EXHIBIT A

JEFFREY D. LIFSON, M.D.

Associate Director, Basic Research Directorate,
Director, AIDS Vaccine Program, and
Senior Principal Scientist, Head, Retroviral Pathogenesis Laboratory,
SAIC Frederick, Inc., National Cancer Institute, Frederick, Frederick, Maryland.

EDUCATION

B.S.Med.	Northwestern University, 1980
M.D.	Northwestern University Medical School, 1982

BACKGROUND

2003-Present Associate Director, Basic Research Directorate, Director, AIDS Vaccine Program, and Senior Principal Scientist, Head, Retroviral Pathogenesis Laboratory, and Retroviral Protein Chemistry Section, SAIC Frederick, Inc., National Cancer Institute, Frederick, Frederick, MD

2002-Present Director, AIDS Vaccine Program, and Senior Principal Scientist, Head, Retroviral Pathogenesis Laboratory, and Retroviral Protein Chemistry Section, SAIC Frederick, Inc., National Cancer Institute, Frederick, Frederick, MD.

2001-2002 Associate Director, AIDS Vaccine Program, and Senior Principal Scientist, Head, Retroviral Pathogenesis Laboratory and Quantitative Molecular Diagnostics Section, SAIC Frederick, Inc., National Cancer Institute, Frederick, Frederick, MD.

1995-2001 Senior Scientist, Head, Retroviral Pathogenesis Laboratory and Quantitative Molecular Diagnostics Section, AIDS Vaccine Program, SAIC Frederick, Inc., National Cancer Institute, Frederick, Frederick, MD.

1991 - 1995 Vice President, HIV and Exploratory Research, Genelabs Incorporated, Redwood City, CA.

1990 - 1991 Acting Vice President, Research, Genelabs Incorporated, Redwood City, CA.

1986 - 1990 Senior Scientist, Director, Human Retrovirus Program, Genelabs Incorporated, Redwood City, CA.

1985 - 1986 Associate Investigator, Department of Pathology and Laboratory Medicine, Palo Alto Veterans Administration Hospital/Stanford Medical School Blood Center, Palo Alto, CA.

1983 - 1985 Postdoctoral Fellow, Department of Pathology, Stanford University Medical School and the Stanford Medical School Blood Center, with Edgar G. Engleman, Palo Alto, CA.

1982 - 1983 Resident in Pathology, Stanford University Medical Center, Stanford, CA.

JEFFREY D. LIFSON, M.D.

MEMBERSHIPS

American Association for the Advancement of Science
American Association of Immunologists
American Society for Microbiology

EDITORIAL BOARDS

AIDS Research and Human Retroviruses	1998-
Journal of Virology	2002-

HONORS AND AWARDS

Summer Scholar, National Science Foundation, Committee for Advance Science Training, 1976.
California Physicians National Merit Scholarship, 1976-1980.
Paolo Raimondi Fellowship for the Study of Humanism in Medicine, Northwestern University Medical School, 1982.
Postdoctoral Fellowship, The Damon Runyon-Walter Winchell Cancer Fund, 1983-1985.
Associate Investigator Career Development Award, Veterans Administration, 1985-1986.
SAIC Special Science Achievement Award (Team award), 1999.
SAIC Outstanding Science Achievement Award (Individual award), 2000.

ADVISORY COMMITTEES

Member, Office of AIDS Research, National Institutes of Health, Coordinating Committees, Etiology and Pathogenesis emphasis area (1995-present and Vaccines emphasis area (2003-present).

NIAID Non-human Primate Reagent Resource/MHC Technology Development Scientific Advisory Working Group (2004-present)

Member, External Scientific Advisory Board, Center for AIDS Research, University of Massachusetts, Worcester, MA (2000-present)

AD HOC CONSULTANT

The Exploratorium, San Francisco, CA (Interactive Science Discovery Museum)

JEFFREY D. LIFSON, M.D. **PUBLICATIONS**

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JEFFREY D. LIFSON, M.D. **PUBLICATIONS**

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Arthur, LO, Bess, JW, Chertova, EN, Rossio, JL, Esser, MT, Benveniste, RE, Grimes, MK, Henderson, LE, and Lifson, JD, 1998, Simian Immunodeficiency Virus: Production, inactivation, and characterization, , AIDS Res Hum Retroviruses 14 Suppl 3:S311-319.

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Wodarz, D, Page, K, Arnaout, RA, Thomsen, AR, Lifson, JD, and Nowak, MA, 2000, A new theory of cytotoxic T lymphocyte memory: implications for HIV treatment, Philosoph. Transactions R Soc Lond B, 355: 329-343.

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JEFFREY D. LIFSON, M.D. **PUBLICATIONS**

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JEFFREY D. LIFSON

Summary of Research Interests and Activities

I have been involved in AIDS research for more than two decades. While a fellow at Stanford University Medical School in 1983, prior to the identification of HIV-1 as the etiologic agent for AIDS, I helped to establish the first blood screening program in the country for prevention of transfusion mediated transmission of AIDS using a flow cytometric assay for CD4+ T cell depletion as a surrogate marker screening assay. Following the identification of HIV as the etiologic agent of AIDS and the availability of serological tests, retrospective testing of donated units excluded from transfusion use based on flow cytometric screening demonstrated that numerous HIV+ units had been withheld, potentially preventing up to three cases of transfusion transmitted HIV infection per donated unit, given the fractionation of each donated unit to multiple component products for transfusion. Also while at Stanford, I made important contributions to the early understanding of envelope glycoprotein/CD4 interactions in the biology of HIV.

In 1986 I moved to a start up biotech company, Genelabs Incorporated, in Redwood City, to establish a HIV research program, as a Senior Scientist and Director of the Human Retrovirus Program. In this program we produced and characterized the first human monoclonal antibody to HIV, and with Pat Brown (Stanford) helped develop the first cell free in vitro assay for integration of HIV. In a program supported by Sandoz (now Novartis), I also participated in research aimed at developing novel treatments for HIV infection and AIDS, including evaluation of a candidate natural product compound intended to preferentially kill HIV infected cells of macrophage lineage. While development of the compound was discontinued after Phase I clinical testing, I gained exposure to various aspects of the development process, including toxicology, manufacturing, QA/QC, regulatory affairs, and clinical trials design and implementation. During this time I secured SBIR and R01 grant funding to support parts of my research program and was also asked to assume increasing supervisory and administrative responsibilities, eventually serving as Vice President of Research, overseeing a multidisciplinary research staff of approximately 60 scientists and technicians. Responsibilities also included oversight of research teams leading to the description of hepatitis G virus and development of a prototype vaccine candidate for prevention of infection with hepatitis E virus.

Also while at Genelabs Incorporated (later Genelabs Technologies), with Dr. Michael Piatak Jr., I pioneered the development of quantitative PCR/RT-PCR methods for accurate quantitation of HIV viral load, and in collaboration with George Shaw and Mike Saag (University of Alabama, Birmingham) applied these methods to demonstrate that HIV replicates actively through all phases of the infection, including the asymptomatic clinically "latent" phase that had been thought to be virologically latent as well. In additional collaborative studies with Drs. Shaw and Saag, quantitative RT PCR assays were also used in initial studies of viral dynamics, leading to further important paradigm shifts in understanding basic aspects of HIV pathogenesis.

In 1995 I moved to the National Cancer Institute in Frederick Maryland, accepting a position as a Head of the Retroviral Pathogenesis Laboratory of the AIDS Vaccine Program at Science Applications International Corporation, Frederick, the Prime Contractor for all Operations and Technical Support activities on the NCI Frederick campus, a Government Owned, Contractor Operated Federal Research and Development

Facility. Since moving to NCI, my work has emphasized studies in experimental SIV infection in non-human primates, developing and refining assays for sensitive, accurate monitoring of SIV viral load, allowing characterization of viral dynamics in the SIV/macaque model. I also developed a model of transient early antiretroviral treatment in SIV infected macaques as an approach to better understand AIDS virus pathogenesis and define the requirements for effective vaccine control of infection in the event that sterilizing immunity cannot be achieved. I have also led efforts to characterize, both in vitro and in vivo, a novel form of chemically inactivated virion vaccine immunogen with functional envelope glycoproteins, which is showing promise in studies in non-human primate models of both prophylactic and therapeutic vaccination, and proving useful as an in vitro reagent in a variety of applications. In my current position as Director of the AIDS Vaccine Program, I am responsible for an interactive multidisciplinary research team of more than 50 staff, and research activities that range in scope from fundamental studies in molecular retrovirology through protein chemistry and strucutural biology to classical virology and immunology and whole animal pathogenesis and candidate vaccine evaluation studies in non-human primates.