

# Ancient DNA reveals evolution of giant bears in the

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The work of University of Adelaide researcher Dr Kieren Mitchell is shedding new light on the evolution of what are believed to be the largest bears that ever walked the Earth.

Dr Mitchell, from the University's Australian Centre for Ancient DNA, School of Biological Sciences, has a new paper just published in *Biology Letters*.

He writes: "During the Pleistocene (2.5 million years ago - 11 thousand years ago) giant bears weighing over 1,000kg roamed both North and South America. These giants belonged to a now practically extinct subfamily of bears - Tremarctinae - which is today only represented by the small, herbivorous Andean spectacled bear (*Tremarctos ornatus*).

"The giant North American bears (*Arctodus*) and South American bears (*Arctotherium*) have long been believed to be each others' closest relative. However, by comparing ancient DNA data obtained from representatives of the two extinct genera and comparing them with the living species, we were able to show that *Arctotherium* is most closely related to *Tremarctos* and not *Arctodus*.

"The implication of this result is that these bears represent a remarkable instance of convergent [evolution](#), as giant [bears](#) appear to have evolved independently in both North and South America.

"This [convergent evolution](#) would have arisen in response to similar

environmental conditions on both continents, most likely an abundance of large herbivore carcasses (killed by smaller predators), which *Arctodus* and *Arctotherium* could effectively dominate, and a lack of competing scavengers."

**More information:** Kieren J. Mitchell et al. Ancient mitochondrial DNA reveals convergent evolution of giant short-faced bears (Tremarctinae) in North and South America, *Biology Letters* (2016).  
[DOI: 10.1098/rsbl.2016.0062](https://doi.org/10.1098/rsbl.2016.0062)

Provided by University of Adelaide

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