



Smithsonian Institution Archives

Smallpox Virus Sequencing Project
Videohistory Collection, 1991

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Washington, D.C.
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Collection Overview

Repository:	Smithsonian Institution Archives, Washington, D.C., osiaref@si.edu
Title:	Smallpox Virus Sequencing Project Videohistory Collection
Identifier:	Record Unit 9564
Date:	1991
Extent:	2 videotapes (Reference copies).
Creator::	
Language:	English

Administrative Information

Preferred Citation

Smithsonian Institution Archives, Record Unit 9564, Smallpox Virus Sequencing Project Videohistory Collection

Historical Note

In 1967, the World Health Organization (WHO) initiated a program of world-wide eradication of smallpox through mass immunization and vigorous containment of outbreaks. The last naturally occurring case of smallpox was identified in Somalia in 1977. After two additional years of worldwide surveillance, on October 26, 1979, WHO announced the global eradication of smallpox.

The virus remained in storage at two authorized sites--the Centers for Disease Control (CDC) in Atlanta, Georgia, USA, and the Research Institute for Viral Preparations in Moscow, Russia. In an address to the World Health Assembly in May 1990, United States Health and Human Services Secretary Louis W. Sullivan stated that technological advances had made it possible to map the entire smallpox genome within three years. Scientists agreed that the preferred first step toward the destruction of the virus was to determine its complete DNA sequence and in that way retain the essential scientific information of what would become an extinct virus. At a meeting of the ad hoc WHO Committee on Orthopoxvirus Infections held in Geneva, Switzerland, in December 1990, it was agreed that all remaining stocks of the *Vaccinia* virus would be destroyed by December 31, 1993.

Li-Ing Liu received a B.A. in nursing from the National Taiwan University in 1979, and an M.S. in nursing from the National Defense Medical Center, Taipei, Taiwan, in 1983. In 1990, she was awarded a Ph.D. in physiology and biophysics from the University of Illinois, Chicago. In 1990, she joined the staff of the National Institute for Neurological Disorders and Stroke (NINDS) at the National Institutes of Health (NIH) as a special volunteer on the sequencing project.

Brian Wilfred John Mahy received a B.S. from the Department of Physiology and Biochemistry at the University of Southampton, England, in 1959, and a Ph.D. there in 1963. In 1965, Mahy entered the Wolfson College of the University of Cambridge, where he received an M.A. in pathology in 1966 and a

Doctor of Science in virology in 1982. From September 1973 to August 1974, Mahy conducted research on RNA tumor viruses at the University of California, San Francisco. From September 1980 to August 1981, he researched coronaviruses at the Universitat Wurzburg, Germany. In 1984, he was appointed Director of the Animal Virus Research Institute, Pirbright, Surrey, England, and in 1986, became head of the Pirbright Laboratory Institute for Animal Health. In 1989, he accepted the position of Director of the Division of Viral and Rickettsial Diseases at the National Center for Infectious Diseases, CDC.

J. Craig Venter received a B.A. in biochemistry from the University of California, San Diego in 1972, and a Ph.D. in physiology and pharmacology in 1975. From 1976 to 1982, he served as a Professor of pharmacology and biochemistry at the State University of New York (SUNY) at Buffalo. From 1982 to 1985 he served as Associate Chief Cancer Research Scientist in the Department of Molecular Immunology at the Roswell Park Memorial Institute. In 1983 he was appointed Adjunct Professor of biochemical pharmacology at SUNY-Buffalo, and joined NIH in 1984 as Chief of the Receptor Biochemistry and Molecular Biology Section, NINDS. In 1987 he also became Co-director of the Laboratory of Molecular and Cellular Neurobiology at NINDS, and was appointed Director of the NINDS DNA facility.

Teresa Utterback, a medical technologist working as a sequencing technician on the smallpox project, demonstrated DNA sequencing processes; Nicolay Selivanov, an Associate Professor at the Soviet Institute of Virology working on advanced cloning and subcloning of viral genes, demonstrated his template making of the pox virus, and Anthony Kerlavage demonstrated the data processing associated with the project.

Introduction

The Smithsonian Videohistory Program, funded by the Alfred P. Sloan Foundation from 1986 until 1992, used video in historical research. Additional collections have been added since the grant project ended. Videohistory uses the video camera as a historical research tool to record moving visual information. Video works best in historical research when recording people at work in environments, explaining artifacts, demonstrating process, or in group discussion. The experimental program recorded projects that reflected the Institution's concern with the conduct of contemporary science and technology.

Smithsonian historians participated in the program to document visual aspects of their on-going historical research. Projects covered topics in the physical and biological sciences as well as in technological design and manufacture. To capture site, process, and interaction most effectively, projects were taped in offices, factories, quarries, laboratories, observatories, and museums. Resulting footage was duplicated, transcribed, and deposited in the Smithsonian Institution Archives for scholarship, education, and exhibition. The collection is open to qualified researchers.

Descriptive Entry

Ramunas Kondratas, Curator of the Division of Medical Sciences of the Smithsonian's National Museum of American History (NMAH), documented the start of the project to sequence the smallpox virus genome at the National Institute for Neurological Disorders and Stroke at the National Institutes of Health, Rockville, Maryland. As the result of NINDS's extensive facilities for DNA sequencing, it was chosen as the site for the joint CDC-NIH project to sequence the Bangladesh 1975 strain of the virus. The session was videotaped in the instrument room, laboratory, library, and computer room of NINDS, November 21, 1991.

This collection consists of one interview session, totaling approximately 3:00 hours of video recordings and 44 pages of transcript.

For additional information on DNA Sequencing, see Record Unit 9549, DNA Sequencing, Smithsonian Videohistory Collection, in Smithsonian Institution Archives.

Names and Subject Terms

This collection is indexed in the online catalog of the Smithsonian Institution under the following terms:

Subjects:

- Genomics
- Immunization
- Interviews
- Medicine
- Medicine -- History
- Molecular biology
- Oral history
- Science -- History
- Smallpox
- Technology -- History
- Virology

Types of Materials:

- Transcripts
- Videotapes

Names:

- Centers for Disease Control (U.S.)
- Kerlavage, Anthony R.
- Kondratas, Ramunas, interviewer
- Liu, Li-Ing
- Mahy, B. W. J. (Brian W. J.)
- National Institute for Neurological Disorders and Stroke
- National Institutes of Health (U.S.)
- Selivanov, Nicolay
- Utterback, Teresa
- Venter, J. Craig
- World Health Organization

Geographic Names:

- Somalia

Container Listing

Interviews

Interviews

Session 1: November 21, 1991

Interviews

Was recorded at the Receptor Biochemistry and Molecular Biology Section of the Laboratory of Molecular and Cellular Neurobiology, NINDS, NIH. Venter, Mahy, Kerlavage, Liu, Utterback, and Selivanov discussed the history of the smallpox sequencing project and demonstrated the process for sequencing the Bangladesh 1975 virus, c. 1991, including: Demonstration of diluting samples, robot dispensing samples, centrifuging and heat treating of samples, and pipetting samples into Applied Biosystems, Inc. (ABI) DNA Sequencer; discussion of procedures for sequencing the virus; weekly Smallpox Group meeting; Mahy's biographical data; history of smallpox virulency; WHO's plans to eradicate smallpox and 1979 announcement of worldwide eradication; history of the 1986 decision to destroy all stocks of the virus; CDC's proposal for sequencing the smallpox virus; formation of the WHO Pox Committee; Venter's biographical data; collaboration with the NINDS laboratory; training of an international team for making templates, growing the virus, cloning and mapping the data; utility of mapping the virus; probability that the virus could be reconstructed with the genetic sequence; potential uses of DNA sequencing for understanding the HIV virus; security measures to ensure worldwide destruction of smallpox virus and plans for the 1993 destruction; discussion of the various technologies used by NINDS; Venter's work on sequencing genes from the brain; development and use of GENBANK; DNA sequencing patent issues; Human Genome Project; and computer processing of smallpox sequencing data. Visual documentation included: Instrument Room of the Section of Receptor Biochemistry and Molecular Biology, NINDS; ABI DNA Sequencers; dilution of smallpox virus samples for loading onto robot; pipetting samples into DNA sequencer; sequencing data on computer monitor; Smallpox Group meeting; template making; computer room; initial editing and assembly of the sequencing data; final data analysis; and Variola Bangladesh 1975 Virus Genome map.

Interviews

Transcript, pp 1-44, of videotape recording, 3 hours.

Interviews

Video Recordings of Interview: Total Recording Time: 3 hours

Note:

- Original Masters: 9 Beta videotapes
- Preservation Masters: 9 Motion jpeg 2000 and 9 mpeg digital files
- Dubbing Masters: 3 U-Matic videotapes
- Reference Copies: 2 VHS videotapes, 3 Windows Media Video and 3 Real Media digital files