Australian DNA challenges human origin theories

By Keith Mulvihill

NEW YORK, Jan 09 (Reuters Health) - Australian researchers have found ancient DNA evidence that throws into question current scientific beliefs about where humans first evolved.

A team of scientists extracted "mitochondrial" DNA from fossils found in 1974 near Lake Mungo in the state of New South Wales. These fossils, dating from as far back as 60,000 years, had previously been identified as anatomically modern, meaning that they look and function very similarly to the skeletons of people living today.

But the researchers report in the January 9th issue of the Proceedings of the National Academy of Sciences that the mitochondrial DNA (mtDNA) from these ancient humans is extinct, or not present in humans living today. Mitochondrial DNA is found outside the nucleus and is passed only from a mother to her children.

What is significant about the finding is that the mtDNA samples are from Australia, not Africa, co-author Dr. W. James Peacock, CSIRO Division of Plant Industry in Canberra, told Reuters Health. "I say significant because mtDNA sequence from living humans has been used to argue that modern humans had their origins in Africa."

This "Out-of-Africa" theory "may still be true" and the researchers are not claiming that this DNA finding means that humans had their origin in Australia.

"What it does do is to indicate that the simplistic 'Out-of-Africa' hypothesis based only on mitochondrial DNA sequences of living humans is unacceptable," Peacock said.

The study also questions another common scientific belief about whether modern humans are related to the Neanderthals who lived in Northern Europe in ancient times. Like the newest report, other scientists previously found that Neanderthal mtDNA was different from modern human DNA, leading them to believe that we were unrelated to them.

"Our data clearly show that this conclusion may not be warranted," Peacock said. "Just because the mtDNA sequence is extinct, doesn't mean that other DNA sequences...may well have been transferred between Neanderthals and modern humans," he added.

"Our findings add a significant new genetic component to theories on human origins and show that it is certainly more complex than has been evident up to this date. We hope they will stimulate a great deal more analysis, which is clearly needed," Peacock told Reuters Health.

SOURCE: Proceedings of the National Academy of Sciences January 2001.