

Capitol Hill Briefing Summary:

“Using the Human Genome to Understand and Treat Cancer”

About 50 congressional staffers attended the AAMC’s July 29 Fulfilling the Promise briefing, “Using the Human Genome to Understand and Treat Cancer.” The event featured presentations by Francis Collins, M.D., Ph.D., director of the National Human Genome Research Institute at the NIH, and Victor Velculescu, M.D., Ph.D., an NIH-supported researcher who is director of the Cancer Genetics Laboratory at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins and assistant professor at Johns Hopkins School of Medicine.

AAMC President Jordan Cohen, M.D., opened the briefing by explaining that physicians and scientists at the nation’s medical schools and teaching hospitals receive more than half of all the research grants that the NIH awards to outside scientists. He also noted how America’s medical schools and teaching hospitals have been at the forefront of cancer research since the first use of the microscope by the University of Maryland to diagnose cancer in 1853. Citing a more timely example, Dr. Cohen noted how seven-time Tour de France champion Lance Armstrong, in overcoming testicular cancer, received treatment from the Indiana University School of Medicine research team whose breakthrough helped to boost the advanced form of this cancer’s cure rate from 5 percent to 80 percent.

Drs. Collins’ and Velculescu’s presentations focused on how the new science of genomics is revolutionizing cancer prevention, diagnosis, and treatment. While the field of cancer genomics is relatively new, scientists have long suspected a genetic connection to cancer. In fact, explained Dr. Collins, the prospect of cancer’s genetic link was factored into the conception of the Human Genome Project, the international effort he led to map and sequence all of the human DNA. Dr. Collins then showed how detailed knowledge of a family’s genetic history “empowers” preventive medicine by identifying which family members are at greater cancer risk. Further, he said, understanding the genome has virtually turned cancer treatment around by allowing the development of targeted therapies that destroy only cancer cells and leave healthy cells intact.

Both Drs. Collins and Velculescu cited Gleevec, a revolutionary drug to treat leukemia that resulted from NIH-funded research, as an important example. “This really served as the first rational approach of designing drugs against cancer,” said Dr. Velculescu. “Historically, academia has been great at making new discoveries, and I think this will only accelerate in this era.” Dr. Velculescu also provided further details on why “good genes go bad,” and showed how new technologies such as high-throughput sequencing technologies, can analyze as many as 500,000 letters of genetic code daily.

In addressing a staffer’s question about future funding for such research, Dr. Cohen said, “The science, for those of us who are familiar with it, it just couldn’t be more compelling. We are living at an unprecedented age in the history of mankind.... It’s really immoral for us not do everything we can to accelerate the pace of this science.”

Staffers attending the briefing received a packet of Fulfilling the Promise campaign materials containing information about the partnership between the NIH and the nation’s medical schools and teaching hospitals, NIH funding, the role of medical schools and teaching hospitals in medical research, and a listing of major research discoveries in cancer prevention, treatment and diagnosis by medical school and teaching hospital researchers supported by the NIH.

The goal of the Fulfilling the Promise briefing series is to provide regular reports to members of Congress and their staff on the research progress being made at America’s medical schools and teaching

hospitals with support from the NIH. All materials from the July 29 briefing, along with a Webcast of the speakers' presentations, are available on the AAMC's Fulfilling the Promise Web site at www.aamc.org/ftp.