V>G and F>Y - whether both or only one affects the phenotype is unknown

Experimental Evidence

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

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

Main Reference

Adaptation and possible ancient interspecies introgression in pigs identified by whole-genome sequencing. (2015) (<https://pubmed.ncbi.nlm.nih.gov/25621459>)

Authors

Ai H; Fang X; Yang B; Huang Z; Chen H; Mao L; Zhang F; Zhang L; Cui L; He W; Yang J; Yao X; Zhou L; Han L; Li J; Sun S; Xie X; Lai B; Su Y; Lu Y; Yang H; Huang T; Deng W; Nielsen R; Ren J; Huang L

Abstract

Domestic pigs have evolved genetic adaptations to their local environmental conditions, such as cold and hot climates. We sequenced the genomes of 69 pigs from 15 geographically divergent locations in China and detected 41 million variants, of which 21 million were absent from the dbSNP database. In a genome-wide scan, we identified a set of loci that likely have a role in regional adaptations to high- and low-latitude environments within China. Intriguingly, we found an exceptionally large (14-Mb) region with a low recombination rate on the X chromosome that appears to have two distinct haplotypes in the high- and low-latitude populations, possibly underlying their adaptation to cold and hot environments, respectively. Surprisingly, the adaptive sweep in the high-latitude regions has acted on DNA that might have been introgressed from an extinct *Sus* species. Our findings provide new insights into the evolutionary history of pigs and the role of introgression in adaptation.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

Non-null mutation.