

**Evolution and palaeogeographical dispersion of the radiolitid rudist genus
Auroradiolites (Bivalvia: Hippuritida), with descriptions of new material from Tibet
and archived specimens from Afghanistan**

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Diagnostic characters of the recently established new genus of radiolitid rudist *Auroradiolites* include an entirely compact outer shell layer, a distinctly convex upper (left) valve and a robust myocardinal apparatus surrounding a strongly internally projected ligamentary infolding. Until now, *A. biconvexus* (previously considered as exclusively Late Albian in age) has been reported only from the Langshan Formation, which crops out along the northern portion of the Lhasa Block, Tibet. In addition, *A. biconvexus* is here recorded for the first time from the Sangzugang Formation of the Xigaze Forearc Basin, situated at the southern margin of the Lhasa Block. *A. biconvexus* differs from the southwest Asian type species *A. gilgitensis* (Late Aptian to Albian) by its relatively larger size, more strongly domed left valve and distinct radial undulations of the outer shell layer. The characters of *A. gilgitensis* are further clarified by means of archived material from central Afghanistan, also newly identified and described herein. All *Auroradiolites* records to date are revised. The recognition of examples of *A. biconvexus* from Upper Aptian strata increases both the stratigraphical and geographical ranges of the species, indicating that it had already branched off from *A. gilgitensis* in the Late Aptian. Some new radiolitid specimens that combine both compact and cellular calcitic outer shell layer structures are also described from the Langshan Formation, but a number of internal differences from *Auroradiolites* cast doubt on their constituting a sister group to the latter and we assign them to *Eoradiolites* cf. *hedini*. Rather, the evolution of *Auroradiolites* directly from the ancestral radiolitid genus *Agriopleura* is favoured on the grounds of parsimony.

So far, the genus *Auroradiolites* has been recorded from Iran, central and eastern Afghanistan, the type locality of Yasin in northwestern Pakistan, southern and northern Ladakh, the Lhasa Block, as well as Hokkaido in northern Japan. During the Late Aptian to Albian interval, all these localities were associated with terranes and blocks that were limited to the northeastern margin of Tethys and the western Pacific margin, making *Auroradiolites* an indicator of a SW Asian to Pacific faunal province.