



Gegepterus changi

Specimen from the grey shales of the lower Yixian Formation at the Sihetun locality, near the city of Beipiao. Several elements including unfused cranial bones and scapula-coracoid

Holotype: IVPP V 11981

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Abstract: A partial skeleton (including skull, mandible and soft tissue) of a new archaeopterodactyloid pterosaur, *Gegepterus changi* gen. et sp. nov. from the Lower Cretaceous of Liaoning, northeast China is described. The specimen, IVPP V 11981, was collected from grey shales of the lower Yixian Formation (125 Ma) at the Sihetun locality, near the city of Beipiao. Several elements (cranial bones, scapula-coracoid) are not fused, suggesting that it probably represents a sub-adult individual at the time of death. Soft tissue is found near the posterior region of the skull, inside the orbit and associated with the gastralia. It is formed of an amorphous dark mineralized substance and does not show any particular structure except in an area at the posterior part of the skull where small, dark, unbranched fibres are present. *Gegepterus changi* shows synapomorphies of the Archaeopterodactyloidea sensu Kellner, 2003 (elongated mid-cervical vertebrae with low, blade-like neural spine and strongly inclined quadrate) and shares with the Gallodactylidae and the Ctenochasmatidae a concave dorsal margin of the skull. It further has a large number of thin, needle-like teeth and a long rostrum (anterior to the nasoantorbital fenestra) allowing its allocation to the Ctenochasmatidae, thus making it the first uncontroversial member of this pterosaur clade in the Jehol Group. *Gegepterus changi* is diagnosed by several unique features (e.g., extensive sculpturing of frontals; anterior lacrimal process overlying the nasal; neural spine with knob-like dorsal expansion) and has cervical vertebrae that combine primitive and derived features (e.g., cervical ribs, postexpophyses, lateral pneumatic foramen) that have not been recorded in any member of Archaeopterodactyloidea so far.