

## GEPHE SUMMARY

<p>TAS1R1 (<a href="https://www.gephebase.org/search-criteria?/and+GeneGephebase=TAS1R1#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+GeneGephebase=TAS1R1#gephebase-summary-title</a>)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00001416</p> <p>Courtier</p>	<p>GepheID</p> <p>Main curator</p>
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## PHENOTYPIC CHANGE

<p>Physiology (<a href="https://www.gephebase.org/search-criteria?/and+TraitCategory=Physiology#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+TraitCategory=Physiology#gephebase-summary-title</a>)</p> <p>Taste sensitivity (umami) (<a href="https://www.gephebase.org/search-criteria?/and+Trait=Taste+sensitivity+(umami)#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=Taste+sensitivity+(umami)#gephebase-summary-title</a>)</p> <p>-</p> <p>Taxon A</p> <p>Interspecific (<a href="https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=Interspecific#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=Interspecific#gephebase-summary-title</a>)</p>	<p>Trait Category</p> <p>Trait</p> <p>Trait State in Taxon A</p> <p>Trait State in Taxon B</p> <p>Ancestral State</p> <p>Taxonomic Status</p>	<p>-</p> <p>-</p> <p>Taxon A</p> <p>Ursus maritimus (<a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=Ursus+maritimus#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=Ursus+maritimus#gephebase-summary-title</a>)</p> <p>polar bear</p> <p>Thalarcos maritimus; polar bear; white bear species</p> <p>cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Laurasiatheria; Carnivora; Caniformia; Ursidae; Ursus</p> <p>Ursus () - (Rank: genus) (<a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9639">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9639</a>)</p> <p>29073 (<a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=29073">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=29073</a>)</p> <p>No is Taxon A an Intraspecies?</p>	<p>Taxon B</p> <p>Latin Name</p> <p>Common Name</p> <p>Synonyms</p> <p>Rank</p> <p>Lineage</p> <p>Parent</p> <p>NCBI Taxonomy ID</p> <p>is Taxon B an Intraspecies?</p>	<p>Ailuropoda melanoleuca (<a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=Ailuropoda+melanoleuca#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=Ailuropoda+melanoleuca#gephebase-summary-title</a>)</p> <p>giant panda</p> <p>giant panda; Ailuropoda melanoleuca (David, 1869); Ailuropoda melanoleura species</p> <p>cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Laurasiatheria; Carnivora; Caniformia; Ursidae; Ailuropoda</p> <p>Ailuropoda () - (Rank: genus) (<a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9645">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9645</a>)</p> <p>9646 (<a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9646">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9646</a>)</p> <p>No is Taxon B an Intraspecies?</p>
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## GENOTYPIC CHANGE

<p>Tas1r1</p> <p>TR1; T1r1; Gpr70; Tr1</p> <p>10090.ENSMUSP00000030792 (<a href="http://string-db.org/newstring.cgi/show_network_section.pl?identifier=10090.ENSMUSP00000030792">http://string-db.org/newstring.cgi/show_network_section.pl?identifier=10090.ENSMUSP00000030792</a>)</p> <p>Belongs to the G-protein coupled receptor 3 family. TAS1R subfamily.</p> <p>GO:0004930 : G protein-coupled receptor activity (<a href="https://www.ebi.ac.uk/QuickGO/term/GO:0004930">https://www.ebi.ac.uk/QuickGO/term/GO:0004930</a>)</p> <p>GO:0008527 : taste receptor activity (<a href="https://www.ebi.ac.uk/QuickGO/term/GO:0008527">https://www.ebi.ac.uk/QuickGO/term/GO:0008527</a>)</p> <p>GO:0050917 : sensory perception of umami taste (<a href="https://www.ebi.ac.uk/QuickGO/term/GO:0050917">https://www.ebi.ac.uk/QuickGO/term/GO:0050917</a>)</p>	<p>Generic Gene Name</p> <p>Synonyms</p> <p>String</p> <p>Sequence Similarities</p> <p>GO - Molecular Function</p> <p>GO - Biological Process</p> <p>GO - Cellular Component</p>	<p>Q99PG6 (<a href="http://www.uniprot.org/uniprot/Q99PG6">http://www.uniprot.org/uniprot/Q99PG6</a>)</p> <p>()</p> <p>UniProtKB Mus musculus</p> <p>GenebankID or UniProtKB</p>
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GO:0005887 : integral component of plasma membrane  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0005887>)

Presumptive Null

Yes ([https://www.gephebase.org/search-criteria?/and+Presumptive Null=~Yes^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=~Yes^#gephebase-summary-title))

Molecular Type

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

Aberration Type

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

Deletion Size

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Molecular Details of the Mutation

pseudogene due to three indel mutations in the third and sixth exons. The giant panda has one 2-bp insertion on the third exon and two deletions (6-bp and 4-bp) on the sixth exon.

Experimental Evidence

Candidate Gene ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Candidate Gene^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=~Candidate+Gene^#gephebase-summary-title))

Main Reference

The sequence and de novo assembly of the giant panda genome. (2010) (<https://pubmed.ncbi.nlm.nih.gov/20010809>)

Authors

Li R; Fan W; Tian G; Zhu H; He L; Cai J; Huang Q; Cai Q; Li B; Bai Y; Zhang Z; Zhang Y; Wang W; Li J; Wei F; Li H; Jian M; Li J; Zhang Z; Nielsen R; Li D; Gu W; Yang Z; Xuan Z; Ryder OA; Leung FC; Zhou Y; Cao J; Sun X; Fu Y; Fang X; Guo X; Wang B; Hou R; Shen F; Mu B; Ni P; Lin R; Qian W; Wang G; Yu C; Nie W; Wang J; Wu Z; Liang H; Min J; Wu Q; Cheng S; Ruan J; Wang M; Shi Z; Wen M; Liu B; Ren X; Zheng H; Dong D; Cook K; Shan G; Zhang H; Kosiol C; Xie X; Lu Z; Zheng H; Li Y; Steiner CC; Lam TT; Lin S; Zhang Q; Li G; Tian J; Gong T; Liu H; Zhang D; Fang L; Ye C; Zhang J; Hu W; Xu A; Ren Y; Zhang G; Bruford MW; Li Q; Ma L; Guo Y; An N; Hu Y; Zheng Y; Shi Y; Li Z; Liu Q; Chen Y; Zhao J; Qu N; Zhao S; Tian F; Wang X; Wang H; Xu L; Liu X; Vinar T; Wang Y; Lam TW; Yiu SM; Liu S; Zhang H; Li D; Huang Y; Wang X; Yang G; Jiang Z; Wang J; Qin N; Li L; Li J; Bolund L; Kristiansen K; Wong GK; Olson M; Zhang X; Li S; Yang H; Wang J; Wang J

Abstract

Using next-generation sequencing technology alone, we have successfully generated and assembled a draft sequence of the giant panda genome. The assembled contigs (2.25 gigabases (Gb)) cover approximately 94% of the whole genome, and the remaining gaps (0.05 Gb) seem to contain carnivore-specific repeats and tandem repeats. Comparisons with the dog and human showed that the panda genome has a lower divergence rate. The assessment of panda genes potentially underlying some of its unique traits indicated that its bamboo diet might be more dependent on its gut microbiome than its own genetic composition. We also identified more than 2.7 million heterozygous single nucleotide polymorphisms in the diploid genome. Our data and analyses provide a foundation for promoting mammalian genetic research, and demonstrate the feasibility for using next-generation sequencing technologies for accurate, cost-effective and rapid de novo assembly of large eukaryotic genomes.

Additional References

Comparative genomics reveals convergent evolution between the bamboo-eating giant and red pandas. (2017) (<https://pubmed.ncbi.nlm.nih.gov/28096377>)

Pseudogenization of the umami taste receptor gene *Tas1r1* in the giant panda coincided with its dietary switch to bamboo. (2010) (<https://pubmed.ncbi.nlm.nih.gov/20573776>)

## RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

1 ([https://www.gephebase.org/search-criteria?/or+Gene Gephebase=~TAS1R1^/and+Taxon ID=~29073^/or+Gene Gephebase=~TAS1R1^/and+Taxon ID=~9646^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Gene+Gephebase=~TAS1R1^/and+Taxon+ID=~29073^/or+Gene+Gephebase=~TAS1R1^/and+Taxon+ID=~9646^#gephebase-summary-title))

## EXTERNAL LINKS

## COMMENTS

Note that the derived phenotype may have appeared during evolution due to another mutation; and that the mutation described here might have occurred subsequently; as a neutral mutation.