Using DNA to prove or disprove the Book of Mormon's validity

By Michael R. Ash

Published: 2010-04-05 00:39:16

Although most LDS scholars have claimed for several decades that the Lehites were a small incursion into an already existing New World population, within the past decade some members and critics have attempted to apply DNA studies to this very issue.

Critics have argued that according to DNA tests of modern Native Americans there is no indication an Israelite population ever lived in ancient America and therefore the Book of Mormon is false. Conversely, some members have claimed DNA tests demonstrate that ancient Israelites once lived in the Great Lakes area of the United States (one of the proposed geographies for Book of Mormon events) and therefore the Book of Mormon is true. I believe both arguments are wrong.

Since the critics have the superior scientific argument -- compared to those believers who claim the DNA evidence proves the Book of Mormon -- I'll begin with their claims first.

Historical dynamics measured by population-genetics methods often rely on the examination of mitochondrial DNA (mtDNA), which is transferred practically unchanged from mother to child. Thus far, the vast majority of all mtDNA data studied to date on Native American populations indicate Asian affinity.

This supports the primary scientific theory that the Americas were populated by people migrating from Asia by way of the Bering Strait. According to critics, the genetic Asian connection means there is no trace of Israelite DNA and therefore the Book of Mormon is false.

As noted in an earlier column, I believe the scientific world is part of God's truth. Therefore, I not only accept the current DNA studies as accurate, I also don't believe God simply changed Nephite and Lamanite DNA to Asiatic DNA in order to fool scientists. While God certainly has power over all things, I can't accept that he intentionally deceives us.

If science tells us there are no traces of "Israelite" DNA among the descendants of the ancient Americans, how do we reconcile science with scripture? To answer this question we must understand several key considerations:

1) The Book of Mormon doesn't deal with all ancient New World peoples. This was the focus of the past several columns. For at least 70 years a number of LDS leaders and scholars have argued that -- according to textual evidences in the Book of Mormon -- the Nephites and Lamanites lived in a limited geographical area and interacted with a pre-existing population. While some critics have claimed that LDS apologists have fashioned this argument in response to DNA studies, in reality, LDS scholars had suggested this scenario long before the discovery of double-helix DNA.

2) We don't know what "Israelite" DNA from Lehi's time looks like. We have a general idea of what the DNA of modern Middle-Eastern populations looks like, and we know that as of today it has not been detected among Native Americans, but because we don't know anything about the DNA of Lehi's party, we can't exclude that it could fit among the multiple Asiatic markers we find in modern Native Americans.

Some people naively assume ancient DNA should be the same as what we find in modern Jewish populations, based on the assumption Jews have been a tight-knit people since ancient times. In truth, however, "Israelite," like "Jew," "Mormon" or even "American," is a cultural rather than biological definition. Other than a few extreme examples, current Jewish populations -- from whence samples are drawn for Israelite DNA -- do not necessarily reflect the DNA make-up of ancient Israelite populations.

Even anciently the Israelites were composed of multiple genetic backgrounds, each carrying different mtDNA markers from their mothers. By the time Jesus was born, the Jews were a genetically diverse group, having intermarried with Canaanites, Babylonians, Persians, Greeks and Romans, as these outsiders conquered Judah. This intermixing has only increased to the present day. Under such conditions we shouldn't expect to know what Lehite DNA looked like.

3) DNA markers can disappear. According to virtually all scientists who specialize in DNA as it pertains to population genetics, when small populations mix with large populations there is a significant possibility of losing the DNA signatures of the smaller population.

Genetic bottlenecks, for instance, occur when a significant portion of a population does not reproduce or doesn't pass mtDNA on to its progeny. If the original Nephites and Lamanites had mostly sons rather than daughters, for example, those sons would have married native women and the mother's DNA -- not Lehi's wife Sariah's DNA -- would have passed on to the children.

Some of the various types of genetic bottlenecks and other factors that can cause mtDNA markers to disappear will be the focus of our next installment.

MormonTimes.com is produced by the Deseret News in Salt Lake City, Utah.
It is not an official publication of The Church of Jesus Christ of Latter-day Saints.