NEWS BRIEFS

Misuse of genetics by "alt-right" groups raises concerns

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The genetics of race has always been prone to misunderstanding and misuse by those with problematic agendas. Now one group has latched onto direct-to-consumer ancestry testing to "prove" their racial purity, highlighting a contemporary and troubling example of the misuse of genetics. Overlaying the construct of race onto ancestry testing has the potential to reinforce misconceptions, including the notion that there are genes for "whiteness." That misguided potential is being realized by groups obsessed with white nationalism, according to a detailed report that appeared 29 December 2016 in *The Atlantic*. It is easy to dismiss such ideas as radical and "fringe," but it is incumbent on all geneticists to be aware that even carefully conducted medical research studies can be misinterpreted. While educated geneticists know that racial categories are simply convenient (and very coarse) proxies for continental ancestry, their use has shown the potential to fuel racist stereotypes. For instance, in a research study by Columbia University sociologist Jo Phelan, consumers who simply read about genetic differences between races were more likely to agree afterward that there are inherent and essential underlying genetic differences between racial groups. And, of course, the slippery concept of race is notoriously difficult to define. Analyzing data on the race of clinical research subjects is engrained in the fabric of much genetic research. But it may be time to start rethinking study design that can lead to racially charged conclusions. *—Karyn Hede, News Editor*

NASA twin study shows genomic changes, perhaps induced by space travel

The preliminary results of NASA's genomic study on twin astronauts Mark and Scott Kelly are out, providing clues to the molecular changes induced by living in space. The Kelly twins conceived the experiment themselves as Scott embarked on a voyage to the International Space Station in 2015. Throughout the nearly yearlong journey, each twin provided periodic biological samples, which were studied for changes to genomic and molecular profiles and each man's microbiome, as well as DNA methylation patterns and telomere length. Early analysis presented at a meeting of NASA's Human Research Program Investigator's Workshop in January 2017 revealed that living in the extreme environment of space may have induced markers of inflammation. A lipid panel indicated increased inflammation in Scott, while Mark's level of 3-indolepropionic, an antioxidant metabolite, increased. The level of DNA methylation in Scott's white blood cells decreased while in flight but returned to preflight levels upon return. Epigenetic changes occurred in both twins, but the variation was greater in Scott during spaceflight, suggesting that genes regulating epigenetic programming may be more sensitive to changes in the environment (whether on Earth or in space) than previously realized. The telomeres in Scott's white blood cell DNA got longer while in space but began to shorten again after his return to earth. Investigators speculated that the temporary increase could have been due to increased exercise and consumption of fewer calories during the mission. They also noted that a stressful family event in November might have triggered an observed increase in telomerase activity during that time. The research team plans to publish more detailed study findings later in 2017. *—Karyn Hede, News Editor*