



ISSUE BRIEF

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Genetics and Race: Current Research and Societal Impact

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and ethnic groups. On the other hand, there are researchers who rely on a genetic basis for race in their judgements and research. These scientists are investigating groupings of DNA, such as base pairs and haplotypes, that possibly make up one's physical aspects and medical conditions, and/or may control behavioral features including talent and personality.

Fifty years ago, the understanding of genetics drastically expanded when James Watson and Francis Crick determined the precise molecular structure of deoxyribonucleic acid (DNA). The desire for a better understanding of the human body, combined with this discovery, eventually led to the creation of the Human Genome Project (HGP) in 1990—an endeavor that maps the exact composition, structure, and function of every genetic sequence in the human body. Numerous advantages and disadvantages arise from this and the resulting scientific research projects, many of which have implications on the understanding and applications of the concept of race.

Historically, the definition of race has encompassed both one's physical appearance and cultural values and beliefs. Many studies in the 1800s and early 1900s, by scientists such as Francis Galton and Charles Davenport, used this principle to "prove" that one race was superior to others in intelligence or physical abilities. However, recent discoveries in genetic research, including the HGP, have led most scientists to challenge these past findings. Many argue that race is, in fact, a social construct which cannot be genetically defined, since there are more genetic variations within a racial or ethnic group than among different groups. They point out that the scarcity of genetic differences does not correlate with the extensiveness of social and behavioral differences among racial

In spite of this increased understanding of genetic information, the societal definition of race continues to focus on physical aspects—leaving many experts concerned that the continued study of genetic functions will bear profound consequences for reinforcing or disproving racial, or even gender, stereotypes. For example, the prevalence of medical conditions within respective minority communities has led to the assumption that certain races may be more genetically susceptible to specific diseases, which could, therefore, be treated by tailored medications or treatments. Unfortunately, these inferences, though not yet scientifically proven, have led society to discount the influence of environmental factors, such as stress from racism or poor healthcare and diet, which render tailored treatments virtually useless. In addition to the implications for stereotypes and health care, some fear that genetic research will also have profound implications for individuals' concept of self

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and personal identity—raising fundamental questions about how one defines oneself and one's role in society.

To begin to address the societal implications of genetic research and the aforementioned concerns, Ethical, Legal and Social Issues (ELSI) programs have been created in the US by the National Institutes of Health and the Department of Energy. Among the many projects currently underway, several have addressed the specific effects of genetic information on minority communities through working with and educating minority community leaders. Despite the efforts of ELSI programs and other educational programs, new discoveries will continue to raise additional questions and concerns about the implications of genetic research.

The discovery of DNA has provided a powerful tool for better understanding the genetic makeup of humans, including a greater insight into evolution, an improved perception of human

diversity, and a better understanding of diseases. However, there remain many other questions and components of the human genome to be answered and explored. In essence, as the field of genetics moves forward, it could develop into the primary indicator of race and potentially divide population groups further, or possibly continue to disprove itself and eliminate this type of categorization of humans all together.

For more in-depth information on this topic, including statistics and articles, which present the differing perspectives on this issue, visit www.spusa.org/issue.

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From the Field

To learn more about the personal satisfactions of being an executive director of a non-profit organization, or what a typical week is like for a forensic biologist at the West Virginia State Police Crime Laboratory, visit www.spusa.org/issue.

Featuring interviews with:

Dr. Sujatha Byravan, Executive Director,
Council for Responsible Genetics

Lt. Brent Myers, Forensic Biologist, *West Virginia State Police Crime Laboratory*

Exploring Ethical Questions

Hypothetical Scenario: Do you begin your research in the US on the Ebola virus while understanding that the new legislation may increase the likelihood of you being closely monitored by the government?

You are an international student who has just started your doctoral research at a US university. Back home, you have spent your academic career, thus far, studying the Ebola virus in hopes of discovering a vaccine for the deadly virus.

Since being accepted to the PhD program at your

the research and activities of students and scientists from your country to be under more scrutiny by the US State Department and Department of Homeland Security.

Do you begin your research in the US on the Ebola virus while understanding that the new legislation may increase the likelihood of you being closely monitored by the government? Do you change your research to a non-select agent, discarding your invested time and efforts? Do you try and find a different virus to study that has enough of the Ebola

“Do you change your research to a non-select agent, discarding your invested time and efforts?”

university last year, the Public Health Security and Bioterrorism Preparedness Response Act of 2002 was enacted, requiring that all persons possessing select agents, biological agents or toxins deemed a threat to public health, including the Ebola virus, notify the Department of Health and Human Services of their possession. Other recent legislation, including the USA Patriot Act and the Enhanced Border Security and Visa Entry Reform Act, has led

virus characteristics and therefore may lead to advances in the understanding of Ebola, but may not be as significant as actually studying Ebola itself?

Visit www.spusa.org/issue to explore this and other ethical questions.

Point/Counterpoint

Dr. Troy Duster is Chancellor’s Professor at the University of California, Berkeley, as well as Professor of Sociology at New York University. He is the author of many publications and articles regarding science, race, and public policy, including the forthcoming second edition of *Backdoor to Eugenics*.

“In response to the idea about race only being a social construct, the answer is yes and no. Since the start of the HGP project, in 1989, up until right before the first draft of the genome was completed in 2000, the common assertion was that we are all so much alike at the DNA level that racial differences are negligible. In the last few years, however, the wave of genetic knowledge, combined with computer technology, has emphasized genetic markers in different population groups. It is important to note that in the human genome, the coding part of our genes do not display much variation between what were thought to be the major racial groups. However, in the non-coding regions of the DNA (perhaps over 90 per cent of all the genome), computer-assisted analysis is now focusing on markers that emphasize differences. These differences are thought to be related to capacities for drug metabolism, for example.”

Read the rest of Dr. Duster's interview, along with that of Dr. Lisa Brooks,... at www.spusa.org/issue.

Event Ideas

MOVIES

- Gattaca
- Lebensborn
- Race—The Power of an Illusion
- The Hulk
- X-Men

SUGGESTED SPEAKERS

- *Dr. Francis S. Collins* – National Human Genome Research Institute
- *Dr. Troy Duster* – University of California, Berkeley
- *Dr. Mary-Claire King* – University of Washington
- *Dr. J. Craig Venter* – Center for the Advancement of Genomics

WEBSITES

- Department of Energy Human Genome Project—
www.ornl.gov/TechResources/Human_Genome/
- National Human Genome Research Institute—
www.genome.gov
- Office of Minority Health—www.omhrc.gov
- Palomar College - Department of Anthropology—
anthro.palomar.edu/ethnicity/ethnic_1.htm
- Public Broadcasting Service—www.pbs.org/race

BOOKS AND PUBLICATIONS

- *Intelligence, Race, and Genetics: Conversations with Arthur R. Jensen* by Frank Miele
- *The Emperor's New Clothes: Biological Theories of Race at the Millennium* by Joseph L. Graves, Jr.
- *Why Race Matters* by Michael Levin

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