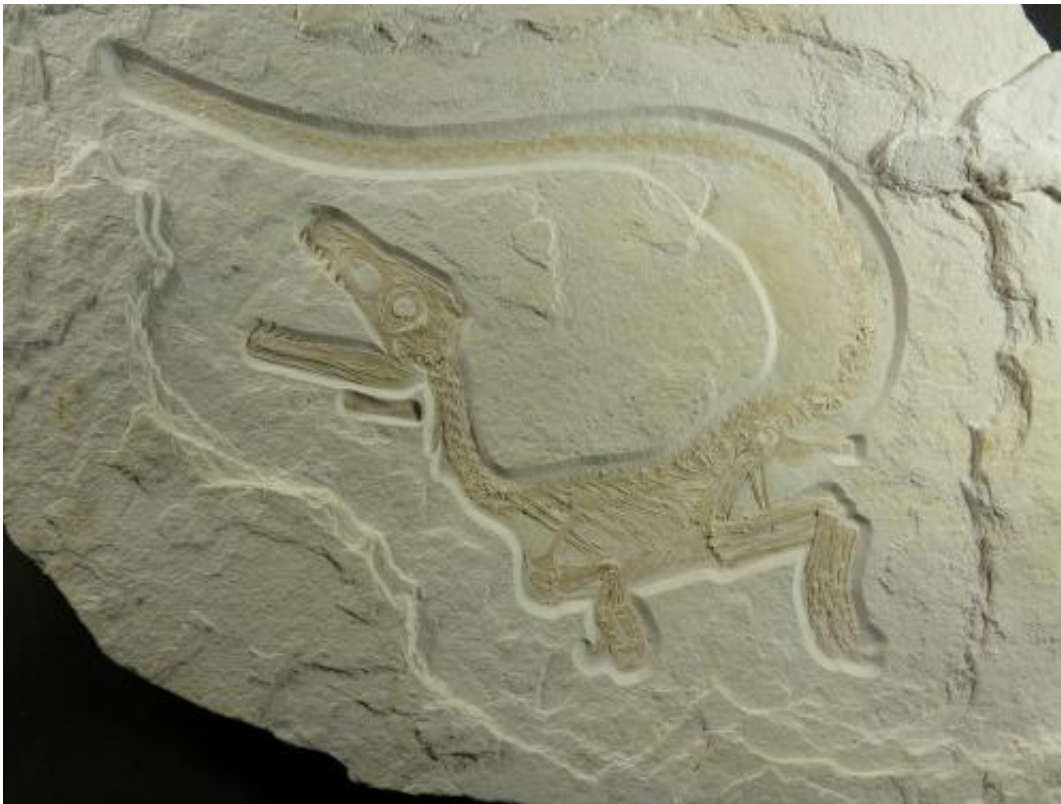


Newly discovered dinosaur implies greater prevalence of feathers

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Skeleton of *Sciurumimus* as found on a limestone slab © H. Tischlinger/Jura Museum Eichstätt

(Phys.org) -- A new species of feathered dinosaur discovered in southern Germany is further changing the perception of how predatory dinosaurs looked. The fossil of *Sciurumimus albersdoerferi*, which lived about 150 million years ago, provides the first evidence of feathered theropod

dinosaurs that are not closely related to birds. The fossil is described in a paper published in the *Proceedings of the National Academy of Sciences* today.

"This is a surprising find from the cradle of feathered dinosaur work, the very formation where the first [feathered dinosaur Archaeopteryx](#) was collected over 150 years ago," said Mark Norell, chair of the Division of [Palaeontology](#) at the [American Museum of Natural History](#) and an author on the new paper along with researchers from Bayerische Staatssammlung für Paläontologie und Geologie and the Ludwig Maximilians University.

Theropods are bipedal, mostly carnivorous dinosaurs. In recent years, scientists have discovered that many extinct theropods had feathers. But this feathering has only been found in theropods that are classified as coelurosaurs, a diverse group including animals like *T. rex* and birds. *Sciurumimus*—identified as a megalosaur, not a coelurosaurs—is the first exception to this rule. The new species also sits deep within the evolutionary tree of theropods, much more so than coelurosaurs, meaning that the species that stem from *Sciurumimus* are likely to have similar characteristics.

"All of the feathered predatory dinosaurs known so far represent close relatives of birds," said palaeontologist Oliver Rauhut, of the Bayerische Staatssammlung für Paläontologie und Geologie. "*Sciurumimus* is much more basal within the dinosaur family tree and thus indicates that all predatory dinosaurs had feathers."



Mid-tail section of *Sciurumimus* under ultraviolet light, showing patches of preserved skin (yellow) and fine filaments (bluish lines above the vertebrae). © H. Tischlinger/Jura Museum Eichstätt

The [fossil](#), which is of a baby *Sciurumimus*, was found in the limestones of northern Bavaria and preserves remains of a filamentous plumage, indicating that the whole body was covered with feathers. The genus name of *Sciurumimus albersdoerferi* refers to the scientific name of the tree squirrels, *Sciurus*, and means "squirrel-mimic"—referring to the especially bushy tail of the animal. The species name honors the private collector who made the specimen available for scientific study.

"Under ultraviolet light, remains of the skin and feathers show up as luminous patches around the skeleton," said co-author Helmut Tischlinger, from the Jura Museum Eichstätt.

Sciurumimus is not only remarkable for its feathers. The skeleton, which represents the most complete predatory dinosaur ever found in Europe, allows a rare glimpse at a young dinosaur. Apart from other known juvenile features, such as large eyes, the new find also confirmed other hypotheses.

"It has been suggested for some time that the lifestyle of [predatory dinosaurs](#) changed considerably during their growth," Rauhut said.

"*Sciurumimus* shows a remarkable difference to adult megalosaurs in the dentition, which clearly indicates that it had a different diet."

Adult megalosaurs reached about 20 feet in length and often weighed more than a ton. They were active predators, which probably also hunted other large dinosaurs. The juvenile specimen of *Sciurumimus*, which was only about 28 inches in length, probably hunted insects and other small prey, as evidenced by the slender, pointed teeth in the tip of the jaws.

"Everything we find these days shows just how deep in the family tree many characteristics of modern birds go, and just how bird-like these animals were," Norell said. "At this point it will surprise no one if feather like structures were present in the ancestors of all dinosaurs."

More information: "Exceptionally preserved juvenile megalosauroid theropod dinosaur with filamentous integument from the Late Jurassic of Germany," by Oliver W. M. Rauhut, Christian Foth, Helmut Tischlinger, and Mark A. Norell, *PNAS*, 2012.

Provided by American Museum of Natural History

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