

GEPHE SUMMARY

	Gephebase Gene		GepheID
Prolactin releasing hormone receptor (PrLhr/GPR10) (<a +prolactin+releasing+hormone+receptor+(prlhr="" gpr10)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+Prolactin+releasing+hormone+receptor+(PrLhr/GPR10)+"#gephebase-summary-title)		GP00000928	
	Entry Status	Martin	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Physiology (<a +physiology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait+Category="+Physiology+"#gephebase-summary-title)		Trait	
Body size (weight) (<a +body+size+(weight)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+Body+size+(weight)+"#gephebase-summary-title)		Trait State in Taxon A	
Mus musculus		Trait State in Taxon B	
Mus musculus		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
Mus musculus (<a +mus+musculus+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Mus+musculus+"#gephebase-summary-title)		Mus musculus (<a +mus+musculus+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Mus+musculus+"#gephebase-summary-title)	
	Common Name		Common Name
house mouse		house mouse	
	Synonyms		Synonyms
house mouse; mouse; Mus musculus Linnaeus, 1758; mice C57BL/6xCBA/CaJ hybrid		house mouse; mouse; Mus musculus Linnaeus, 1758; mice C57BL/6xCBA/CaJ hybrid	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus		cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus	
	Parent		Parent
Mus () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=862507)		Mus () - (Rank: subgenus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=862507)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
10090 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=10090)		10090 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=10090)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Homo sapiens
PRLHR		P49683 (http://www.uniprot.org/uniprot/P49683)	
	Synonyms		GenebankID or UniProtKB
GR3; GPR10; PrRPR		EDL01840 (https://www.ncbi.nlm.nih.gov/nucleotide/EDL01840)	
	String		
9606.ENSP00000239032 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=9606.ENSP00000239032)			
	Sequence Similarities		
Belongs to the G-protein coupled receptor 1 family.			
	GO - Molecular Function		
GO:0004930 : G protein-coupled receptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004930)			
GO:0008188 : neuropeptide receptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0008188)			
GO:0004983 : neuropeptide Y receptor activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004983)			

GO - Biological Process

GO:0007186 : G protein-coupled receptor signaling pathway
(<https://www.ebi.ac.uk/QuickGO/term/GO:0007186>)
GO:0007565 : female pregnancy (<https://www.ebi.ac.uk/QuickGO/term/GO:0007565>)
GO:0007631 : feeding behavior (<https://www.ebi.ac.uk/QuickGO/term/GO:0007631>)
GO:0042445 : hormone metabolic process
(<https://www.ebi.ac.uk/QuickGO/term/GO:0042445>)

GO - Cellular Component

GO:0005886 : plasma membrane (<https://www.ebi.ac.uk/QuickGO/term/GO:0005886>)
GO:0005887 : integral component of plasma membrane
(<https://www.ebi.ac.uk/QuickGO/term/GO:0005887>)

	Presumptive Null
Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive Null=~Unknown~#gephebase-summary-title)	Molecular Type
Cis-regulatory (https://www.gephebase.org/search-criteria?/and+Molecular Type=~Cis-regulatory~#gephebase-summary-title)	Aberration Type
Unknown (https://www.gephebase.org/search-criteria?/and+Aberration Type=~Unknown~#gephebase-summary-title)	Molecular Details of the Mutation
unknown	Experimental Evidence
Association Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Association Mapping~#gephebase-summary-title)	Main Reference
Parallel selection mapping using artificially selected mice reveals body weight control loci. (2012) (https://pubmed.ncbi.nlm.nih.gov/22445301)	Authors
Chan YF; Jones FC; McConnell E; Bryk J; BÄ¼nger L; Tautz D	Abstract

Understanding how polygenic traits evolve under selection is an unsolved problem, because challenges exist for identifying genes underlying a complex trait and understanding how multilocus selection operates in the genome. Here we study polygenic response to selection using artificial selection experiments. Inbred strains from seven independent long-term selection experiments for extreme mouse body weight (“high” lines weigh 42-77 g versus 16-40 g in “control” lines) were genotyped at 527,572 SNPs to identify loci controlling body weight. We identified 67 parallel selected regions (PSRs) where high lines share variants rarely found among the controls. By comparing allele frequencies in one selection experiment against its unselected control, we found classical selective sweeps centered on the PSRs. We present evidence supporting two G protein-coupled receptors GPR133 and Prlhr as positional candidates controlling body weight. Artificial selection may mimic natural selection in the wild: compared to control loci, we detected reduced heterozygosity in PSRs in unusually large wild mice on islands. Many PSRs overlap loci associated with human height variation, possibly through evolutionary conserved functional pathways. Our data suggest that parallel selection on complex traits may evoke parallel responses at many genes involved in diverse but relevant pathways.

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Additional References

RELATED GEPHE

	Related Genes
2 (Glypican-3 (Gpc3), GPR133) (https://www.gephebase.org/search-criteria?/or+Taxon ID=~10090~/and+Trait=Body size/and+groupHaplotypes=true#gephebase-summary-title)	Related Haplotypes
No matches found.	

EXTERNAL LINKS

COMMENTS