

Introductory Speech for Francis S. Collins*

Leon E. Rosenberg



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To many people in the scientific community, and to many more in the lay community beyond, the name Francis Collins is synonymous with the successful completion of the Human Genome Project. His contributions to this monumental undertaking have been singular, and they have been duly recognized—up to and including a Rose Garden visit at the White House with President Clinton and Francis's archival, Craig Venter (often caricatured and maligned as the scientific equivalent of Darth Vader).

Because Francis is so identified with the Genome Project and has so brilliantly led the National Human Genome Research Institute at NIH for the past 12 years, some may think his scientific achievements are contemporaneous with, and restricted to, the project. But those of us in the human genetics community old enough to know better, well, know better. The Awards Committee of ASHG was unanimous in selecting Francis Collins as the 2005 recip-

ient of the coveted William Allan Award, because it knows that Francis's career epitomizes the designation of that award: "for substantial scientific contributions to human and medical genetics carried out over a lifetime of scientific inquiry."

Our honoree was raised on a small farm in Virginia. He obtained his undergraduate degree in chemistry at the University of Virginia, then went on to earn a Ph.D. in physical chemistry at Yale University in 1974, at age 24. There, he became aware that a revolution was beginning in molecular biology and genetics, so he decided to change fields and went to medical school at the University of North Carolina in Chapel Hill, where he earned the M.D. degree in 1977. During 3 subsequent years as a resident in internal medicine, Francis, whose first fascination with human genetics came during his first year of medical school, clinched his resolve for a career in human genetics.

I met Francis in 1980 during his interview for a post-doctoral fellowship in Human Genetics at Yale. He was 30. Not surprisingly, he greatly impressed me and all the other faculty who met him, and I was delighted when he took my advice and came to our department. I was not so thrilled when he failed to take my advice and join my laboratory group. This was to be the first of three significant times over the next 13 years that Francis sought my advice and did otherwise. No one—including my children—has so regularly asked for, then spurned, my counsel. But more of that micro-rant later.

Francis chose to work with Sherman Weissman, in whose laboratory he cut his scientific teeth on the then-only robust human molecular genetics model, hemoglobin. He published on thalassemia and hereditary persistence of fetal hemoglobin, but his first groundbreaking scientific publication appeared in 1984 in the *Proceedings of the National Academy of Sciences*, entitled "Directional Cloning of DNA Fragments at a Large Distance from an Initial Probe: A Circularization Method" (*Proc Natl Acad Sci USA* 81: 6812–6816). This was the dawn of "chromosome jumping," a technique crucial to the term "positional cloning," which Francis Collins coined soon thereafter.

Francis was a fabulous clinical fellow as well. His diagnostic skill, patient and family rapport, and case presentations were the best I'd ever heard. It should come as no surprise then, that I advised Francis to join our faculty in

From the Department of Molecular Biology, Princeton University, Princeton

Address for correspondence and reprints: Dr. Leon E. Rosenberg, Department of Molecular Biology, Princeton University, 253 Lewis Thomas Laboratory, Washington Road, Princeton, NJ 08544. E-mail: lrosenberg@princeton.edu

* Previously presented at the annual meeting of The American Society of Human Genetics, in Salt Lake City, on October 28, 2005.

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1984, only to have him demur again and go to the University of Michigan in Ann Arbor.

For the next 9 years, his laboratory perfected and used positional-cloning techniques to identify disease genes in the absence of functional correlates. His group discovered, or collaborated in the discovery of, several important genes, including those responsible for cystic fibrosis, neurofibromatosis type 1, and Huntington disease. These discoveries, and those of many other investigators, established positional cloning as an unusually powerful tool in disease-gene finding, superseding functional cloning in scale and applicability.

In 1992, while his scientific prowess was at full throttle, Francis again sought my advice. What did I think of the idea, he asked, of his becoming the director of the Human Genome Research Center at NIH. Having been a member of the NRC committee that recommended to Congress that the U.S. undertake the Human Genome Project and having seen the overpowering James Watson become its first NIH steward and having heard that Watson had resigned in a huff because he had no respect for the Director of NIH, Bernadine Healy, and having watched Francis Collins ascend the ladder of scientific prominence remarkably quickly, I advised him to avoid the political maelstrom at NIH and stay in the safe harbor of Ann Arbor.

Of course, he took the job at NIH and has been a stellar leader of the Center, now Institute, ever since. He has even continued to lead his own laboratory, whose most important recent achievement has been the identification of the gene for the Hutchinson-Gilford progeria syndrome.

Francis Collins has made contributions beyond science. He has coauthored, with Tom Gelehrter and David Ginsburg, two editions of a leading textbook on medical genetics. He has written widely on the future of genomics in clinical medicine. He has been vocal and persistent in his emphasis on the importance of ethical and legal issues in genetics and genomics—particularly those concerned with the privacy of genetic information and the prohibition of gene-based discrimination in employment and health insurance.

It occurs to me that I should continue to try to age gracefully and healthily for all the usual reasons pertaining to family, friends, and work, but for an unusual reason as well. You see, Francis is only 55 years old, and who knows how many more times he may seek my advice and do the opposite, thereby finding personal fulfillment while enriching science, medicine, and humankind.

Francis, it is a privilege to know you and to present you with the William Allan Award on behalf of the American Society of Human Genetics.