Hamilton O. Smith, M.D.

Dr. Hamilton O. Smith is Scientific Director of Synthetic Biology and Bioenergy and Distinguished Professor at the J. Craig Venter Institute and serves as Co-founder and Co-Chief Scientific Officer at Synthetic Genomics, Inc.

Dr. Smith studied Physics, Mathematics and Biology at the University of Illinois and the University of California at Berkeley, from which he received an A.B. degree in Mathematics in 1952. He received an M.D. degree from the Johns Hopkins University School of Medicine in 1956. He then interned at Washington University in St. Louis, served in the Navy for two years, and was a resident at Henry Ford Hospital in Detroit. In 1962, having essentially taught himself Molecular Biology and Genetics, he did postdoctoral work in bacteriophage P22 genetics with Myron Levine at the University of Michigan. Among other things, he defined the first integrase gene. In 1965, he returned to Johns Hopkins as a Research Associate in the Department of Microbiology, which became the Department of Molecular Biology & Genetics, rising through the ranks to full Professor by 1973. Following a Guggenheim-funded year in Switzerland, he began searching for evidence to support Werner Arber's hypothesized restriction and modification enzymes and soon isolated these activities from *Hemophilus influenzae*. He was the first to determine the base sequence of a restriction enzyme recognition site, work done with then medical student and future Department chairman Tom Kelly. This work set the stage for the first practical use of restriction enzymes in mapping a specific biological property to a site in a DNA molecule by Dr. Smith's colleague Daniel Nathans, for whom this lectureship is named. These findings set the stage for the "Molecular Revolution" in Biology and the establishment of the Biotechnology industry. Following this period, Dr. Smith pursued further molecular genetic studies on restriction enzymes and mechanisms of bacterial DNA uptake and recombination. He became intensely interested in DNA sequences and their analysis, and led the effort to sequence the genome of *H. influenzae*, the first free living organism sequenced. In 1998, Dr. Smith retired from his faculty position and started a second career in Biotechnology, joining the Institute for Genome Research as a scientific partner of J. Craig Venter and his colleagues, where he sequenced many other genomes, eventually including our own. In 2006 he joined the J. Craig Venter Institute, dedicated in part to synthesizing genomes, such as that of *Mycoplasma laboratorium*, from scratch.

Dr. Smith's many honors include the American Cancer Society Distinguished Research Professor, 1980, the Prince of Asturias Prize, 2001 and honorary doctorates from Johns Hopkins University, University of Florida, and the University of Illinois. He was elected to the National Academy of Sciences in 1980 and awarded the Nobel Prize in Medicine or Physiology in 1978.