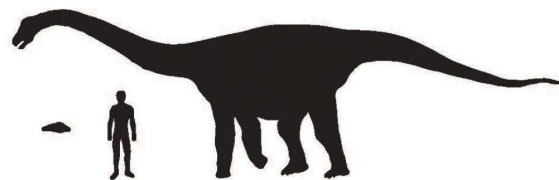
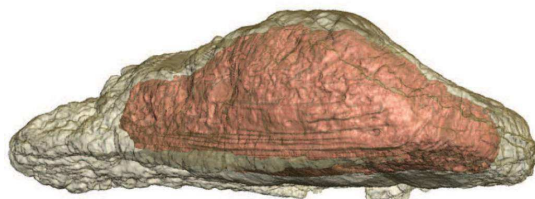


Dinosaur bone is largest osteoderm ever found

St. Paul, Minn. – What more can we learn about long-necked dinosaurs that we don't already know? A Macalester professor and her colleagues have found that Madagascar dinosaurs carried giant, hollow bones in their skin that may have helped them survive the harsh environments they inhabited. This discovery has shed new light on the anatomy and function of these bones in the biggest animals to ever walk on land.



Biology/Geology Prof. Kristi Curry Rogers is the lead author of a paper in today's *Nature Communications* about bizarre, gigantic bones that grow in the skin of *Rapetosaurus*, a species of huge plant-eating dinosaur from the island country located in the Indian Ocean off the southeastern coast of Africa.



“This is the biggest osteoderm ever found for any backboned-animal,” said Curry Rogers, “The fact that it’s hollow debunks all sorts of ideas about how these bones functioned in long-necked dinosaurs.”

Osteoderms are bones embedded within the skin and are common among reptiles and some mammals. They create the unique pattern on the backs of crocodiles, the armor body covering on armadillos, and the distinctive plates of dinosaurs like *Stegosaurus* and *Ankylosaurus*.

Among the long-necked dinosaurs called sauropods, osteoderms are found in one globally distributed subgroup – the Titanosauria. For more than a century, paleontologists have been trying to figure out how these weird bones were distributed in the skin of the long-necked titanosaurs and what they might have been used for. Were they for protection, like in armadillos and crocodiles? Were they for display? Could they have helped regulate body temperature?

“Knowing something about the lives of these dinosaurs, particularly in the context of the drought-prone paleoenvironment they lived in, tells us that osteoderms may have been important for storing minerals, which allowed *Rapetosaurus* to survive the rough times,” said Curry Rogers.

Instead of the hundreds of interlocking plates in living animals with osteoderms, *Rapetosaurus* had only a few osteoderms in its skin. This means that they were less likely to serve as protection or as body temperature regulators.

“The discovery of these giant osteoderms provides new insights into what these bizarre structures may have done for the dinosaurs that had them,” said Curry Rogers. “It helps us clarify what these Madagascar dinosaurs looked like with their skin on. Our sample also includes both adult and juvenile osteoderms, which tells us how the osteoderms changed over the lifespan of the dinosaur,” said Curry Rogers.

In the vicinity of the osteoderm, the skin of *Rapetosaurus* would have stretched, making it in places up to seven times as thick as an elephant's skin. The bone also hollowed out over the course of the dinosaur's lifespan. So even though it was massive, in the adult dinosaur osteoderms would've actually been fairly lightweight.

Curry Rogers is the lead author of the *Nature Communications* paper. Her collaborators include Michael D'Emic (University of Michigan and Georgia Southern University), Raymond Rogers (Macalester College),

Matthew Vickaryous (Ontario Veterinary College, University of Guelph), and Amanda Cagan, who graduated with a biology degree from Macalester in 2010.

Macalester College, founded in 1874, is a national liberal arts college with a full-time enrollment of 1,958 students. Macalester is nationally recognized for its long-standing commitment to academic excellence, internationalism, multiculturalism, and civic engagement. Learn more at [macalester.edu](http://www.macalester.edu) (<http://www.macalester.edu/>).

[Sauropod Dinosaur Osteoderms from the Late Cretaceous of Madagascar \(/dotAsset/3edd5b2c-a2be-43c5-b426-d45116be33aa.pdf\)](#)

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