



The US government is reviewing research that involves fetal tissue, such as these lung cells.

intensive lobbying efforts by special interest groups with the goals of delaying or curtailing scientific research,” the group wrote. “Research that has saved lives, and will likely save more,

should not be delayed for political reasons.”

Larry Goldstein, a neuroscientist at the University of California, San Diego, says that it’s hard to know why the HHS decided to

cancel the contract. “I think the question is whether there’s an attempt to politicize this or whether we can keep to straight scientific and medical merit,” he says.

Goldstein is concerned that a ban or heavy restrictions on federally funded experiments with fetal tissue could harm research, particularly on human development, organ regeneration and determining whether tissue created from stem cells recapitulates the real thing.

Moreover, he says, the fetal tissue used in research would otherwise be discarded. “Scientists are simply asking, if you’re going to throw the tissue away anyway, can you at least donate it to important medical research?”

Renate Myles, a spokesperson for the US National Institutes of Health (NIH), which sits within the HHS, says that the agency does not have any standing contracts with any providers of human fetal tissue. “We agree that it is important that research involving human fetal tissue should be consistent with the statutes and regulation governing such research, and reminded NIH-funded institutions that awards are conditioned upon compliance of all applicable federal, state and local laws and regulations,” she says. ■

PALAEOLOGY

Early–Jurassic dinosaur find puts evolution of walking to test

Fossils suggest quadrupedalism evolved 10 million years earlier than thought.

BY SARAH WILD

Researchers have discovered fossils from South Africa’s largest dinosaur yet — a find that they say changes their understanding of how four-legged walking evolved in a lineage that includes some of the biggest animals ever to have walked the planet.

The newly described species, *Ledumahadi mafube*, would have weighed about 12 tonnes, and is a type of sauropodomorph: a large group of dinosaurs with long necks and tails. When *L. mafube* lived, around 200 million years ago during the early Jurassic period, it would have been the largest animal walking on Earth (B. W. McPhee *et al.* *Curr. Biol.* <http://doi.org/cvbd>; 2018).

Palaeontologist James Kitching first found fossils of *L. mafube* in 1988 near South Africa’s border with Lesotho. But the bones were left on a shelf for more than a decade and ‘rediscovered’ only in the 2000s, in the collections of the University of the Witwatersrand in Johannesburg, South Africa. Palaeontologists returned to the site in

2010 and completed the excavation last year.

Most of South Africa’s dinosaur discoveries have been of animals that would have weighed about five tonnes, says study co-author Jonah Choiniere, a palaeoscientist at Witwatersrand. The discovery of such a heavy creature shows “we don’t know the dinosaurs of South Africa as well as we thought”, says Choiniere. Other researchers agree that *L. mafube* was probably the largest animal of the early Jurassic.

A WALKING GIANT

But the find is also significant because it seems to show that quadrupedalism — walking on four legs — emerged in this lineage of dinosaurs at least 10 million years earlier than thought, and then disappeared before returning.

Researchers knew that other, later sauropodomorphs, such as *Brontosaurus*, had straight, ‘columnar’ limbs that could support their huge

mass, often in the region of 80 tonnes. They also knew that some sauropodomorphs that came before *Brontosaurus* and its kind, but after the time of *L. mafube*, walked on two legs. “We thought [quadrupedalism] might be a one-time evolution: a quadruped walks once, is successful, and it sticks in that lineage,” says Choiniere. But the latest proposal — which is based on a ratio of the circumferences of thigh and arm bones, calculated from dinosaur specimens and animals alive today — that *L. mafube* also walked on four legs changes that view. The finding hints at evolutionary experimentation: some sauropodomorphs had quadrupedalism and then the group lost it, says Choiniere.

That claim is controversial, says Michael Benton, a palaeontologist at the University of Bristol, UK. Unlike later sauropods, *L. mafube*’s legs flexed out to the sides, a stance that is typically able to carry less mass than columnar limbs, “What’s needed next is a true biomechanics test of whether 12 tonnes is the maximum size an animal can reach without having columnar limbs,” he says. ■

“We don’t know the dinosaurs of South Africa as well as we thought.”