

More limitations in Book of Mormon DNA study, criticism

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In our last discussion, I explained that although "Israelite" DNA appears to be absent from Native Americans, this does not refute the authenticity of the Book of Mormon.

DNA markers can and have disappeared. Most of the DNA studies done on Native Americans -- the root of Book of Mormon-DNA criticisms -- are based on mitochondrial DNA (mtDNA), which is inherited from the mother. MtDNA lineages are divided in branches (haplogroups) on a large tree called phylogeny, with a built-in "molecular clock" that measures mtDNA changes (mutations) over time. While science adapts and modifies according to newer discoveries, the current molecular clock tells us the ancestors of most modern Native Americans migrated to the Western Hemisphere about 15,000 to 17,000 years ago.

This molecular clock, however, has some limitations. We might wonder, for example, how the DNA of modern Native Americans was affected by the arrival of many groups that came to the New World following the arrival of the Spaniards. In theory, the currently accepted molecular clock would not be able to differentiate between pre- and post-Columbian mtDNA lineages brought to the Americas within the past 2,000 to 3,000 years. In other words, any mtDNA found at great frequencies in today's Middle East as well as in living Native Americans could have arrived in 600 B.C., by a group such as the Lehaites, or in the 16th century by Spaniards, who had large Jewish population for centuries in the Iberian Peninsula. There is currently no way to tell the difference.

Some critics like to cite one example of "Israelite" DNA that has withstood the intermixing of a larger populace. In South Africa there is a black, Bantu-speaking tribe, known as the Lemba. For generations tribe members have claimed to descend from Jews, and they practice a religion similar to Judaism. Recent DNA studies show that more than 50 percent of Lemba males carry a specific genetic signature on their Y chromosome (Ycs) known as the Cohen marker. The Ycs is transmitted almost unchanged from the father. This identifier strongly correlates to an ancient priestly Jewish clan, which supposedly descended from Aaron.

This demonstrates, critics claim, that small Jewish groups can still be identified even after centuries of intermingling with a larger foreign population. They claim we should find the same thing among Native American descendants of the Lehaites and Mulekites, the two Israelite groups mentioned in the Book of Mormon.

Unlike the Lemba, however, who may have affinities to Aaron, from whom the Cohen marker supposedly derived, Lehi was a descendant of Joseph, and Mulek a descendant of Judah. Jewish Cohen priests were specifically forbidden to intermarry with other Israelites, which means there is no reason to believe the Cohen marker should be found among the

small number of Book of Mormon people who came to the Americas.

Based on mtDNA studies, the Lemba are indistinguishable from other Bantu-speaking tribes. The Cohen marker is currently the only scientific evidence for the possible Jewish ancestry of this South African group. If, like the Lehaites and Mulekites, this group had not had ancestors with the Cohen marker, its Jewish lineage might never have been identified. It also should be noted that the Cohen marker is very common among non-Jewish groups -- such as the Arabs -- and that it was first identified among the Jews because they were the only people initially sampled and studied for this marker.

In the Americas, we have another problem in trying to find a Ycs affinity to Book of Mormon peoples. As explained last week, a major DNA bottleneck occurred when a considerable portion of the Native American population died because of war and diseases brought by the Europeans. Based on DNA studies using samples from modern mixed and indigenous populations, it is possible to observe that the male Ycs suffered a bottleneck at least tenfold that of mtDNA, probably because the relatively few surviving males (Ycs lineages) were not given the same chance to reproduce as indigenous women who most likely had children with male colonists from the Old World (see Ugo Perego).

As a matter of note, non-LDS DNA scientists actually have found the Cohen haplotype in Colombia. The problem, as discussed above, is that according to the current molecular clock we cannot tell precisely when it was introduced, but theoretically it was introduced within the last 2,000 to 3,000 years. Most scientists presume it was introduced by post-Columbian Europeans, because there was a lot of Jewish DNA in Spain (and this is likely the case), but we can't currently say with absolute certainty that it didn't come from a seafaring incursion of Old World travelers in 600 B.C.

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