

Study of the endocast anatomy of two hyaenodonts: the large *Pterodon dasyuroides* and the tiny *Thereutherium thylacodes* (Hyainailouroidea)

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We present here the endocast reconstructions of *Thereutherium thylacodes* and *Pterodon dasyuroides* – two hyaenodonts from Europe (Quercy Phosphorites, France) – based on two skulls housed in the *Muséum national d'Histoire naturelle* (Paris, France). *Pterodon dasyuroides* is a large hyaenodont (52 kg) from the late Eocene, while *Thereutherium thylacodes* is a tiny hyaenodont (200 g) recorded in the Oligocene.

We focused on the morphology of certain endocranial structures such as the cerebrum (complexity of the encephalon) and cerebellum (vermis fragmentation). We compared our two endocast reconstructions with those of several other hyaenodonts, notably the ones recently published for *Proviverra typica* and *Eurotherium theriodis*. Furthermore, we also compared *Thereutherium* and *Pterodon*, both belonging to Hyainailouroidea (a hyaenodont group that diversified mostly in Africa) with members of the Hyaenodontidea, which were successful in Eurasia. Finally, we used phylogenetic trees to contextualize the evolution of endocranial size and complexity in Hyaenodonta.

Our study shows that several endocranial structures appeared convergently among Hyaenodonta, together with a complexification over time. Therefore, endocranium is not usable to infer systematic interpretations. Elsewhere, the complexification of the endocranium and the analysis of the encephalization quotient do not support the idea of a relatively small brain size in hyaenodonts (hypothesis often suggested to explain their extinction).

Mots-Clés : Eocene, Oligocene, Hyaenodonta, endocranium, phylogeny