

A new endemic genus of eomyid rodents from the early Miocene of Japan


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Fossil rodents are generally scarce in the Miocene of Japan. However, as much as three taxa of eomyid rodents had been reported from the early Miocene Nakamura Formation (ca. 18.5 Ma) in Gifu Prefecture, central Japan. In this study, we revisit one of them—the small-sized taxon—and assign this material to a new genus, *Japaneomys*, which is so far known only from the type locality. The new genus is closely related to but distinguished from *Asianeomys*, which is more widely distributed in Central and East Asia, by having: (i) more bunodont cheek teeth with lower lophids, yet complete transverse lophids; (ii) two-rooted p4; (iii) anterior lobe narrower than posterior lobe on m1, correspondingly synclinid I shorter and shallower than synclinid IV; (iv) hypolophid anteriorly concave on m1. *Japaneomys* shows a derived but peculiar four-layered enamel microstructure with longitudinally oriented Hunter-Schreger bands, compared to three-layered microstructure in typical eomyid rodents. A phylogenetic analysis indicates that *Japaneomys* is more basal than *Asianeomys* and likely diverged in the late Oligocene when Japan was still part of the eastern margin of continental Asia, suggesting that certain small mammal populations could have undergone allopatric speciation isolated from inner-continental regions of Asia.

Key words: Mammalia, Rodentia, Eomyidae, enamel microstructure, dental morphology, time-scaled phylogeny, paleogeography, Miocene, Japan.

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