

ONE GLOBAL RACE

We talk about the notion of race with **Prof. Ewa Ziętkiewicz**, MD from the PAS Institute of Human Genetics in Poznań, in light of the “regional continuity” vs. “recent common ancestor” theories.

ACADEMIA: “Human races” – what does that actually mean?
 EWA ZIĘTKIEWICZ: There are many definitions of the concept. Simplifying things greatly, can say that the old concepts were based on classifying people into large, separate populations, differentiated in terms of inherited external traits, geographical origins (most often by continent), and also history and culture. In the early twentieth century the term was frequently used to stress the genetic distinctiveness of human populations, as determined by phenotype.

How do these concepts relate to our current understanding of the evolution of our species?

It is widely accepted that *Homo sapiens sapiens* evolved out of the more primitive species *H. erectus*, which first appeared in Africa and colonized Eurasia nearly 2 million years ago. Based on this assertion, the long-standing debate about the origins of has centered around two opposing models: the “regional continuity” model and the “recent common origin” model.

Until the early 1990s, anthropological analysis of fossil remains and archaeological sites was the primary, or essentially the only source of information about the past of our species. This data was the main basis for the “regional continuity” model, postulating that modern human groups evolved independently from archaic, regional subpopulations of the species *H. erectus* residing on different continents. It is plain to see that this theory was compatible with the classically understood concept of race.

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In subsequent years, the source of evidence in studying human evolution has shifted towards genetic analysis, providing data on the DNA diversity observed in modern human populations. These results underlie the “recent common origin” view now held by most of the molecular geneticists studying human evolution. In this model, *Homo sapiens sapiens* emerged not earlier than 200,000 years ago, in Africa. The demographic and geographic expansion of this ancestral population, common to all modern humans, led to the colonization of the remaining continents over the past 100,000–150,000 years.

Over the past 20 years, further variations of these opposing models have been put forward, ultimately bringing them much closer together, as is evidenced for instance by Templeton’s assimilation model. It is worth pointing out that the increasingly more accessible mass-scale sequencing methods have made a great contribution to improving our models of human evolution, for instance by providing some insight into the genomic sequence of the fossil remains. Such research has, for example, shown that sequences characteristic of Neanderthals can be found in the genomes of modern humans, which indicates that contrary to the original assumptions of the “recent common origin” model, modern humans did indeed sometimes mate with earlier forms of *Homo sapiens*.

And so the concept of race has become devalued. What specific results obtained in genetic testing show this?

Firstly, as much as 85% of our species’ genetic diversity results from differences between individuals, whereas only 15% reflects differences between populations. That is because we all stem from a single evolutionary branch, and have inherited most of our genetic variation from common ancestors. Secondly, the age of that common diversity indicates that the ancestral population shared by all humans existed around 200,000 years ago. Thirdly, genetic diversity is greatest in the populations of Africa, whereas diversity outside Africa is just a subset thereof, which suggests that we all originate from Africa, which was the point of departure for the colonization of other continents. Fourthly, the distribution of genetic diversity is gradual, rather than sudden, providing a kind of trace of the pathways taken by the geographical expansion of early human populations. Genetic data indicate that a picture of populations together forming a genetic and phenotypic continuum describes the structure of diversity observed within our species much better than the concept of genetically and phenotypically distinct races.

Do you agree with the concept of race as a social, rather than biological construct? The idea that race is something that one “becomes,” something that “is constructed” rather than just “is”?

We cannot deny that anyone can notice the differences between the “typical” inhabitants of Poland, Nigeria, and Japan. It is also clear that certain illnesses occur more often in Europe and Asia, and in Africa more often than in Europe. This information is important and useful in the context of planning diagnostic studies. In certain cases, therefore, the concept of



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“race” may serve as a kind of artificial category underlying a simplified model/description of the world. Let’s take skin color. The inhabitants of southern India have skin darker than many Africans, but are classified among the Caucasoid group, together with the Slavs. Why? Skin pigmentation, for which a large number of genes are responsible, is an “adaptive” phenotype depending upon environmental conditions. In humans this adaptation evolved in parallel in different populations. A given skin color therefore does not have to entail a common evolutionary history.

These artificial categories, especially those concerning large continental groups, are incapable of accommodating all the complex reality of the human race. If we try to categorize diversity in this way, we quickly end up trapped, because either we will be unable to fit a large share of people into any of these categories, or we will be forcefully cramming them into categories we have no basis to ascribe them to. If one tries to proceed this way, race may indeed be perceived as something “constructed,” irrespective of whether

discrimination against other races in the continental sense, but also against other ethnic groups within a given continent or even region, is simply a consequence of the adoption of a harmful doctrine or attitude permitting, or even assuming, a hierarchy that ascribes different values to different human groups.

Does there exist a “gene of violence,” which could be used to justify brutal methods used by people to resolve conflicts?

Nothing can justify brutal methods – we are, after all, allegedly an intelligent species that knows how to control its inborn inclinations. Such a gene could at most explain such proclivities. But does one exist? For the time being it is hard to say. The association-based studies published to date are not convincing enough.

Based on the DNA present in skeletal remains thousands of years ago, scientist can identify what skin color a given individual had. But we do not say that he or she belonged to a particular race...

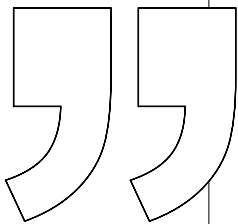
Instead of assigning a given individual to a race, it is better to ascribe him or her to a human group characterized by a similar “genetic profile.” In the case of very old remains, it may of course turn out that genetic characteristics do not allow a skeleton to be assigned to any of the modern groups, only to a hypothetical ancestral population exhibiting a larger or smaller degree of affinity to certain modern groups.

Can ethnic groups differ from one another genetically in terms of intellectual capabilities?

Intellectual capabilities are definitely a multi-gene trait, whose expression additionally depends on environmental influence. If we discover what genes underlie intellectual capabilities, how they interact, and what factors can influence their expression, perhaps we will be able to respond to that. Research is currently underway on this, based on analyzing associations between intelligence (IQ) and the frequency of occurrence of the genetic markers representing the whole genome.

Only 25% of Polish anthropologists reject the concept of race. Why is that?

Indeed, that is low. The figure is significantly higher in Western Europe and the United States, at 50% and 70%, respectively. I think that one of the reasons is that the Polish anthropological community includes many scholars – highly reputable ones, mind you – advocating the theory of multiregional origin of modern humans. This theory, in support of which much archaeological evidence has been adduced, supports the biological concept of race. The Polish community of molecular geneticists, on the other hand, is dominated by the “recent African origin” theory and the genetic uniformity of the species. That seems obvious, given that DNA sequencing continually supplies evidence in



The notion of “race” may serve as artificial category underlying a simplified model/description of reality.

or not the description of races entails an element of hierarchization into better and worse kinds. Categorization is something essential to scientific research, but one has to operate with classes defined significantly more precisely than populations, for instance.

Were the old concepts of race that emerged since the seventeenth century, discriminatory against non-Europeans, exclusively motivated by the imperialist interests of European colonizers?

That’s a question that should be answered by a sociologist or historian. I can only guess that they probably were, as racism provided a justification for the age-old institution of slavery at a time when ideas of egalitarianism had gained popularity.

Did discriminatory concepts of race involve disdain and violence against residence of other continents from the very outset? This also shows itself the relations between larger and smaller ethnic groups.

What is discrimination if not action involving disdain and violence? The fact that this applies not only to

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support of it. But time will tell how the position taken by scientists, both anthropologists and geneticists, changes under the influence of new scientific discoveries, especially those resulting from the introduction of state-of-the-art genomic techniques.

Where do we Poles come from, genetically?

Historically the Poles belong to the group of Western Slavs who settled the lands around Poland some 15 centuries ago. Obviously, over the centuries that population has become genetically mixed with other peoples, mainly Germanic, Scandinavian, Lithuanian, and also others. A detailed answer to the question of the Poles' genetic origin should be sought mainly in studies analyzing the evolution of the Y chromosome and the mitochondrial DNA. Analysis of the Y chromosome, which is inherited down the male line, shows for instance that up to 60% of Polish men have the R1a haplogroup, indicating descent from the Indo-European peoples who lived around Ukraine. A further 30% have haplogroups also present in Western European populations. Analysis of mitochondrial DNA, inherited down the female line, points to the presence among the Poles of all the main European haplogroups, both modern and ancient, and also an admixture of an old East Asian haplogroup. Additional information is supplied by studies on the incidence of pathogenic mutations, for instance in the CFTR gene (related to cystic fibrosis) or the gene BRCA1 (related to breast cancer), pointing among other things to a "founder effect" occurring among the Poles. Simply put, this involves an elevated incidence of otherwise rare mutations.

How genetically diverse are modern Poles? Because there is of course no such thing as a "true Polish" gene.

We can say with full certainty that no such gene exists. But we can try to identify the genetic profile of a population. Such a profile is not a gene or even genes, but rather a set of many natural alleles – most often unexpressed – occurring within the given population at frequencies different than those found in other populations. Of course, the more genetically close two populations being compared are, the smaller the differences in frequency are. In practice, therefore, trying to create a "genetic classifier" distinguishing the Poles from other Slavs will be unsuccessful, but differentiating the Polish from the Chinese or Sudanese population is already possible, based on the analysis of a dozen-odd properly selected markers. As for the structure of the modern Polish population, it is genetically not very diverse, although that is not to say it is completely homogenous. That is best evident when one looks at regional differences in the incidence of certain pathological alleles, for example among the Kashubians.

Eastern Europeans are perceived in the countries of the West as racists. As evidence of that, specific statements and behaviors get cited.

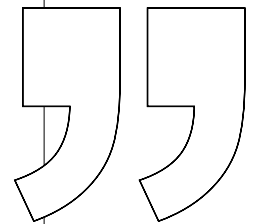
Why are so many Poles still racist today?

A quarter-century after the collapse of communism, we can no longer explain this in terms of our country's prolonged isolation.

Accepting or rejecting the notion that races exist is a result of the natural human tendency for "pigeonholing" based on physical characteristics, the more so the more noticeable those characteristics are. Of course, professing any given view about the existence of races, as long as it does not go hand-in-hand with hierarchization and discrimination, is light-years away from being a racist.

However, I am sad to admit that it does not seem unfounded when our society is perceived as racist. However, I think that what is evidenced by certain behaviors on the part of Poles is not so much classical racism as a more general phenomenon. I would call it xenophobia, an aversion to others. And who

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gets defined as "others" is a completely different issue. They may be people with dark skin, of Jewish origin, refugees from Syria – or just someone speaking German to a visiting fellow professor while riding a public bus (as in one recent incident). I am afraid that I am unable to propose a sensible explanation for the causes of that aversion; it does not lie within the purview of genetics. I will only say that I do not think that such attitudes can be put down to the country's prolonged isolation. Firstly, the isolation was never really that strict, and secondly, it did not give rise to hostility, only at most the aforementioned tendency to pigeonhole. We can also note that the intensity of the negative behaviors currently observed depends on the circle of society someone belongs to and the caliber of their upbringing. And I am convinced that if someone accepts a Ukrainian or Roma, they will not have any problem with an African or Vietnamese.

INTERVIEW BY ANNA KILIAN

This is the English translation of an interview that was approved by the author in its Polish version.