

3D DIGITAL ENDOCAST OF THE EARLY MIOCENE (COLHUEHUAPIAN) *SIPALOCYON EXTERNA* (METATHERIA, SPARASSODONTA)

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The skull of *Sipalocyon externa* Ameghino, 1902 (Hathliacynidae) from Sacanana, Chubut, Sarmiento Formation, Colhuehuapian age, is studied (MACN-CH 1911). We first record the taxon for this locality, which includes the sparassodonts *Acrocyon riggsi* Simpson 1930 and a large Borhyaenoidae. The skull is almost complete and was studied through μ CT-scanning, representing the first digital encephalic cavity cast_(c) for Sparassodonta and one of the few known for stem marsupials. Body mass of the specimen was estimated based on teeth measurements, following Gordon's equations (1.7kg), and skull centroid-size inspired by Zelditch (2.8kg). Considering the mean body mass, its encephalization quotient with and without olfactory bulbs_c is respectively: 0.32 and 0.30 (Jerison equations) or 0.41 and 0.38 (Eisenberg equations). The estimates for *S. externa* stand between that recorded by Macrini for the marsupials *Didelphis virginiana* (Kerr, 1792) and *Dasyurus hallucatus* Gould, 1842 but are larger than those of the stem marsupial *Pucadelphys andinus* Marshall and De Muizon, 1988. The olfactory bulb_c represents 5.88% of the total endocranial volume, which is smaller than the values for *P. andinus* (11.7%) and other marsupials (8%–11%). The paraflocculus_c corresponds to 2.65%, representing a large proportion of the endocast. This agrees with a deep subarquate fossa (a primitive condition for Metatheria). Vascular organization is largely conservative in this species. Similar to other sparassodonts, the major venous drainage from the endocranium was through the cerebrospinal system instead of jugular vein. In addition, we detected for the first time in this group an accessory transverse sinus enclosed by cranial bone.

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