

New cricetid rodent found from the early Oligocene of Yunnan, China

March 25 2013



Fig.1 Holotype of *Paracricetops virgatoincisus*, gen. et sp. nov. (IVPP V17821.1), a broken right mandible preserving m1 and m3. A, labial view; B, occlusal view. Credit: Olivier Maridet

The cricetids, including extant hamsters, constitute one of the most diverse families of rodents. The Eurasian Paleogene and early Neogene cricetid rodents are very diverse, but the phylogenetic relationships

among these cricetids remain unsolved. Discovery of more specimens of these basal cricetids will help to resolve their systematic position. In an article published in *Journal of Vertebrate Paleontology* 33(1), Drs. Olivier Maridet and NI Xijun, Institute of Vertebrate Paleontology and Paleoanthropology (IVPP), Chinese Academy of Sciences, reported a new early Oligocene cricetid, *Paracricetops virgatoincisus*, from the Caijiachong locality in Yunnan Province, China. Their phylogenetic analysis including *Paracricetops* and other early cricetids not only asserts the systematic position of this new cricetid and illuminates the phylogenetic relationships among other cricetids, but also casts new lights on the origin and early radiation of the family Cricetidae.

This new cricetid rodent was discovered at the Caijiachong mammalian fossil locality in Yunnan Province, China in 2008. The Caijiachong locality lies in the north part of the Yuezhou Basin, and is about 20 km southeast of Qujing City.

This new cricetid, *Paracricetops virgatoincisus*, shows a peculiar combination of characters, such as massive and transversely positioned cusps, crenulated cheek [tooth enamel](#), and a deep fossette enclosed between protocone and paracone. It shows a striking morphology shared with some peculiar [Oligocene](#) and early Miocene cricetid rodents, such as *Cricetops*, *Deperetomys*, and *Meteamys*.

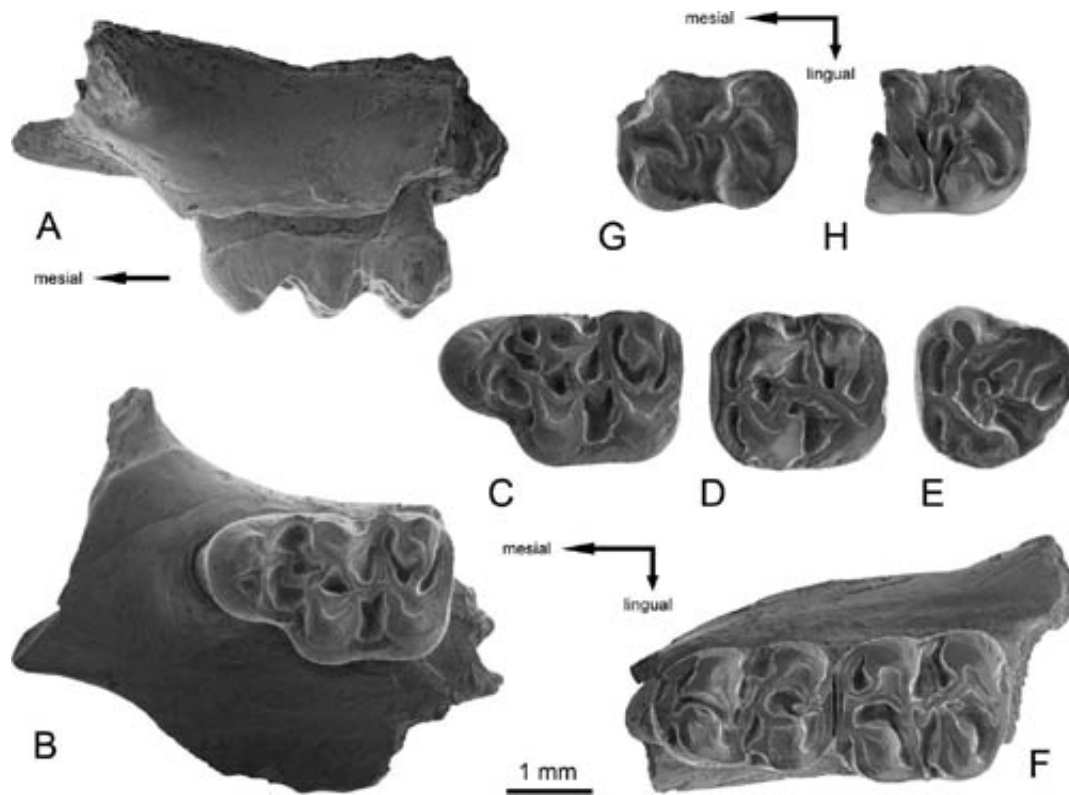


Fig.2 Dentition of *Paracricetops virgatoincisus*, gen. et sp. nov. A–B, left maxilla fragment with M1; C, left M1; D, left M2; E, left M3; F, left mandible fragment with m1 and m2; G, right m2; H, right m2 fragment. Credit: Olivier Maridet

In order to decipher the phylogenetic position of *Paracricetops virgatoincisus*, researchers performed a phylogenetic analysis focusing on the early Eurasian cricetids, particularly the taxa showing morphological similarities to *P. virgatoincisus*. They selected a newly developed morphological data matrix including 67 characters, two Eocene dipodids, and 35 Eocene, Oligocene, and early Miocene Eurasian cricetid rodents for phylogenetic analysis. The analysis result reveals that *Paracricetops* and *Cricetops* are sister groups. *Paracricetops*, *Cricetops*, *Deperetomys*, *Meteamys*, *Selenomys*, *Melissiodon*, *Mirrabella*, *Enginia*, *Muhsinia*, and *Aralocricetodon* constitute a monophyletic group. This result suggests that these genera should all be grouped in the subfamily

Cricetopinae. The subfamily Pappocricetodontinae is a polyphyletic group. Pappocricetodon and Raricricetodon, two basal cricetid genera, are also polyphyletic.

"Our phylogenetic analysis indicates a thorough systematic revision of these basal cricetids is needed. Chronological distribution of Eucricetodontinae, Paracricetodontinae, Pseudocricetodontinae, and Cricetopinae suggests that the establishment of these cricetid clades should be in the late Eocene at least. We therefore deduced that the first diversification and dispersal of the family Cricetidae across Eurasia must have occurred well before the Eocene-Oligocene transition", said study author Olivier Maridet.

The Eocene-Oligocene transition is marked by global climate change. Abrupt global cooling, continental aridification, and expansion of open habitats have been suggested as the main drivers of the diversification of rodents. Although the large change in the distribution and diversity of cricetids seems coincident with the Eocene-Oligocene transition, the dispersal of Asian cricetid rodents into Europe is now known earlier than the date traditionally believed. "Some cricetids such as Eucricetodon and Pseudocricetodon have migrated to eastern Europe in late Eocene. These late [Eocene](#) Asian migrants may have served as a stock for European faunal reorganization during the 'Grande Coupure' and the later rapid diversification of Oligocene European cricetids", said study coauthor NI Xijun.

Provided by Institute of Vertebrate Paleontology and Paleoanthropology

Citation: New cricetid rodent found from the early Oligocene of Yunnan, China (2013, March 25) retrieved 26 April 2024 from <https://phys.org/news/2013-03-cricetid-rodent-early-oligocene-yunnan.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.