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Nuclear gene sequences provide evidence for the monophyly of australidelphian marsupials

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Abstract

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by key morphological characters wi
reported inconclusive results. Howe
has important implications for und
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to examine a priori hypotheses. A
port – 99–100% posterior probabili
statistical tests. Within Diprotodont
with posterior probabilities of 1.00.
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An Analysis of Marsupial Interordinal Relationships Based on 12S rRNA, tRNA Valine, 16S rRNA, and Cytochrome *b* Sequences

Angela Burk,[1] Michael Westerman,[2] Diana J. Kao,[1] John R. Kavanagh,[1] and Mark S. Springer[1,3]

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doi:10.1098/rspb.2001.1677

Mitochondrial genomes of a bandicoot and a brushtail possum confirm the monophyly of australidelphian marsupials

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Recent molecular analyses suggest that the position of bandicoots is the major difficulty in determining the root of the tree of extant marsupials. To resolve this, we analyse mitochondrial genome sequences of a bandicoot (*Isoodon macrourus*) and a brushtail possum (*Trichosurus vulpecula*) together with the previously available marsupial mitochondrial genomes, the Virginia opossum (*Didelphis virginiana*) and the wallaroo (*Macropus robustus*). Analyses of mitochondrial protein-coding and RNA genes strongly support the bandicoot as sister to the wallaroo and the brushtail possum. This result, combined with other recent molecular analyses, confirms the monophyly of Australidelphia (Australasian marsupials plus *Dromiciops* from South America). Further, RY coding was found to nullify AGCT coding nucleotide composition bias.

Keywords: Australidelphia; marsupial; bandicoot; *Isoodon*; *Trichosurus*; nucleotide composition bias

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