

Published	Entry Status	Prigent	
Gephebase Gene		GP00001413	GepheID
RNASE1B (<a +rnase1b^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+RNASE1B^#gephebase-summary-title)			Main curator

	Trait Category
Physiology (#Physiology #gephebase-summary-title)	
	Trait
Folivory (digestion of bacteria at low pH) (https://www.gephebase.org/search-criteria?/and+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 monkeys (N. larvatus & P. nemaus & R. roxellana) with adapted RNASE1B to low pH	
	Ancestral State
Taxon A	
	Taxonomic Status
Intergeneric or Higher (#Intergeneric or Higher #gephebase-summary-title)	

Taxon B #2	
Nasalis larvatus	Latin Name
(<a +nasalis+larvatus^#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="+Nasalis larvatus^#gephebase-summary-title)	
proboscis monkey	Common Name
proboscis monkey	Synonyms
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; Colobinae; Nasalis	Lineage
Nasalis  - (Rank: genus)	Parent

([https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 43779](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](https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=43780))

is Taxon B an Intraspecies?

No

Taxon B #3

Latin Name

Pygathrix nemaeus

([https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Pygathrix nemaeus^#gephebase-summary-title](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

Parent

Pygathrix () - (Rank: genus)

([https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 54132](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](https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=54133))

is Taxon B an Intraspecies?

No

GENOTYPIC CHANGE

RNASE1B

Generic Gene Name

-

Synonyms

-

String

Belongs to the pancreatic ribonuclease family.

Sequence Similarities

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>)

No ([https://www.gephebase.org/search-criteria?/and+Presumptive Null=^No^#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=^No^#gephebase-summary-title))

Presumptive Null

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))

Molecular Type

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

Aberration Type

Nonsynonymous

SNP Coding Change

p.Arg39Trp

Molecular Details of the Mutation

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))

Experimental Evidence

	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.gephebase.org/search-criteria?/or+Gene+Gephebase=^RNASE1B^/and+Taxon+ID=^9569^/or+Gene+Gephebase=^RNASE1B^/and+Taxon+ID=^61622^/or+Gene+Gephebase=^RNASE1B^/and+Taxon+ID=^43780^/or+Gene+Gephebase=^RNASE1B^/and+Taxon+ID=^54133^#gephebase-summary-title>)

EXTERNAL LINKS

COMMENTS