Lower molar endostructure in *Rudapithecus hungaricus* (late Miocene, Hungary)

CLÉMENT ZANOLLI1, DAVID R. BEGUN2 and JAY KELLEY3,4

1Laboratoire PACEA, UMR 5199 CNRS, Université de Bordeaux, Bordeaux, France, 2University of Toronto, Toronto, ON, Canada, 3Institute of Human Origins, Tempe, AZ, USA, 4National Museum of Natural History, Smithsonian Institution, Washington, DC, USA

*Rudapithecus* is a hominid known from the 10 Ma site of Rudabánya, in Hungary, sharing features that are unique to the African ape and human clade. However, the taxonomic diversity within *Rudapithecus* and its phylogenetic relationships with other fossil and extant hominid taxa remain controversial. We used X-ray microtomographic imaging to characterize the endostructure of *Rudapithecus* lower molars and compared it with that of other European Miocene apes (*Dryopithecus* and *Ouranopithecus*), the South Asian Miocene ape *Sivapithecus*, and extant hominids. We assessed 3D tooth crown tissue proportions, enamel thickness distribution patterns and conducted geometric morphometric analyses of the enamel-dentine junction (EDJ). *Rudapithecus* has moderately thick enamel similar to *Pongo*, thicker than in *Dryopithecus* and extant African apes, but thinner than in *Ouranopithecus* and extant humans. The thickest enamel is found at the apex of the cusps, similar to *Gorilla*, while in the other extant hominids it is located more laterally along the cusps. In EDJ morphology the Miocene apes overlap with *Pongo* but not extant hominines. Among Miocene apes only, *Rudapithecus*, *Dryopithecus* and *Ouranopithecus* plot close to one another and are discriminated from *Sivapithecus*, consistent with previous analyses indicating that the European taxa form a clade. RUD 14 plots closest to *Ouranopithecus* and closer to *Dryopithecus* than to RUD 212. The difference between the two Rudabánya specimens is greater than the difference between *Rudapithecus* and *Dryopithecus*, which is consistent with previous observations suggesting the presence of more than one ape taxon at Rudabánya.

For the scans of the fossil specimens, we thank J.J. Hublin G. Rößner, A. Mazurier, R. Macchiarelli. Funding provided to CZ by the CNRS and to DRB from NSERC.