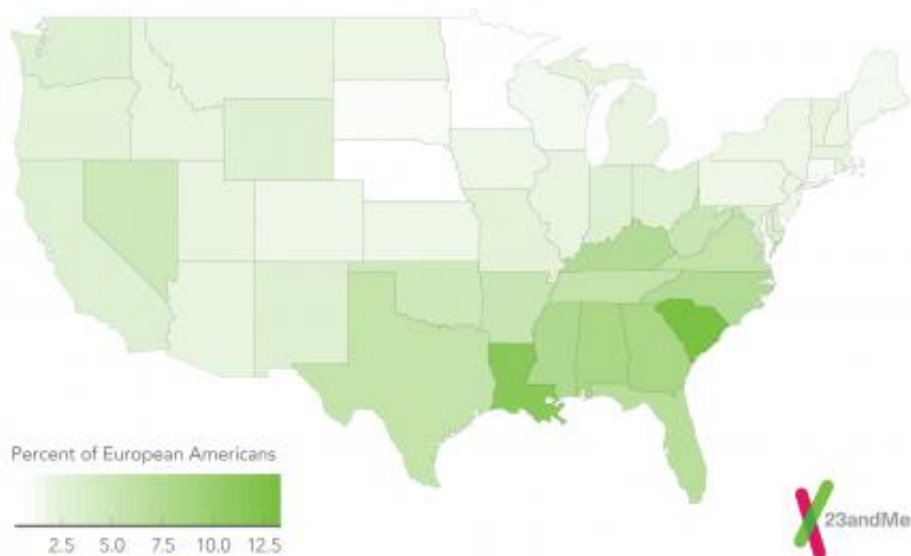


23andMe study sketches genetic portrait of the US

December 18 2014

Self-Identified White Americans With African Ancestry

Percent of self-identified European (white) Americans who have one percent or more African ancestry.



Percentage of self-identified European (white) Americans who have one percent or more African ancestry Credit: 23andMe

23andMe today announced the publication of a study that pinpoints fine-scale differences in genetic ancestry of individuals from across the United States.

Since immigrants first arrived more than four hundred years ago, the United States has served as a meeting place for peoples from different continents. This study illuminates how American history and the ongoing mixing of peoples with African, European, and American origins can be seen in our DNA.

"The relationship between genomics and historical events can shed light on our collective understanding of the history of the population of the United States, and the history of our country itself," said Professor Henry Louis Gates, Jr., Director of the Hutchins Center for African and African American Research at Harvard. "This study helps us build a bridge between data and the people and events that shaped our nation's history, revising long-held notions of who we are as individuals and as a country. In a unique way, genomics helps put a multicultural face on American history."

Led by 23andMe population geneticist Dr. Katarzyna Bryc, the study generated the first dense, state-by-state maps showing the gradients of [ancestry](#) within populations of self-identified African Americans, European Americans and Latinos across the United States.

The study leverages samples of unprecedented size and precise estimates of ancestry to reveal the rate of ancestry mixing among American populations, and where it has occurred geographically:

- All three groups - African Americans, European Americans and Latinos - have ancestry from Africa, Europe and the Americas.
- Approximately 3.5 percent of European Americans have one percent or more African ancestry. Many of these European

Americans who describe themselves as "white" may be unaware of their African ancestry since the African ancestor may be five to 10 generations in the past.

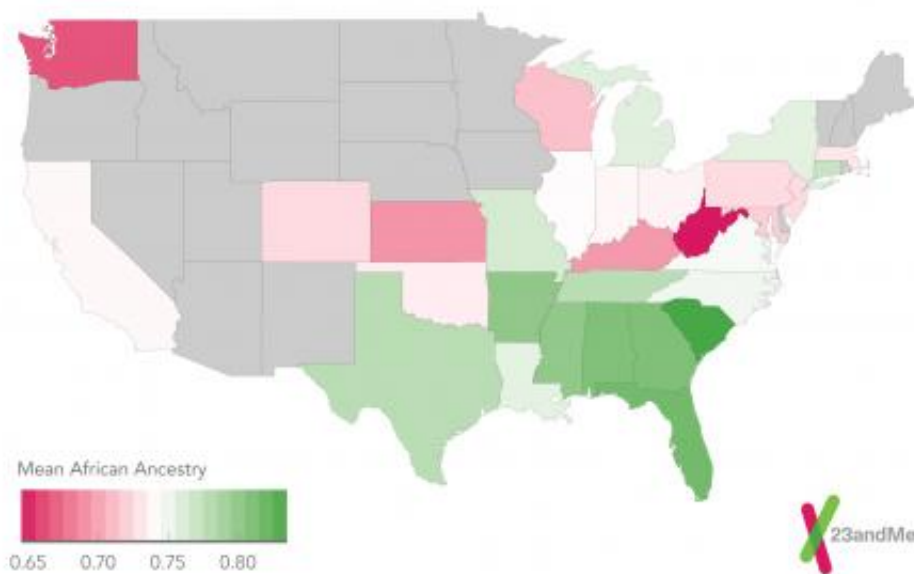
- European Americans with African ancestry are found at much higher frequencies in southern states than in other parts of the United States. The ancestry proportions point to the different regional impacts of slavery, immigration, migration and colonization within the United States:
- The highest levels of African ancestry among self-reported African Americans are found in southern states, especially South Carolina and Georgia.
- One in every 20 African Americans carries Native American ancestry.
- More than 14 percent of African Americans from Oklahoma carry at least two percent Native American ancestry, likely reflecting the Trail of Tears migration following the Indian Removal Act of 1830.
- Among self-reported Latinos in the United States, those from states in the southwest, especially from states bordering Mexico, have the highest levels of Native American ancestry.

All three groups - African Americans, European Americans and Latinos - showed asymmetrical male and female ancestry contributions, with more European male and more Native American and African female ancestors. This asymmetry is likely a legacy of slavery, unbalanced sex ratios in frontier settings, as well as other social factors in early US history.

The study, entitled "The genetic ancestry of African, Latino, and European Americans across the United States," was published on December 18, 2014 in the *American Journal of Human Genetics*.

African Ancestry Among African Americans

The mean proportion of African ancestry for African Americans across the United States. African Americans in Georgia and South Carolina have the highest average percentage of African ancestry among African Americans in the US.



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Credit: 23andMe

"We show that the signatures of recent historical migrations can be seen in the DNA of present-day Americans," said Dr. Bryc. "Furthermore, our results can inform the design of medical genetic studies. For example, the presence of Native American and African ancestry in European Americans may have implications for genetic studies of

complex diseases."

The study also provides insight on the long-open question of how [genetic ancestry](#) aligns with self-reported identities. For example, the authors found those with as much as 28 percent African ancestry are more likely to describe themselves as European American than as African American, whereas individuals with more than 30 percent African ancestry are more likely to describe themselves as African-American.

This study, made possible by data contributed by more than 160,000 23andMe customers*, makes it clear that the legacy of historical interactions between Native Americans, Europeans, and Africans is visible in the DNA of present-day Americans.

More information: *Data was contributed by 23andMe customers who provided informed consent to take part in this research under a protocol approved by the AAHRPP-accredited institutional review board, Ethical and Independent Review Services.

Paper: *American Journal of Human Genetics*, Bryc et al.: "The genetic ancestry of African, Latino, and European Americans across the United States." [www.cell.com/ajhg/abstract/S0002-9297\(14\)00476-5](http://www.cell.com/ajhg/abstract/S0002-9297(14)00476-5)

Provided by 23andMe

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