

Extra Feature Story

DNA Discovery May Bring Long-extinct Woolly Mammoth Back to Life

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Scientists have mapped out most of the genetic code of the woolly mammoth, marking the first time an extinct animal's DNA has been decoded and raising the possibility that the creature could be cloned and return to life.

Woolly mammoths, which roamed the planet 10,000 years ago, are relatives of the modern African Elephant, but were covered with thick hair, had larger tusks and smaller ears.

Mapping most of the animal's DNA code means that with more research, it could be possible to recreate mammoths or other extinct animals -- similar to the scenario of the popular book and movie series "Jurassic Park."

How they did it

By analyzing the genetic code in mammoth hair bought off of eBay.com, researchers at Penn State were able to pinpoint the 400,000 DNA differences between mammoth and modern elephant.

The team, lead by Stephan Schuster and Webb Miller, found that mammoth hair better preserved DNA than bone marrow, which scientists have used to recover genetic material in the past.

This particular hair came from two mammoth bodies found frozen in Siberian permafrost.

The scientists say they can now decode the genome of any animal from hair, feathers or even hooves.

Mammoth Park?

The Penn State scientists only have 80 percent of the mammoth genome from the hair. A genome is the chemical instructions for building a living thing stored in a complex code of proteins called DNA.

"Currently we only have a partial mammoth genome, with a sizeable number of errors in the genetic code. It's a bit like trying to build a car with only 80 percent of the parts and knowing that some of the parts are already broken," Jeremy Austin, of the Australian Centre for Ancient DNA at the University of Adelaide, told the Times of London.

Scientists found that the mammoth and the African elephant genetic code is only different by .6 percent – making them closer relatives than chimps are to humans.

If scientists could unlock the remaining mammoth genome, they could potentially use cloning technology to genetically engineer a baby mammoth inside of a modern elephant mother.

"By deciphering this genome we could, in theory, generate data that one day may help other researchers to bring the woolly mammoth back to life by inserting the uniquely mammoth DNA sequences into the genome of the modern-day elephant," Schuster told the Times.

More genomes to find

The finding that keratin, the material in hair and hooves, can preserve DNA for up to 60,000 years means that museums could hold a treasure trove of animal genomes for scientists to decode.

The New York Times reported that scientists expect to discover the genome of Neanderthals, an ancient species of humans that went extinct about 40,000 years ago. This discovery could make it possible to clone an ancient person, but it would raise serious ethical questions about whether scientists should recreate a being so similar to a modern human.

Dr. George Church, a genome expert at Harvard Medical School, said that while there would be outrage at cloning a Neanderthal within a human, scientist may be able to create one inside of a chimpanzee, which are about 98 percent genetically similar to humans.

"The big issue would be whether enough people felt that a chimp-Neanderthal hybrid would be acceptable, and that would be broadly discussed before anyone started to work on it," Church said.

-- Compiled by Quinn Bowman for NewsHour Extra

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