

Lyras GA, Van Der Geer AAE. 2003. External brain anatomy in relation to phylogeny of Caninae (Carnivora: Canidae). *Zoological Journal of the Linnean Society* 138:505-522.

Caninae is one of the most studied mammalian groups, nevertheless there are relatively few comparative studies on their neuroanatomy. This work contributes to a better knowledge of this subfamily, since it describes the external cerebrum anatomy of 29 out of the 35 living Caninae species, 11 of which are described for the first time. Information about their frontal region appears to be a welcome supplement to the study of the phylogeny. Two distinctive features are recognized, that can be traced back in the fossil record: the sulcal pattern medial to the coronal sulci, and the shape and relative size of the preareal gyrus. Four types are described for the first feature: (1) orthogonal: *Canis*, *Lycaon*, *Cuon*, *Atelocynus*, *Speothos*, (2) pentagonal: *Vulpes*, *Alopex*, *Otocyon*, †*Eucyon*, (3) parenthesis-like: †*Dusicyon*, *Pseudalopex*, *Chrysocyon*, (4) heart-shaped: *Urocyon*, *Cerdocyon*, *Pseudalopex culpaeus*, *Nyctereutes*. Three types are described for the second feature: (1) elongated and bilaterally compressed: *Canis*, *Cuon*, *Lycaon*, *Atelocynus*, *Speothos*, *Cerdocyon*, †*Dusicyon*, *Chrysocyon*, *Pseudalopex*, †*Nyctereutes sinensis*, †*N. tingi*, (2) small: *Vulpes*, *Otocyon*, *Urocyon*, *Alopex*, (3) wide and low: *Nyctereutes procyonoides*. On the basis of these features some phylogenetic interpretations are presented: the fossil Asian *Nyctereutes* is close to *Cerdocyon*, *Speothos* is close to *Atelocynus*, *Chrysocyon* is not related to *Canis*, *Urocyon* differs from *Vulpes* and *Pseudalopex culpaeus* differs from the rest of the *Pseudalopex* species.

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