

A new leanchoiliid megacheiran arthropod from the lower Cambrian Emu Bay Shale, South Australia

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The Leanchoiliidae is well-known from abundant material of *Leanchoilia*, from the Burgess Shale and Chengjiang

Konservat-Lagerstätten. The first Australian member of the group is *Oestokerkus megacholix* gen. et sp. nov., described from the Emu Bay Shale (Cambrian Series 2, Stage 4), at Buck Quarry, Kangaroo Island, South Australia, and is intermediate in age between the well known leanchoiliid species from the Burgess Shale and Chengjiang.

Phylogenetic analysis of “short great appendage” arthropods (Megacheira) in the context of the chelicerate stem group resolves the Australian species as sister to Burgess Shale, Utah, and Chengjiang *Leanchoilia* species, but most readily distinguished from *Leanchoilia* and *Alalcomenaeus* by a different telson shape, interpreted as being forked, widening distally, and with a few dorsally curved spines at the posterior angle. Leanchoiliid interrelationships are stable to alternative character weights, and Megacheira corresponds to a clade in most analyses.

Key words: Arthropoda, Megacheira, Leanchoiliidae, *Oestokerkus*, *Leanchoilia*, *Alalcomenaeus*, midgut glands, phylogeny, Cambrian, South Australia.

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