



Aaron Shatkin Memorial Lecture 2021

“Poxviruses: Deadly Pathogens to Recombinant Vector Vaccines”

Dr. Bernard Moss, MD, PhD

Thursday, November 4, 2021

Hosted by the Center for Advanced Biotechnology and Medicine

RUTGERS
BIOMEDICAL AND
HEALTH SCIENCES

Aaron Shatkin

MEMORIAL LECTURE



Aaron J. Shatkin, PhD, was a professor of molecular genetics, microbiology and immunology, founding director of the Center for Advanced Biotechnology and Medicine (CABM) and a member of The Cancer Institute of New Jersey at Robert Wood Johnson Medical School until his passing in 2012. Dr. Shatkin earned a bachelor's degree in chemistry, *summa cum laude*, from Bowdoin College and was awarded a Rockefeller Fellowship to attend Rockefeller University where he trained in microbiology with Nobel Laureate E. L. Tatum, PhD.

After receiving his doctorate in 1961, he joined the laboratories of Harry Eagle, MD, and Norman Salzman, PhD, at the National Institutes of Health as a research scientist. He spent a sabbatical year in 1968 as a visiting investigator at the Salk Institute with Nobel Laureate Renato Dulbecco, MD, then moved to the newly established Roche Institute of Molecular Biology in New Jersey where he was head of the laboratory of molecular virology and later chair of the department of cell biology. In 1986, he was appointed director of the nascent Center for Advanced Biotechnology and Medicine, a joint institute of Robert Wood Johnson Medical School and Rutgers, The State University of New Jersey, where Dr. Shatkin was University Professor of Molecular Biology. He also taught at several other universities and trained many future scientists in his laboratory.

Dr. Shatkin discovered mRNA capping and made other fundamental contributions to gene expression mechanisms in animal cells and viruses. In honor of his achievements in biomedical research, he received the 1977 U.S. Steel Award in Molecular Biology from the National Academy of Sciences, the Thomas Alva Edison Science Award, the New Jersey Pride Award in Science and Technology, the Association of American Medical Colleges 2003 Award for Distinguished Research in the Biomedical Sciences and the 2009 Edward J. Ill Outstanding Medical Research Scientist Award. His alma mater, Bowdoin College, granted him an Honorary Doctorate of Science in recognition of his work.

The founding editor of *Molecular and Cellular Biology*, Dr. Shatkin served on numerous organizing and advisory committees including the Asilomar Meeting on Recombinant DNA, the Howard Hughes Medical Institute and the Cleveland Clinic Lerner Research Institute. He authored more than 230 publications that provided new insights into diseases including cancer, AIDS and other viral infections. He was an elected member of the U.S. National Academy of Sciences and a fellow of the American Academy of Arts and Sciences, the American Academy of Microbiology, and the American Association for the Advancement of Science.

This lecture series is to honor and memorialize his contributions to science, his leadership and mentoring skills, and love for his chosen field.

DR. BERNARD MOSS, MD, PhD

NIH Distinguished Investigator

Bernie Moss was born in Brooklyn, N.Y. and received a B.A. and an M.D. from NYU. Following internship at Children's Hospital Medical Center in Boston, he



earned a Ph.D. in Biochemistry at MIT. In 1966, Moss joined NIH as an investigator in the NIAID where he served as Chief of the Laboratory of Viral Diseases from 1984 until 2017 and continues as Head of the Genetic Engineering Section and NIH Distinguished Investigator. Moss developed an interest in understanding the regulation of gene expression at MIT, but his introduction to virology research occurred at the NIH leading to a life-long study of poxviruses. Early work by his group included purification and characterization of the poxvirus transcription system, which led to the co-discovery and enzymology of cap structures at the 5'ends of viral and cellular mRNAs as well as the sequence around internal N6-methyladenosines. The Moss laboratory was first to apply recombinant DNA and sequencing technologies to delineate the basic organization of the poxvirus DNA genome. By combining genetics and molecular biology, his group made key contributions to every aspect of poxvirus biology from entry to virion assembly and developed poxviruses as expression vectors for vaccine development. The Moss laboratory has been a training ground for numerous students, postdoctoral fellows and visiting scientists. He served as President of the American Society for Virology and received many honors including election to the National Academy of Sciences, the Dickson Prize in Medicine, the Taylor International Prize in Medicine, the Bristol-Myers Squibb Award for Distinguished Achievement in Infectious Disease Research, and most recently the ASM Lifetime Achievement Award.

SHATKIN LECTURERS

(Affiliation at Time of Lecture)

- 2012 **Inaugural Lecture**
Harold Varmus, MD
National Cancer Institute
- 2013 **David Baltimore, PhD**
California Institute of Technology
- 2014 **Joseph L. Goldstein, MD**
Michael S. Brown, MD
The University of Texas
Southwestern Medical Center at Dallas
- 2015 **Thomas R. Cech, PhD**
University of Colorado Boulder
- 2016 **William N. Hait, MD, PhD**
Janssen, Pharmaceutical Companies of Johnson & Johnson
- 2017 **Nahum Sonenberg, FRS**
McGill University
- 2018 **Michael G. Rossmann, PhD**
Purdue University
- 2019 **Margaret J. McFall-Ngai, PhD**
University of Hawai'i at Mānoa
- 2020 **Michael Fischbach, PhD**
Stanford University

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as a tribute to our founding director.*

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