

amylase 1 (AMY1) (<a +amylase+1+(amy1)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+amylase+1+(AMY1)+"#gephebase-summary-title)	Gephebase Gene	GP00000085	GepheID
Published	Entry Status	Martin	Main curator

Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Physiology^#gephebase-summary-title)		Trait Category	
Starch processing (https://www.gephebase.org/search-criteria?/and+Trait=~Starch+processing^#gephebase-summary-title)		Trait	
Homo sapiens with low starch diet		Trait State in Taxon A	
Homo sapiens with high starch diet		Trait State in Taxon B	
Taxon A		Ancestral State	
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Intraspecific^#gephebase-summary-title)		Taxonomic Status	
Taxon A		Taxon B	
Homo sapiens (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Homo+sapiens^#gephebase-summary-title)	Latin Name	Homo sapiens (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Homo+sapiens^#gephebase-summary-title)	Latin Name
human	Common Name	human	Common Name
human; man; Homo sapiens Linnaeus, 1758; Home sapiens; Homo sampiens; Homo sapeins; Homo sapien; Homo sapians; Homo sapien; Homo sapience; Homo sapiense; Homo sapients; Homo sapines; Homo spaiens; Homo spiens; Humo sapiens	Synonyms	human; man; Homo sapiens Linnaeus, 1758; Home sapiens; Homo sampiens; Homo sapeins; Homo sapien; Homo sapians; Homo sapien; Homo sapience; Homo sapiense; Homo sapients; Homo sapines; Homo spaiens; Homo spiens; Humo sapiens	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; Euarchontoglires; Primates; Haplorrhini; Simiiformes; Catarrhini; Hominoidea; Hominidae; Homininae; Homo	Lineage	cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Boreoeutheria; Euarchontoglires; Primates; Haplorrhini; Simiiformes; Catarrhini; Hominoidea; Hominidae; Homininae; Homo	Lineage
Homo () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9605)	Parent	Homo () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9605)	Parent
9606 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9606)	NCBI Taxonomy ID	9606 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9606)	NCBI Taxonomy ID
No	is Taxon A an Intraspecies?	No	is Taxon B an Intraspecies?

AMY1A	Generic Gene Name	P04745 (http://www.uniprot.org/uniprot/P04745)	UniProtKB Homo sapiens
AMY1	Synonyms	BC132997 (https://www.ncbi.nlm.nih.gov/nuccore/BC132997)	GenebankID or UniProtKB
9606.ENSPP00000359100 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=9606.ENSPP00000359100)	String		
	Sequence Similarities		
Belongs to the glycosyl hydrolase 13 family.			
	GO - Molecular Function		
GO:0046872 : metal ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0046872)			
GO:0004556 : alpha-amylase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004556)			
GO:0103025 : alpha-amylase activity (releasing maltohexaose)			

(https://www.ebi.ac.uk/QuickGO/term/GO:0103025)	GO - Biological Process	
GO:0005975 : carbohydrate metabolic process (https://www.ebi.ac.uk/QuickGO/term/GO:0005975)	GO - Cellular Component	
GO:0070062 : extracellular exosome (https://www.ebi.ac.uk/QuickGO/term/GO:0070062)		
GO:0005615 : extracellular space (https://www.ebi.ac.uk/QuickGO/term/GO:0005615)		Presumptive Null
No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)		Molecular Type
Gene Amplification (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Gene Amplification^#gephebase-summary-title)		Aberration Type
Insertion (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Insertion^#gephebase-summary-title)		Insertion Size
1-10 kb		Molecular Details of the Mutation
Probably gene duplication		Experimental Evidence
Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title)		Main Reference
Diet and the evolution of human amylase gene copy number variation. (2007) (https://pubmed.ncbi.nlm.nih.gov/17828263)		Authors
Perry GH; Dominy NJ; Claw KG; Lee AS; Fiegler H; Redon R; Werner J; Villanea FA; Mountain JL; Misra R; Carter NP; Lee C; Stone AC		Abstract
Starch consumption is a prominent characteristic of agricultural societies and hunter-gatherers in arid environments. In contrast, rainforest and circum-arctic hunter-gatherers and some pastoralists consume much less starch. This behavioral variation raises the possibility that different selective pressures have acted on amylase, the enzyme responsible for starch hydrolysis. We found that copy number of the salivary amylase gene (AMY1) is correlated positively with salivary amylase protein level and that individuals from populations with high-starch diets have, on average, more AMY1 copies than those with traditionally low-starch diets. Comparisons with other loci in a subset of these populations suggest that the extent of AMY1 copy number differentiation is highly unusual. This example of positive selection on a copy number-variable gene is, to our knowledge, one of the first discovered in the human genome. Higher AMY1 copy numbers and protein levels probably improve the digestion of starchy foods and may buffer against the fitness-reducing effects of intestinal disease.		
Low copy number of the salivary amylase gene predisposes to obesity. (2014) (https://pubmed.ncbi.nlm.nih.gov/24686848)		Additional References
Independent amylase gene copy number bursts correlate with dietary preferences in mammals. (2019) (https://pubmed.ncbi.nlm.nih.gov/31084707)		

RELATED GEPHE

No matches found.	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

A second study (Falchi et al. 2014) showed an association between copy number of Amy gene and obesity - Multiple rounds of gene duplications - The gene duplications likely postdated the human Neanderthal split (Inchley et al. 2016) @TEPossibly