

3D models related to the publication: Upper third molar internal structural organization and semicircular canal morphology in Plio-Pleistocene South African cercopithecoids.

Beaudet Amélie^{1,2*}, Fleury Guillaume³, Gilissen Emmanuel^{4,5}, Dumoncel Jean⁶, Thackeray John Francis⁷, Bruxelles Laurent^{1,8,9}, Duployer Benjamin¹⁰, Tenailleau Christophe¹⁰, Bam Lunga¹¹, Hoffman Jakobus¹¹, De Beer Frikke¹¹, Braga José⁶

¹ School of Geography, Archaeology and Environmental Studies, University of the Witwatersrand, Private Bag 3, Johannesburg, WITS 2050, South Africa

² Department of Anatomy, University of Pretoria, PO Box 2034, Pretoria 0001, South Africa

³ Museum d'Histoire naturelle de Toulouse, 35 Allée Jules Guesde, 31000 Toulouse, France

⁴ Department of African Zoology, Royal Museum for Central Africa, Leuvensesteenweg, 3080 Tervuren, Belgium

⁵ Laboratory of Histology and Neuropathology, Université Libre de Bruxelles, 1070 Brussels, Belgium

⁶ Laboratoire d'Anthropologie Moléculaire et Imagerie de Synthèse, UMR 5288 CNRS-Université de Toulouse (Paul Sabatier), 37 Allées Jules Guesde, 31 073 Toulouse Cedex 3, France

⁷ Evolutionary Studies Institute, University of the Witwatersrand, Private Bag 3, Wits 2050, Johannesburg, South Africa

⁸ Institut National de Recherches Archéologiques Préventives, 561 rue Etienne Lenoir, km Delta, 30900 Nîmes, France

⁹ French Institute of South Africa (IFAS), USR 3336 CNRS, Johannesburg 2001, South Africa

¹⁰ Centre Inter-universitaire de Recherche et d'Ingénierie des Matériaux, UMR 5085 CNRS-Université de Toulouse (Paul Sabatier), 118 route de Narbonne, 31062 Toulouse Cedex 9, France

¹¹ South African Nuclear Energy Corporation, Pelindaba, North West Province, South Africa

*Corresponding author: beaudet.amelie@gmail.com

Abstract

The present 3D Dataset contains the 3D models of the enamel-dentine junctions of upper third molars and of the bony labyrinths of the extant cercopithecoid specimens analyzed in the following publication: Beaudet, A., Dumoncel, J., Thackeray, J.F., Bruxelles, L., Duployer, B., Tenailleau, C., Bam, L., Hoffman, J., de Beer, F., Braga, J.: Upper third molar internal structural organization and semicircular canal morphology in Plio-Pleistocene South African cercopithecoids. *Journal of Human Evolution* 95, 104-120. <https://doi.org/10.1016/j.jhevol.2016.04.004>

Keywords: bony labyrinth, cercopithecoids, enamel-dentine junction, upper third molars

Submitted:2019-10-07, published online:2019-10-10. <https://doi.org/10.18563/journal.m3.86>

INTRODUCTION

In our paper entitled "Upper third molar internal structural organization and semicircular canal morphology in Plio-Pleistocene South African cercopithecoids" published in the *Journal of Human Evolution* (95: 104-120), we tested the relevance of both molar crown internal structure and bony labyrinth morphology for discrimination of cercopithecoid species (Figure 1). We used microtomographic-based 3D virtual imaging and quantitative analyses to investigate tooth endostructural organization and inner ear shape. Here we provide 3D models of 22 enamel-dentine junctions of upper third molars (Table 1) and of 29 bony labyrinths (Table 2) representing 10 extant cercopithecoid genera from the Museum d'Histoire naturelle de Toulouse (France) and the Royal Museum for Central Africa in Tervuren (Belgium).

METHODS

All the specimens investigated in this study have been imaged by micro-focus X-ray microtomography (μ CT) at the imaging facility funded by the research federation FERMAT in Toulouse (France) with an isometric voxel size of 33 μ m. 3D surfaces were obtained through semi-automatic threshold-based segmentations and 3D mesh reconstructions via the software Avizo v8.0 (Visualization Sciences Group Inc.). The 3D surface models are provided in .ply format, and can therefore be opened with a wide range of freeware.

ACKNOWLEDGEMENTS

We are indebted to the Museum d'Histoire naturelle de Toulouse (France) and the Royal Museum for Central Africa in Tervuren (Belgium) for having granted access to the collections. The

Species	Inv. number	Collection	Origin	Sex	Side
<i>Cercocebus atys</i>	81.007-M-0041	MRAC	Liberia	ind.	R
<i>Cercocebus torquatus</i>	73.018-M-0359	MRAC	Cameroun	F	R
<i>Cercopithecus cephus</i>	OST.AC.533	MNHT	Guinea	M	R
<i>Chlorocebus aethiops</i>	OST.AC.523	MNHT	Senegal	M	R
<i>Chlorocebus aethiops</i>	OST.AC.540	MNHT	South Africa	M	R
<i>Chlorocebus pygerythrus</i>	37477	MRAC	Congo	M	R
<i>Chlorocebus pygerythrus</i>	37478	MRAC	Congo	F	R
<i>Colobus angolensis</i>	25456	MRAC	Congo	F	R
<i>Colobus guereza</i>	1215	MRAC	Congo	ind.	R
<i>Colobus guereza</i>	2800	MRAC	Congo	M	R
<i>Erythrocebus patas</i>	OST.2002-26	MNHT	Senegal	F	R
<i>Erythrocebus patas</i>	8452	MRAC	Congo	M	R
<i>Lophocebus albigena</i>	73.029-M-0109	MRAC	Cameroun	F	R
<i>Lophocebus albigena</i>	37572	MRAC	Congo	M	R
<i>Lophocebus albigena</i>	37579	MRAC	Congo	M	R
<i>Macaca mulatta</i>	OST.AC.492	MNHT	India	F	R
<i>Mandrillus leucophaeus</i>	73.029-M-0106	MRAC	Cameroun	F	R
<i>Mandrillus sphinx</i>	OST.AC.488	MNHT	Guinea	M	R
<i>Mandrillus sphinx</i>	OST.AC.543	MNHT	Guinea	M	R
<i>Papio cynocephalus kindae</i>	3503	MRAC	Congo	F	R
<i>Papio cynocephalus kindae</i>	17979	MRAC	Congo	M	R
<i>Ptilocolobus foai</i>	91.060-M-0071	MRAC	Congo	F	R

Table 1. Enamel-dentine junctions are from specimens listed above. MRAC: Royal Museum for Central Africa (Belgium); MHNT: Museum d’Histoire naturelle de Toulouse (France). R: right.

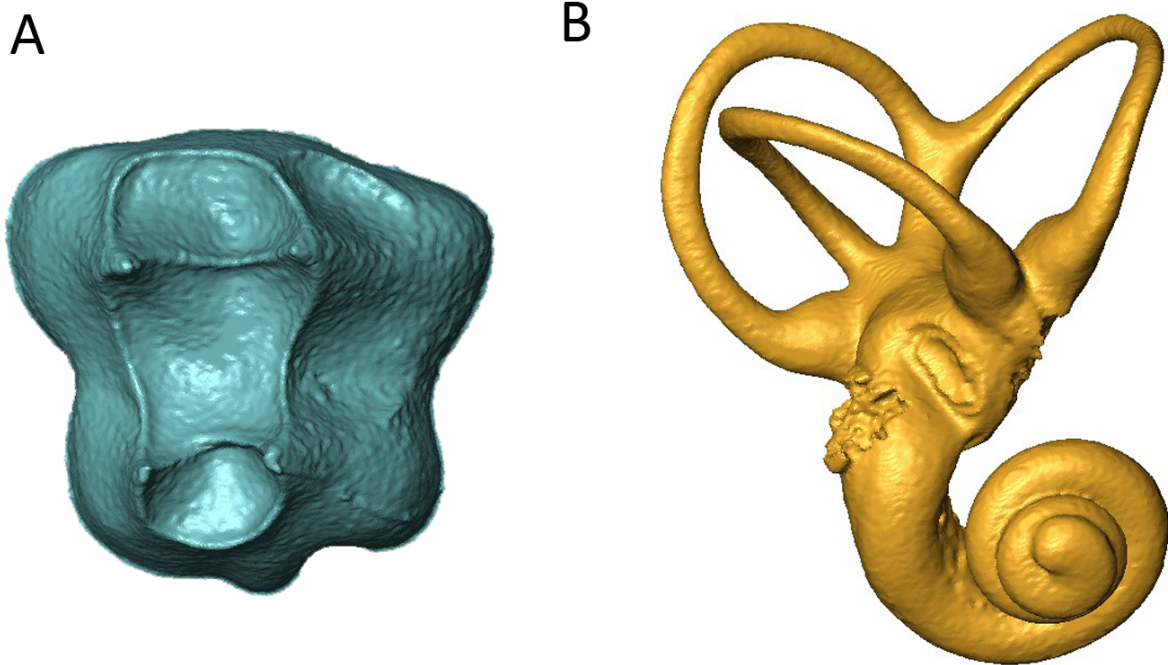


Figure 1. Enamel-dentine junction and bony labyrinth of an extant baboon specimen.

Species	Inv. number	Collection	Origin	Sex	Side
<i>Cercocebus atys</i>	28998	MRAC	Liberia	M	R
<i>Cercocebus torquatus</i>	73.018-M-0359	MRAC	Cameroun	F	L
<i>Cercocebus torquatus</i>	73.018-M-389	MRAC	Cameroun	M	R
<i>Chlorocebus aethiops</i>	OST.AC.508	MNHT	Cape Verde	ind.	L
<i>Chlorocebus aethiops</i>	OST.AC.523	MNHT	Senegal	M	R
<i>Chlorocebus aethiops</i>	OST.AC.540	MNHT	South Africa	M	R
<i>Chlorocebus pygerythrus</i>	37477	MRAC	Congo	M	R
<i>Chlorocebus pygerythrus</i>	37478	MRAC	Congo	F	R
<i>Colobus angolensis</i>	25456	MRAC	Congo	F	R
<i>Colobus guereza</i>	OST.AC.519	MNHT	Ethiopia	M	R
<i>Colobus guereza</i>	1215	MRAC	Congo	ind.	R
<i>Colobus guereza</i>	2800	MRAC	Congo	M	R
<i>Cercopithecus cephus</i>	OST.AC.515	MNHT	Guinea	F	R
<i>Cercopithecus cephus</i>	OST.AC.533	MNHT	Guinea	M	R
<i>Erythrocebus patas</i>	OST.2002-26	MNHT	Senegal	F	R
<i>Erythrocebus patas</i>	8452	MRAC	Congo	M	R
<i>Lophocebus albigena</i>	73.029-M-0109	MRAC	Cameroun	F	R
<i>Lophocebus albigena</i>	37572	MRAC	Congo	M	R
<i>Macaca</i> sp.	OST.AC.532	MNHT	Senegal	M	L
<i>Macaca mulatta</i>	OST.AC.492	MNHT	India	F	R
<i>Macaca sylvanus</i>	OST.AC.493	MNHT	ind.	M	R
<i>Mandrillus leucophaeus</i>	73.029-M-0105	MRAC	Cameroun	M	R
<i>Mandrillus leucophaeus</i>	73.029-M-0106	MRAC	Cameroun	F	R
<i>Mandrillus leucophaeus</i>	28425	MRAC	Guinea	ind.	R
<i>Mandrillus sphinx</i>	OST.AC.488	MNHT	Guinea	M	L
<i>Mandrillus sphinx</i>	OST.AC.543	MNHT	Guinea	M	R
<i>Papio cynocephalus kindae</i>	3503	MRAC	Congo	F	R
<i>Papio cynocephalus kindae</i>	17979	MRAC	Congo	M	R
<i>Ptilocolobus foai</i>	91.060-M-0071	MRAC	Congo	F	R

Table 2. Bony labyrinths are from specimens listed above. MRAC: Royal Museum for Central Africa (Belgium); MHNT: Museum d'Histoire naturelle de Toulouse (France). R: right; L: left.

French research federation FERMAT (FR3089) is acknowledged for providing micro-X-ray tomography laboratory facility. Research supported by the Centre of Research and Higher Education (PRES) of Toulouse and the Midi-Pyrénées Region.

BIBLIOGRAPHY

Beudet, A., Dumoncel, J., Thackeray, J.F., Bruxelles, L., Duployer, B., Tenailleau, C., Bam, L., Hoffman, J., de Beer, F., Braga, J.: Upper third molar internal structural organization and semicircular canal morphology in Plio-Pleistocene South African cercopithecoids. *Journal of Human Evolution* 95, 104-120. <https://doi.org/10.1016/j.jhevol.2016.04.004>