



Mary-Claire King is president of the American Society of Human Genetics and a professor in the Department of Genome Sciences and the Department of Medicine at the University of Washington, Seattle, WA. E-mail: mcking@uw.edu.

The Scientist as World Citizen

IN EARLY 2011, LISTENING ON U.S. PUBLIC RADIO TO REPORTS FROM TAHRIR SQUARE, I LOOKED forward particularly to those from Mona Seif, a young citizen journalist from Cairo. Her reports were rich in detail, and even when difficult to hear over gunfire, they were clear and informative to a listener on the other side of the world.

In a profile a few months later, Seif was asked about her work when not in Tahrir Square. She was a graduate student, she responded, working in cancer biology. “My work in particular is on the *BRCA1* gene,” she said, “which is one of the genes connected with breast cancer incidence, and I’m investigating the mutation pattern in Egyptian patients. . . . Both [science and activism] are very consuming, time and energy—and emotions. And I’m only starting to get the handle of doing both at the same time and juggling between my activism and my work.”* Hearing this interview on a quiet evening in my lab, I had three thoughts: “Fantastic!” and, “You must be getting way behind on DNA sequencing,” and, “At least we can help you with that.”

Mona Seif’s story illustrates for me the essence of the scientist as a citizen of the world. Scientists insist on believable data both in work and in public life. Bright young scientists do not accept nonsense from those in power, and they will not be eternally patient with those responsible for it. The response of the scientist to nonsense is both conceptual and practical: to recognize it, expose it, and try to fix it. And because scientists are connected through worldwide networks, we can stimulate each other to do the same. This power was demonstrated by young computer-savvy scientists in Beijing when they informed the world about the Tiananmen Square protests in June 1989, and more recently by youthful bloggers of the Arab Spring such as Mona Seif.

This week, the American Society of Human Genetics holds its annual meeting in San Francisco. As human geneticists, we are particularly privileged world citizens. Our field is inherently global in both content and talent. All people share the same biology. A gene responsible for a human trait in any family, anywhere, is part of the biology underlying that trait in everyone, everywhere. The discovery and characterization of genes responsible for serious human conditions are therefore best undertaken by studying the families most informative about those conditions, wherever they live. The scientists best qualified to work with such families, understanding cultural context, historical demography, and environment/gene interactions, are those from the same places as the families they are studying. The extraordinary success of contemporary human genetics is due both to the revolution in genomic technology and to advanced training of scientists from across the globe. Collaborations formed using the very best talent for each project lead to both productive science and an understanding of people and places outside of one’s home turf. The job of the citizen scientist is to put this understanding to use.

One rarely knows in advance when opportunities will arise. Solving complex problems, whether scientific, social, or political, requires honest and critical appraisal of data. Truth ultimately matters more than consolidating power, securing funding, or furthering agendas. In my experience, the most important questions come from people on the front lines, and no question is too big to ask.

– Mary-Claire King



Downloaded from <http://science.sciencemag.org/> on June 25, 2017

Science

The Scientist as World Citizen

Mary-Claire King

Science **338** (6107), 581.
DOI: 10.1126/science.1231607

ARTICLE TOOLS

<http://science.sciencemag.org/content/338/6107/581>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.