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New material of the trechnotherian mammal *Lactodens* from the Early Cretaceous Jehol Biota: Comparison with *Origolestes* and implications for mammal evolution

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A new specimen of *Lactodens sheni*, the only known spalacolestine from the Early Cretaceous Jehol Biota, is reported from the Jiufotang Formation, Liaoning, China. The description focuses on the dental and mandibular morphologies from both the new specimen and the holotype, particularly those that were unknown or poorly known from the holotype when the taxon was established. As revealed primarily by high-resolution computed tomography, morphologies and size gradient of the lower molars and detailed features of the mandibles, such as the masseteric foramen, can be unequivocally described. The dental and mandibular morphologies of *Lactodens* are compared with those of *Origolestes lii*, also from the Jehol Biota; these two taxa represent by far the best specimens in Spalacotheriidae and Zhangheotheriidae, respectively, and could be used as the representatives of their own groups in future higher-level phylogenetic analysis of mammals. The two taxa display considerable differences in dental and mandibular features, probably indicating a deeper split of spalacotheriids and zhangheotheriids than previously thought. Absence of the Meckelian groove in *Lactodens*, contrasting to the distinct one that holds a sizable Meckel's cartilage in adult *Origolestes*, suggests an independent evolution of the definitive mammalian middle ear within "symmetrodontans". The morphological gradient in the tooth row and association of the upper and lower dentitions from the same individual animal are also instructive for interpreting molar variations and evolution in "symmetrodontans" and mammals.

Key words: Mammalia, Symmetrodonta, Spalacotheriidae, Zhangheotheriidae, dental morphology, mandible, middle ear, Cretaceous, Yixian Formation, China.

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