

# Lehi and DNA X-theory is complicated

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**Editor's note: Last of four articles.**

A, B, C, D.

These four letters represented the first DNA classifications of Native Americans into similar lineages, or haplogroups.

Things were simpler then — and so were the conclusions.

Because A, B, C and D appear to be Asian in origin, some said this proved the Book of Mormon false. But even then, a simple understanding of DNA showed that it would have been possible, or even probable, that we wouldn't find traceable DNA evidence from a small group of Israelites coming to a largely populated continent.

Enter X.

A few years later, the story became more complicated. A fifth haplogroup was found in Native Americans. Ironically, the letter chosen to identify the new haplogroup was the mysterious letter X. "Studies confirmed the presence of X in the Americas," said Ugo Perego, senior researcher at Sorenson Molecular Genealogy Foundation, "particularly in the Great Lake regions of northern North America — but also in other areas to a lesser extent such as Texas, New Mexico and Arizona."

X was an enigma. Unlike A, B, C and D, it was rare in the world. X lineages were found in West Eurasia — an area that stretches from Scandinavia down to the Middle East.

It was also found in Asia.

The gauntlet was thrown down. Was the X found among Native Americans from the Middle East or Asia? Did it have anything to do with the Book of Mormon?

"Some people believe that haplogroup X is of Near Eastern origins and (they said) the fact that you find it in the Americas ... proves the Book of Mormon to be historically correct and true and the people existed," Perego said.

Others took an opposite view.

"Other people, both from the LDS background and the critics, argued that haplogroup X is of Asian origins, just like the other Native American lineages, and arrived to America through Beringia (through the Bering Straits ancient land bridge), more than 10,000 years ago. Therefore it has nothing to do with the Book of Mormon people," Perego said.

Studies from 2001 indicated that the X haplogroup of American Indians came from Middle East or European lineages via Asia. A group in Asia, the Altaians in upper Mongolia, have the X haplogroup lineage, and so were thought to show the Asian source of the Native American X lineage.

These studies, however, were low resolution. They only analyzed a small portion of the mitochondrial DNA (mtDNA). It was like looking at an area code. Soon, technology advanced and geneticists started looking at full sequences of mtDNA — like looking at a whole phone number. It didn't change the general information, but the details made a difference.

As higher resolution studies progressed, the Native American haplogroup classifications were made more specific with the addition of numbers: A2, B2, C1, D1 and X2a.

In 2003, high-resolution data from complete sequences of mtDNA gave a different story. It appeared that the Native American X (X2a) did not have any close match anywhere in the Old World. It also did not match and was an older lineage than the

Asian X of the Altaians.

Current published data indicates that Native Americans belonged to a branch of X that split from the other X lineages near the beginning of X's spread out from the Middle East. It was old, but it wasn't Asian.

Last year a [study](#) suggested that the Druze religious minority of northern Israel represented a surviving population of the source of X lineages.

But just because X came originally from the Middle East doesn't mean it is connected with the Book of Mormon. Dating mtDNA is done by looking at the number of mutations in a haplogroup. The more mutations, the older the haplogroup. The currently accepted dating for X2a, based on its unique mutations, predates Book of Mormon times.

"If X2a is only found (in America) we assume it has been there for 12,000 years," Perego said. "But if you can find it in another part of the world and prove that it has been there for a long time, then the 12,000 years would include that lineage, too."

In other words, for now it appears that X2a "aged" in the Americas for 12,000 years. If X2a is found somewhere else in the world, that may mean it aged there first before it came to the Americas. One verified match in the Old World and the date of X2a in America could drop from 12,000 years to, say, 4,000 years or even Book of Mormon time periods.

According to currently published studies, the closest match to X2a outside of the Americas was found in Iran. But even if X2a matched a Middle Eastern genetic signature perfectly, Perego says there is no way to know for sure the X2a in America came from Lehi's group.

"In my mind it's a lot more comfortable, the idea that DNA is not the ultimate proof against or in favor of the Book of Mormon," Perego said. "There are too many (other factors) regarding the Book of Mormon's historicity that cannot be verified with DNA."

But this won't stop some from trying to use DNA to prove or disprove the LDS Church's unique scripture.

"People don't like the unknown," Perego said.

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