

Identity is complex and defined by a very personal combination history, geography, and culture. While a DNA test alone cannot define a person's identity, results from our analysis can provide important clues to ancestral origins within major world regions and sometimes even individual ethnic groups. Alongside genealogical, historical and cultural information, our analysis can contribute another important piece to the puzzle of personal identity.

# Can DNA Determine Who is American Indian?

By Kim TallBear, Phd., Associate, Red Nation Consulting

There is talk in Indian country about how DNA can decide tribal enrollment and prove American Indian ancestry. Some of this is coming from DNA testing companies anxious to sell costly services to tribes.

Self-determined tribes struggling to control identities and resources must make decisions about the risks and benefits of DNA testing. Some tribal decision-makers display healthy skepticism as they talk about the complicated nature of identity, family, and community. Biological connection is not the sole important factor in determining who belongs. Cultural knowledge and connection to a land base are also valued. Many Indian people are also concerned about loss of privacy and control if outsiders hold biological samples. Other tribal decision-makers have expressed interest in DNA testing and still others need more information.

## **Do Not Rely on DNA Testing Companies for Information**

DNA testing companies are not in business to provide accessible and balanced information on DNA technologies. Their brochures generally contain shallow scientific detail. I suspect this is partly because these scientist-entrepreneurs do not know enough about the cultural politics of tribal membership to apply science to such questions.

At a recent "tribal enrollment workshop" (that played out like a three-day sales pitch for DNA testing) a company representative claimed that DNA technology is "100 percent reliable in terms of creating accurate answers" to questions of tribal enrollment. But tribes should ask "which questions can this technology provide answers to?"

Sometimes the biological connection of an enrollment applicant is in question. In this case, a tribe might call for a DNA test of the

individual to prove relation to an enrolled member. More often, tribal enrollment and identity questions center around two issues that DNA cannot inform: cultural affiliation and the distribution of money and services. Like "blood quantum" DNA is an imperfect answer to the cultural question. Neither a higher blood quantum nor DNA can guarantee greater cultural attachment. In addition, casino tribes issuing per capita payments want to distribute money to as few people as possible; they often impose non-biological barriers to enrollment. What does DNA matter in these cases?

### **Overview of DNA Testing**

In general, two types of tests are offered to help American Indians prove ancestry: "DNA fingerprinting" and tests for "Native American haplotypes" or lines of descent.

The DNA fingerprint is the type of test used in criminal cases to prove, for example, that a bodily fluid found on a crime victim belongs to an individual suspect. This test is also used to establish paternity and maternity when the DNA of parent and offspring are compared.

One company sells this test as a paternity and maternity test and claims that it will ensure that "only Native Americans that deserve to be members of your tribe will be." However, most tribes do not decide enrollment solely based on simple biological connection. For example, blood quantum attempts to quantify one's Indian-ness; it is not used to prove parentage. And parentage is not usually in question.

Another company promises to help individuals establish their "identity as a Native American" by testing for Native American DNA. But what is "Native American DNA" and is it relevant to tribal enrollment?" A paper by the Nevada-based Indigenous Peoples Council on Biocolonialism (IPCBI) explains why DNA is not a valid test of Native American identity:

Scientists have found ... "markers" in human genes that they call Native American markers because they believe all "original" Native Americans had these genetic traits ... On the mitochondrial DNA, there are a total of five different "haplotypes" ... which are increasingly called "Native American markers," and are believed to be a genetic signature of the founding ancestors. As for the Y-chromosome, there are two primary lineages or "haplogroups" that are seen in modern Native American groups

IPCBI points out that "Native American markers" are not found solely

among Native Americans. While they occur more frequently among Native Americans they are also found in people in other parts of the world.

A second problem with tying markers to Native American identity is that mitochondrial DNA and Y marker testing show only one line of ancestry each. Therefore, Native American ancestors on other lines are invisible.

IPCB addresses a third crucial problem with DNA testing for identity: Genetics cannot help determine specific tribal affiliations for living people or ancient human remains. This is because "[n]eighboring tribes have long-standing complex relationships involving intermarriage, raiding, adoption, splitting and joining. These social historical forces insure that there cannot be any clear-cut genetic variants differentiating all the members of one tribe from those of nearby tribes."

So "Native American markers" can tell something about an individual's biological descendancy along a few ancestral lines over archaeological time. But how does this inform tribal enrollment? Many individuals around the world no doubt possess markers and yet have no close biological, social or cultural attachment to a living tribe. In contrast, individuals with strong connections might not have the markers because their American Indian ancestors are not on the lines of descendancy covered by the tests. DNA testing fails to provide definitive answers on either biological or cultural connections to a tribe.

### **What Does It Cost and Who's in Control?**

DNA testing by a private company is expensive. Depending on the type, tests range from \$150 to \$600 per individual.

One DNA testing company offers DNA fingerprinting for two to three individuals (an individual plus one or both biological parents) for \$500. They advocate tribal-wide DNA testing. To estimate cost, the number of tests for a tribe of 10,000 members might be 4,000 (an average of 2.5 people per test). At \$500 per test the cost to test all members would be \$2 million. This same company advertises a more costly "individual DNA identity system" to accompany tribal-wide testing. This is a programmable identification card that stores a tribal member's information (i.e. enrollment number, health services, voter registration, and a DNA profile). This company charges \$320 to produce each individual card totaling \$3.2 million for a 10,000-member tribe.

A tribe determines information to be included on the card and maintains the database. However, the tribe sends (often confidential) data to the company and they generate the cards. The company notes that they purge the data after producing the card. Yet tribes relinquish a good deal of sovereignty by sending confidential data to be consolidated by a private company. No doubt, many tribal members would object to the invasion of privacy.

Tribes should also consider the logistical nightmare of doing DNA tests on all members, especially those living off reservations. In summary, DNA testing does not seem to provide cost-efficient, politically tenable, or substantive solutions to most cases of tribal enrollment.

### **Seek Reliable Advice**

Unfortunately, there is no single source for information on DNA technologies and tribes. Nonprofit organizations and academic resources used in conjunction are a good start. The Council for Responsible Genetics (CRG) located in Cambridge, Mass. can provide general information about genetics ([www.gene-watch.org](http://www.gene-watch.org)). The Genetics and Identity Project at the University of Minnesota Center for Bioethics has on-line information on genetics and American Indian Identity available at [http://www.bioethics.umn.edu/genetics\\_and\\_identity/index.html](http://www.bioethics.umn.edu/genetics_and_identity/index.html). IPCB's paper on DNA and Native American identity and other documents on genetics are available at [http://www.ipcb.org/publications/briefing\\_papers/files/identity.html](http://www.ipcb.org/publications/briefing_papers/files/identity.html). IPCB is well-networked on genetics issues affecting indigenous peoples and can help tribes find technical assistance.

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