The Middle Jurassic mammal *Shuotherium* has lower molars that possess a trigonid and
talonid, but are unique in having the talonid situated in front of the trigonid, rather than
behind it, as in molars of usual tribosphenic pattern. *Shuotherium dongi* Chow and Rich,
1982 was based on a dentary bearing seven teeth, originally interpreted as three premolars
and four molars. Based on comparison with other groups of early mammals, we reinterpret
the premolar-molar boundary in the holotype of *S. dongi*, and propose a dental formula of
four (or more) premolars and three molars. The ultimate lower premolar (previously
identified as the first molar) has a completely developed trigonid and no talonid or
pseudo-talonid. We hypothesize that the mesial cingulid on molars of Australosphenida is a
highly plausible structural antecedent to the pseudo-talonid of *Shuotherium*. This and other
shared, derived features support a relationship of *Shuotherium* and Australosphenida as sister-taxa. We
hypothesize that the common ancestor of Shuotherium + Australosphenida had a global distribution no
younger than early Middle Jurassic, and that the respective clades diverged prior to full separation of
Gondwanan and Laurasian landmasses.

**Key words:** Australosphenida, Shuotherium, tribosphenic molars, Jurassic, China

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