

Dear Study Participant AK019-

My research team screened your mitochondrial DNA for the genetic markers that define haplogroups A, B, C, and D. Over 95% of Native Americans belong to one of these four haplogroups. Humans that originated in Asia carried these mitochondrial DNA types to the Americas around 15,000-20,000 years ago. Your genome tested positive for a marker called *HaeIII* 663 making you a member of haplogroup A. This is the most common haplogroup in North American and is particularly frequent in Southeast Alaska (Figure 1).

You may want to learn more about mitochondrial DNA haplogroups and haplogroup A in particular. Here are some websites that you may find useful:

http://en.wikipedia.org/wiki/Human_mitochondrial_DNA_haplogroup
[http://en.wikipedia.org/wiki/Haplogroup_A_\(mtDNA\)](http://en.wikipedia.org/wiki/Haplogroup_A_(mtDNA))

To obtain more specific information about your mitochondrial DNA, we directly sequenced a portion of it from position 16000 to 16566. This portion of the genome encompasses the entire first hypervariable region (HVRI), a region of the molecule that is very rich in genealogical information. Relative to the reference sequence [called the Anderson Reference Sequence or Cambridge Reference Sequence (CRS)] you have the following mutations:

16111T
16129A
16223T
16290T
16311C
16319A
16362C

These numbers indicate the positions in the mitochondrial genome where your mutations are found. The corresponding letter indicates the nucleotide state (A, G, C, or T) of this position in your genome. This array of mutations makes up your haplotype. This haplotype was observed in approximately 5% of the 236 study participants. This type is very closely related [only one mutation different (16311C)] to a more common haplotype observed in approximately 17% of the participants. Your haplotype has also been observed in one Quechua individual from Peru. It is likely that this mutation arose independently in the Quechua, and is similar to Southeast Alaskans by chance alone. Further scientific investigation will be needed to resolve this.

There are lots of people out there that are really into genetic genealogies. You might find open chats on-line about your haplogroup in particular or even your haplotype. With this information you might find distant relatives in other parts of the world. One website that we find useful is:

<http://www.mitosearch.org>

Regarding our study in Southeast Alaska, our first goal was to determine if the mitochondrial DNA any of the study participants matched the type exhibited by 10,300

year old remains of Shuká Kaa that were discovered in On Your Knees Cave on Prince of Wales Island. None of the participants matched his mitochondrial DNA type. This might best be explained by the fact that over 10,000 years have past since the young man died in the cave. It's very difficult to find evidence of genetic continuity over such a great amount of time.

We are still working diligently on the second goal of our study, which is to determine more generally the relationship of populations in Southeast Alaska with other Native American populations in North American and beyond. We hope to report our findings from this portion of our research at Celebration 2010.

Thank you again for you participation in our study. Please feel free to contact me if you have any questions about your individual result.

Sincerely,

A handwritten signature in cursive script, appearing to read "Brian M. Kemp".

Brian M. Kemp, Ph.D.
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Figure 1. Haplogroup Frequencies Exhibited by Native American Populations in Southeast Alaska with Sample Sizes and Additional Neighboring Population Depicted. Map Modified from Encyclopedia Britannica.

