

GEPHE SUMMARY

<p>RNASE1B (#Gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00001414</p> <p>Prigent</p>	<p>GepheID</p> <p>Main curator</p>
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PHENOTYPIC CHANGE

		Trait Category		
		Physiology (#Gephebase-summary-title)		
		Trait		
		Folivory (digestion of bacteria at low pH) (#Gephebase-summary-title)		
		Trait State in Taxon A		
		ancestral colobine monkey with RNASE1B similar to RNASE1A		
		Trait State in Taxon B		
		asian colobine monkey (<i>P. melalophos</i>) with adapted RNASE1B to low pH		
		Ancestral State		
Taxon A		Taxonomic Status		
		Interspecific (#Gephebase-summary-title)		
Taxon A		Taxon B		
Colobinae	Latin Name	Presbytis melalophos	Latin Name	
(#Gephebase-summary-title)		(#Gephebase-summary-title)		
-	Common Name	mitred leaf monkey	Common Name	
-	Synonyms	mitred leaf monkey; Presbytis melalophos (Raffles 1821)	Synonyms	
subfamily	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; Cercopithecoidea; Cercopithecidae	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; Cercopithecoidea; Cercopithecidae; Colobinae; Presbytis	Lineage	
Cercopithecidae (Old World monkeys) - (Rank: family) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9527)	Parent	Presbytis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9573)	Parent	
9569	NCBI Taxonomy ID	78451	NCBI Taxonomy ID	
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9569)		(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=78451)		
No	is Taxon A an Intraspecies?	No	is Taxon B an Intraspecies?	

GENOTYPIC CHANGE

<p>RNASE1B</p> <p>-</p> <p>-</p> <p>Belongs to the pancreatic ribonuclease family.</p> <p>GO:0003676 : nucleic acid binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003676)</p> <p>GO:0004522 : ribonuclease A activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004522)</p> <p>-</p> <p>GO:0005576 : extracellular region (https://www.ebi.ac.uk/QuickGO/term/GO:0005576)</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>Q8SPN3 (http://www.uniprot.org/uniprot/Q8SPN3)</p> <p>KF877746 (https://www.ncbi.nlm.nih.gov/nuccore/KF877746)</p>	<p>UniProtKB Pygathrix nemaeus</p> <p>GenebankID or UniProtKB</p> <p>Presumptive Null</p>
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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

p.Arg39Gln

Experimental Evidence

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

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

Main Reference

Whole-genome sequencing of the snub-nosed monkey provides insights into folivory and evolutionary history. (2014) (<https://pubmed.ncbi.nlm.nih.gov/25362486>)

Authors

Zhou X; Wang B; Pan Q; Zhang J; Kumar S; Sun X; Liu Z; Pan H; Lin Y; Liu G; Zhan W; Li M; Ren B; Ma X; Ruan H; Cheng C; Wang D; Shi F; Hui Y; Tao Y; Zhang C; Zhu P; Xiang Z; Jiang W; Chang J; Wang H; Cao Z; Jiang Z; Li B; Yang G; Roos C; Garber PA; Bruford MW; Li R; Li M

Abstract

Colobines are a unique group of Old World monkeys that principally eat leaves and seeds rather than fruits and insects. We report the sequencing at 146Å— coverage, de novo assembly and analyses of the genome of a male golden snub-nosed monkey (*Rhinopithecus roxellana*) and resequencing at 30Å— coverage of three related species (*Rhinopithecus bieti*, *Rhinopithecus brelichi* and *Rhinopithecus strykeri*). Comparative analyses showed that Asian colobines have an enhanced ability to derive energy from fatty acids and to degrade xenobiotics. We found evidence for functional evolution in the colobine RNASE1 gene, encoding a key secretory RNase that digests the high concentrations of bacterial RNA derived from symbiotic microflora. Demographic reconstructions indicated that the profile of ancient effective population sizes for *R. roxellana* more closely resembles that of giant panda rather than its congeners. These findings offer new insights into the dietary adaptations and evolutionary history of colobine primates.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

2 (<https://www.gephebase.org/search-criteria?/or+Gene Gephebase=^RNASE1B^/and+Taxon ID=^9569^/or+Gene Gephebase=^RNASE1B^/and+Taxon ID=^78451^#gephebase-summary-title>)

EXTERNAL LINKS

COMMENTS