

GEPHE SUMMARY

amylase (https://www.gephebase.org/search-criteria?/and+GeneGephebase=^amylase^#gephebase-summary-title)	Gephebase Gene	GP00001870	GepheID
Published	Entry Status	Courtier	Main curator

PHENOTYPIC CHANGE

Physiology (https://www.gephebase.org/search-criteria?/and+TraitCategory=^Physiology^#gephebase-summary-title)	Trait Category		
Starch processing (https://www.gephebase.org/search-criteria?/and+Trait=^Starchprocessing^#gephebase-summary-title)	Trait		
Owl monkey and Marmoset	Trait State in Taxon A		
Capuchin	Trait State in Taxon B		
Taxon A	Ancestral State		
Intergenic or Higher (https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=^Intergenic or Higher^#gephebase-summary-title)	Taxonomic Status		

Taxon A #1		Taxon B	
	Latin Name		Latin Name
Aotus trivirgatus (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Aotus trivirgatus^#gephebase-summary-title)	Cebus capucinus (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Cebus capucinus^#gephebase-summary-title)		
douroucouli	white-faced sapajou		
douroucouli; night monkey; northern night monkey; owl monkey	white-faced sapajou; white-faced capuchin; white-throated capuchin		
species	species		
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; Platyrrhini; Aotidae; Aotus	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; Platyrrhini; Cebidae; Cebinae; Cebus		
Aotus (night monkeys) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9504)	Cebus (capuchin monkeys) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9513)		
9505 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9505)	9516 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9516)		
No	No		
			is Taxon B an Intraspecies?

Taxon A #2	
	Latin Name
Callithrix jacchus (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Callithrix jacchus^#gephebase-summary-title)	
white-tufted-ear marmoset	
Callithrix jacchus jacchus; white-tufted-ear marmoset; common marmoset; white ear-tufted marmoset	
species	
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; Platyrrhini; Cebidae; Callitrichinae; Callithrix; Callithrix	
Callithrix () - (Rank: subgenus)	

(<https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=1965096>)

NCBI Taxonomy ID

9483

(<https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9483>)

is Taxon A an Intraspecies?

No

GENOTYPIC CHANGE

<p>Amy1</p> <p>Amy-1; Amy1a; C030014B17Rik; Amy-1-a</p> <p>10090.ENSMUSP00000070368 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=10090.ENSMUSP00000070368)</p> <p>Belongs to the glycosyl hydrolase 13 family.</p> <p>GO:0004556 : alpha-amylase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004556)</p> <p>GO:0103025 : alpha-amylase activity (releasing maltohexaose) (https://www.ebi.ac.uk/QuickGO/term/GO:0103025)</p> <p>GO:0005509 : calcium ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0005509)</p> <p>GO:0016160 : amylase activity (https://www.ebi.ac.uk/QuickGO/term/GO:0016160)</p> <p>GO:0031404 : chloride ion binding (https://www.ebi.ac.uk/QuickGO/term/GO:0031404)</p> <p>GO:0009617 : response to bacterium (https://www.ebi.ac.uk/QuickGO/term/GO:0009617)</p> <p>GO:0016052 : carbohydrate catabolic process (https://www.ebi.ac.uk/QuickGO/term/GO:0016052)</p> <p>GO:0005615 : extracellular space (https://www.ebi.ac.uk/QuickGO/term/GO:0005615)</p> <p>No (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title)</p> <p>Gene Amplification (https://www.gephebase.org/search-criteria?/and+Molecular Type=^Gene Amplification^#gephebase-summary-title)</p> <p>Insertion (https://www.gephebase.org/search-criteria?/and+Aberration Type=^Insertion^#gephebase-summary-title)</p> <p>1-10 kb</p> <p>3-4 copies of the amylase gene; which coincides with increased levels of amylase activity in saliva</p> <p>Candidate Gene (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Candidate Gene^#gephebase-summary-title)</p> <p>Independent amylase gene copy number bursts correlate with dietary preferences in mammals. (2019) (https://pubmed.ncbi.nlm.nih.gov/31084707)</p> <p>Pajic P; Pavlidis P; Dean K; Neznanova L; Romano RA; Garneau D; Daugherty E; Globig A; Ruhl S; Gokcumen O</p> <p>The amylase gene (AMY), which codes for a starch-digesting enzyme in animals, underwent several gene copy number gains in humans (Perry et al., 2007), dogs (Axelsson et al., 2013), and mice (Schibler et al., 1982), possibly along with increased starch consumption during the evolution of these species. Here, we present comprehensive evidence for AMY copy number expansions that independently occurred in several mammalian species which consume diets rich in starch. We also provide correlative evidence that AMY gene duplications may be an essential first step for amylase to be expressed in saliva. Our findings underscore the overall importance of gene copy number amplification as a flexible and fast evolutionary mechanism that can independently occur in different branches of the phylogeny.</p> <p>Â© 2019, Pajic et al.</p>	<p>Generic Gene Name</p> <p>P00687 (http://www.uniprot.org/uniprot/P00687)</p> <p>Synonyms</p> <p>Ø</p> <p>String</p> <p>Sequence Similarities</p> <p>GO - Molecular Function</p> <p>GO - Biological Process</p> <p>GO - Cellular Component</p>	<p>UniProtKB Mus musculus</p> <p>GenebankID or UniProtKB</p> <p>Presumptive Null</p> <p>Molecular Type</p> <p>Aberration Type</p> <p>Insertion Size</p> <p>Molecular Details of the Mutation</p> <p>Experimental Evidence</p> <p>Main Reference</p> <p>Authors</p> <p>Abstract</p> <p>Additional References</p>
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RELATED GEPHE

No matches found.

No matches found.

Related Genes

Related Haplotypes

EXTERNAL LINKS

COMMENTS

Only one genome of capuchin was investigated - @Parallelism in mice; humans; dogs; rats ; possibly @TE