

GEPHE SUMMARY

	Gephebase Gene	GephelD
RNASE1B (https://www.gephebase.org/search-criteria/?and+Gene Gephebase="RNASE1B">#gephebase-summary-title)	GP00001413	
	Entry Status	Main curator
Published	Prigent	

PHENOTYPIC CHANGE

	Trait Category	
Physiology (https://www.gephebase.org/search-criteria/?and+Trait Category="Physiology">#gephebase-summary-title)		
Folivory (digestion of bacteria at low pH) (https://www.gephebase.org/search-criteria/?and+Trait Trait="Folivory (digestion of bacteria at low pH)"#gephebase-summary-title)	Trait	
ancestral colobine monkey with RNASE1B similar to RNASE1A	Trait State in Taxon A	
asian colobine monkeys (N. larvatus & P. nemaeus & R. roxellana) with adapted RNASE1B to low pH	Trait State in Taxon B	
	Ancestral State	
Taxon A		Taxonomic Status
Intergeneric or Higher (https://www.gephebase.org/search-criteria/?and+Taxonomic Status="Intergeneric or Higher">#gephebase-summary-title)		

Taxon A	Latin Name	
Colobinae (https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=Colobinae #gephebase-summary-title)		
	Common Name	
-		
	Synonyms	
-		
	Rank	
subfamily		
	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		
	Parent	
Cercopithecidae (Old World monkeys) - (Rank: family) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9527)		
	NCBI Taxonomy ID	
9569 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9569)		
	is Taxon A an Infraspecies?	
No		

Taxon B #1	Latin Name
Rhinopithecus roxellana (https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=Rhinopithecus+roxellana #gephebase-summary-title)	
	Common Name
golden snub-nosed monkey	
	Synonyms
Pygathrix roxellana; golden snub-nosed monkey; Rhinopithecus roxellana (Milne-Edwards, 1870); Rhinopithecus roxellanae	
	Rank
species	
	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; Rhinopithecus	
	Parent
Rhinopithecus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=542827)	
	NCBI Taxonomy ID
61622 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=61622)	
	is Taxon B an Infraspecies?
No	

Taxon B #2	Latin Name
Nasalis larvatus (https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=Nasalis+larvatus #gephebase-summary-title)	
	Common Name
proboscis monkey	
	Synonyms
proboscis monkey	
	Rank
species	
	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; Nasalis	
	Parent
Nasalis () - (Rank: genus)	

(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=43779)	NCBI Taxonomy ID
43780	
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=43780)	is Taxon B an Infraspecies?

No

Taxon B #3	Latin Name
Pygathrix nemaeus	
(https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=%Pygathrix+nemaeus%#gephebase-summary-title)	
Common Name	
Red shanked douc langur	Synonyms
Red shanked douc langur; dove langur	Rank
species	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; Pygathrix	
Pygathrix () - (Rank: genus)	Parent
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=54132)	
NCBI Taxonomy ID	
54133	
(https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=54133)	
is Taxon B an Infraspecies?	
No	

GENOTYPIC CHANGE

RNASE1B	Generic Gene Name	UniProtKB Pygathrix nemaeus
-	Synonyms	GenebankID or UniProtKB
-	AF449643 (https://www.ncbi.nlm.nih.gov/nuccore/AF449643)	
-	String	
-	Sequence Similarities	
Belongs to the pancreatic ribonuclease family.		
	GO - Molecular Function	
GO:0003676 : nucleic acid binding (https://www.ebi.ac.uk/QuickGO/term/GO:0003676)		
GO:0004522 : ribonuclease A activity (https://www.ebi.ac.uk/QuickGO/term/GO:0004522)		
	GO - Biological Process	
	GO - Cellular Component	
GO:0005576 : extracellular region (https://www.ebi.ac.uk/QuickGO/term/GO:0005576)		Presumptive Null
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.Arg39Trp		Experimental Evidence
Candidate Gene (https://www.gephebase.org/search-criteria/?and+Experimental+Evidence=%Candidate+Gene%#gephebase-summary-title)		Main Reference

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

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 146× coverage, de novo assembly and analyses of the genome of a male golden snub-nosed monkey (*Rhinopithecus roxellana*) and resequencing at 30× 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.gepheebase.org/search-criteria?/or+Gene Gepheebase=%RNASE1B%/and+Taxon ID=%9569%/or+Gene Gepheebase=%RNASE1B%/and+Taxon ID=%61622%/or+Gene Gepheebase=%RNASE1B%/and+Taxon ID=%43780%/or+Gene Gepheebase=%RNASE1B%/and+Taxon ID=%54133%#gepheebase-summary-title>)

EXTERNAL LINKS

COMMENTS