

GEPHE SUMMARY

	Gephebase Gene		GepheID
RNASE1B (<a +rnase1b+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+GeneGephebase=">https://www.gephebase.org/search-criteria?/and+GeneGephebase="+RNASE1B+"#gephebase-summary-title)		GP00001412	
	Entry Status	Prigent	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category	
Physiology (<a +physiology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+TraitCategory=">https://www.gephebase.org/search-criteria?/and+TraitCategory="+Physiology+"#gephebase-summary-title)		
	Trait	
Folivory (digestion of bacteria at low pH) (<a +folivory+(digestion+of+bacteria+at+low+ph)+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">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	
african colobine monkeys (C. guereza & P. badius) with adapted RNASE1B to low pH		
	Ancestral State	
Taxon A		
	Taxonomic Status	
Intergeneric or Higher (<a +intergeneric+or+higher+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+TaxonomicStatus=">https://www.gephebase.org/search-criteria?/and+TaxonomicStatus="+Intergeneric+or+Higher+"#gephebase-summary-title)		

Taxon A		Taxon B #1	
	Latin Name		Latin Name
Macaca mulatta (<a +macaca+mulatta+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Macaca+mulatta+"#gephebase-summary-title)		Colobus guereza (<a +colobus+guereza+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Colobus+guereza+"#gephebase-summary-title)	
	Common Name		Common Name
Rhesus monkey		mantled guereza	
	Synonyms		Synonyms
Rhesus monkey; rhesus macaque; rhesus macaques; rhesus monkeys; Macaca mulatta (Zimmermann, 1780)		Colobus abyssinicus; mantled guereza; eastern black-and -white colobus; guereza; Colobus abyssinicus (Oken, 1816); Colobus guereza Rueppell, 1835	
	Rank		Rank
species		species	
	Lineage		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; Cercopithecinae; Macaca		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; Colobus	
	Parent		Parent
Macaca (macaques) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9539)		Colobus (black-and-white colobus monkeys) - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9570)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
9544 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9544)		33548 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=33548)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

Taxon B #2	
	Latin Name
Piliocolobus badius (<a +piliocolobus+badius+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Piliocolobus+badius+"#gephebase-summary-title)	
	Common Name
western red colobus	
	Synonyms
Colobus badius; Procolobus badius; Simia badius; western red colobus; red colobus; Procolobus badius (Kerr, 1792); Simia badius Kerr, 1792	
	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; Piliocolobus	
	Parent
Piliocolobus () - (Rank: genus)	

(<https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 591932>)

NCBI Taxonomy ID

164648

(<https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 164648>)

is Taxon B an Intraspecies?

No

GENOTYPIC CHANGE

RNASE1B

Generic Gene Name

UniProtKB Pygathrix nemaeus

-

Synonyms

GenebankID or UniProtKB

-

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](https://www.gephebase.org/search-criteria?/and+Presumptive Null=))

Molecular Type

Coding ([https://www.gephebase.org/search-criteria?/and+Molecular Type="+Coding+"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular Type=))

Aberration 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 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](https://www.gephebase.org/search-criteria?/and+Experimental Evidence=))

	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

No matches found.

EXTERNAL LINKS

