

CARA SANTA MARIA: Hi everyone. Cara Santa Maria here. I want you to take a moment and think about something incredible. All of the people alive on the planet today exist as teeny tiny terminal branches on a rich and beautiful tree--the tree of humanity. And if you trace those branches backward, you'll find that at our roots, we are all Africans.

The earliest Homo sapiens, human beings, lived there nearly 200,000 years ago. Ultimately, a lot of us left. We traveled east, north, west, and eventually settled all over the world. We even had dalliances with other hominid species along the way. This is the human story.

But have you ever wondered about your personal story? The journey your own ancestors took out of Africa and ultimately to where you live today? Well, there's a way you can find out. And in doing so, you can contribute to a wealth of information that's constantly being updated, contributing to the story of all of us.

I took part in this citizen science project myself. It's called the Genographic Project, sponsored by National Geographic, and over half a million people have participated so far. I ordered the kit, swabbed my cheek, and sent my samples in for analysis. Back in the lab, my DNA was sequenced and compared to the analyses of all the other participants in this global project. I spoke with Spencer Wells about my results. He's a geneticist, anthropologist, and Explorer-in-Residence at the National Geographic Society. He also leads the Genographic Project.

SPENCER WELLS: By looking at your particular pattern of genetic markers, we can place you onto a branch of the human family tree, if you will, a branch that unites you and other people that have that same set of genetic markers that you inherited from a common ancestor.

CSM: So it's a story both of space and time. Through this powerful tool, I can look back at where my particular ancestors lived and when. Apparently, members of my direct lineage were the first people to ever leave Africa and venture north around 60,000 years ago. Then they moved east, living for some time in the Nile basin and continuing on to other regions of western Asia. Later, about 15,000 years ago, after the glaciers that made much of the north uninhabitable melted, they migrated into western Europe. Ultimately, my ancestors ended up in Spain and Italy. This journey fits well with the story of my ancestral groups: 43 percent Mediterranean; 37 percent Northern European; and 17 percent Southwest Asian.

SW: Essentially everybody around the world can be broken down into nine ancestral components, and everyone is a mix of those components through the migration paths of our ancestors. And so looking at your result, for instance, you have three of those components, Mediterranean, northern European, and southwest Asian, and this is very typical of, you know, in people of European descent.

CSM: When I compare my percentages of these nine ancestral components (three of which I have), I notice that I'm most similar to modern people from Spain, Greece, Italy, and Great Britain. Which is interesting, considering that my mother is from Puerto Rico.

SW: You know, the typical Puerto Rican has got about 25 percent African, about 11 percent Native American, the rest is European, in terms of those components. And looking at the ratio of Mediterranean and northern European it's mostly from, you know, Southern Europe, from the Mediterranean region, so you know, Spain and Italy, which makes sense given what we know about the historical migration patterns. So you can define people on the basis of those percentages, but not everybody who's Puerto Rican is going to have that exact mix as you found out.

CSM: And that makes perfect sense, because as I did a little more digging, I learned that my ancestors were only in Puerto Rico a short time. In fact, my mother's mother's mother's mother (I think) came there from the Canary Islands, so she was of Spanish descent. It's enthralling to look at all the reference populations that have been compiled so far and learn about their individual stories. You can see that people from island cultures like Papua New Guinea have very little genetic variation, while Mexican Americans are incredibly diverse, genetically speaking. But I have to tell you, the thing I was most fascinated to learn was that 1.7 percent of my DNA is of Neanderthal origin.

SW: As modern humans were leaving Africa around 60,000 years ago, we seem to have encountered them and we admixed--we interbred with them to a small degree--so non-Africans today are carrying a very small percentage of their genome that traces back to these other hominid species that were already out there. They ultimately went extinct but in a sense, their DNA and their genome lives on in us.

CSM: That is so cool. So what do you think? Want to participate in this global citizen science project and learn about your own journey along the way? Come on, talk nerdy to me!