

Ancestry Testing: We Are a Lot More Alike Than We Are Different

Basma Farah*

Department of Biology, Anisse International School, Casablanca, 20000, Morocco

Commentary

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*For Correspondence

Basma Farah, Department of Biology, Anisse International School, Casablanca, Morocco

E-mail: basmatifarah987@gmail.com

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ABSTRACT

With the scaring availability of Ancestry testing- a form of direct-to-consumer genetic testing designed to inform customers about their genetic ancestry- lineage telling seems to have taken a new twist of recreation presented in a very science and precise way that makes people slaves of neat little pie charts with specific percentages that colour-match different regions on a world map. This hypnotizing scientific language is used in a way where we think science; we think accuracy and think they are valid because it looks like science. That leads to a way of thinking, which makes us feel that there are very stark and clear biological differences between races when in the end, we are a lot more alike than we are different.

INTRODUCTION

Concerns about recreational science have grown alongside the popularization of a “Predictive” Direct to consumer genetic testing, a pitfall that reshuffles DNA samples from half a teaspoon of spit or cheek swabs into a percentage-sated full data and a map of ancestral stomping grounds often overstating or misinforming heritage track, prompting society into a significant and consequential misleading push within the ideology of science and creating an ethical dilemma in the understanding of race, a delicate theme as two fold as a nice double edged blade. Be that as it may, Direct to consumer genetic testing is yet to be surveyed, considering its high power for identification^[1], as the milestone in understanding ourselves comparing genomes, the sum of our entire DNA. Our common origin as a species implies that we, as individuals, are all related to one another more than we are all different^[2].

This white paper expands the discussion of how and what type of data this new twist of ancestry testing is using to infer parental lineage^[3].

GENETICALLY DETERMINED ANCESTRY: AN ALTERNATIVE TO SELF-IDENTIFICATION RACIAL ETHNICITY

Ancestry testing lies at the intersection of genealogy and genetics. Genealogy, the tracking of familial lines through documentation of marriages, births, and adoptions, is the second most common hobby in the United States and is responsible for the creation of a wealth of genealogical data that is put together into reference population based on academic research and how strongly similar are DNA patterns are to one and all^[4]. While scientists make strides in our knowledge of the earth's life forms by detecting DNA sequences, Population geneticists and anthropologists use genetic markers and comparative datasets similar that relies on comparing any individual's particular genetic profile to that of reference populations to those used in commercial ancestry testing to make inferences about population histories and relationships^[5]. Types of markers may vary from a company to another, but all lead to a sole goal: Inferring ancestry.

INFERRING ANCESTRY: MT VS. Y VS. AUTOSOMAL TEST MARKERS

Ethnic lineage testing draws on the unique features of Y-chromosome DNA (Y-DNA) and mitochondrial DNA (mtDNA) to infer ancestral links to contemporary nation-states or cultural groups^[4-9].

Passed from fathers to sons, genetic markers from Y chromosomes form the direct male ancestral line often providing clues about your father's father's father's dead path. Similarly, tests for female ancestry has a parallel way of working, located within the

cell but outside the nucleus, mtDNA serves as the cell's energy producers. However, only the daughters pass it on to her offspring^[6], giving both them (both male and female) the possibility into looking through the direct female ancestry, so when matching Y and mitochondrial genotypes are observed, real biological paternity/kinship or identification can be assumed^[7].

The 2005 launch of the Geographic Project, a partnership project between the National Geographic Society and IBM ushered in a new era of testing that included autosomal chromosomes (ISOGG 2016). Autosomal testing allows for more in-depth search through all of the nuclear chromosomes and all ancestral lineages and is not restricted to either maternal or paternal lineage only^[8,9].

DNA RELATIVE MATCHING: WHO IS YOUR DADDY?

Using these three lineage testing forms, a consumer's DNA is searched against a testing company's genetic samples' reference database. If the sample and the reference DNA match at a set number of genetic markers (typically eight or more), an individual can be said to have shared a distant maternal or paternal ancestor with the person who was the source of the matching sample in the reference population^[9,10], which is, unlike what was told when being sold, only showing the likelihood of having relatives all over the world. Even with careful wording on the packaging, it is easy to miss important limitations on a test's scope or to misunderstand critical nuances in the results because, as of now, it is not known if current DTC websites provide adequate risk information that can include false-positive findings, which can occur when a person receives a result showing incorrectly that they have a particular genetic variant, and false-negative findings that can occur when a user receives a result indicating incorrectly that they do not have a specific genetic variant^[11]. So the explosion in publicly available lineage testing information and the shift in genealogy towards consumerism have made commercial entities quick to capitalize on these changes through the use of DTC testing in advertising and sales^[12].

CONCLUSION

Given that a great deal of genealogy ancestry testing is available today, it would be foolish to limit your test results to your research rather than being given all to you directly; nonetheless, some research focused on consumers of ancestry testing has revealed that although ancestry tests might promote genetic thinking about ancestry and "race" test-takers were also able to construct meaningfully fake narratives of their identity leading them into thinking that there is a definite biological difference between human groupings. This concept confirms the biological reality of 'race,' a social invention, better understood as an index of power one that structures access to resources including healthcare, education, and housing– than as a register of inherent human difference.

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AUTHOR

Basma Farah is a Moroccan high-school sophomore at Anisse international school who, unlike her work, wants to create high-tech functioning AGI based on the nature and nurture of the human body and its behaviorism, sold as artistic pieces or decorative technology. She attempted entering society as a mortal but has failed successfully, thus will do anything to see her peers dominate Mars and live the Sci-fi dream: a step nearer to the Martian Utopia.

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