Encyclopedia of AIDS

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Editors-in-Chief

Encyclopedia of AIDS

With 341 Figures and 123 Tables

Springer

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Preface

The HIV/AIDS epidemic has spanned the past three-and-a-half decades. During this time, the epidemic has caused suffering on a global scale. In the fight to end this epidemic, researchers, healthcare agencies, and governments have mobilized and, as a result of these efforts, have fundamentally altered the course of the epidemic and transformed the prognosis for millions of individuals living with HIV/AIDS. Research has been central to the effort to control the HIV/AIDS epidemic. Early studies aimed at defining key processes in the viral replication cycle helped promote the identification of antiviral agents that have dramatically altered the outlook for infected individuals. This has created a *status quo* where HIV-1 infection is no longer a death sentence but a manageable, chronic infection. Now the frontier in the fight against HIV/AIDS has shifted to preventing infection, either through use of antivirals or through development of a vaccine. The field has also embarked on seeking ways to eliminate the virus from infected individuals. The hope is that these endeavors will bring an end to the “Age of AIDS.”

The human endeavor around three-and-a-half decades of research on HIV/AIDS has produced a large body of scientific information. There are many excellent treatises that have focused on condensing and highlighting different areas of the HIV/AIDS field. Therefore, why an AIDS Encyclopedia? Do we really need another work to summarize what we know about HIV/AIDS?

The AIDS Encyclopedia represents an AIDS “Wikipedia.” It is a dynamic, online reference work that can be updated by researchers and by editors that will be able to keep pace with developments in the field. The ability to continuously update the encyclopedia essentially means that it will retain its relevance as an easily accessible and important source of information for students, researchers, and clinicians whether they be working in academia, industry, or the hospital sectors.

Work on the encyclopedia began in 2010 and has seen fruition, thanks to the efforts of many individuals. The editors would like to thank Ms. Tina Shelton, Ms. Rita Beck, and Ms. Sunali Mull at Springer for much of the groundwork in structuring the project and maintaining timelines. Thank you for your persistence and commitment to bringing the project to completion. We would also like to thank the sub-editors who took on responsibility for the 282 individual chapters. We hope the research community will further help in keeping the AIDS Encyclopedia an important and current reference work for the

HIV/AIDS field, and we welcome contributions in this regard. Finally, the editors would like to acknowledge individuals living with HIV/AIDS who, by participating in research studies, have been central in the effort to end this epidemic.

Chicago, IL, USA
La Jolla, CA, USA
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August 2017

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Section Editor: *Babafemi O. Taiwo*

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Section Editor: *Daniel J. Feaster and Allan E. Rodriguez*

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Section Editor: *Lisa R. Metsch*

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Circumcision and AIDS

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Section Editor: *Hansjakob Furrer*

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Section Editor: *Robert Yarchoan*

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Section Editor: *Sten H. Vermund*

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Section Editor: *Monsef Benkirane and Nadine Laguette*

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Section Editor: *Frank Kirchhoff*

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Section Editor: *Amalio Telenti*

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Section Editor: *Dennis L. Kolson*

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Section Editor: *Marshall J. Glesby*

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Thomas J. Hope is currently a Professor at Northwestern University in the Departments of Cell and Molecular Biology and Obstetrics and Gynecology in the Feinberg School of Medicine and Professor in Biomedical Engineering in the Robert R. McCormick School of Engineering in Chicago, IL. He received his Ph.D. from the University of California, Berkeley, in Immunology. Tom began to study HIV in 1988, during his postdoctoral training at UC, San Francisco. He was one of the pioneers to utilizing the methods of cell biology to study HIV. In 2004, Tom was selected as an Elizabeth Glaser Scientist. For more than two decades, Tom has combined this cell biology approach, supplemented with molecular biology, biochemistry, and genetics, to study various aspects of HIV from virus entry, uncoating, and assembly to defining the earliest steps of sexual transmission and developing interventions to decrease transmission. Tom is currently the Editor-in-Chief of *AIDS Research and Human Retroviruses*, a Section Editor of *PLoS Pathogens*, serves on editorial boards and NIH/NIAID review panels, is a past co-organizer of HIVR4P, Keystone HIV, and Cold Spring Harbor retroviruses, and currently presents and teaches worldwide.

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Dr. Richman joined the University of California, San Diego (UCSD), in 1976 and is currently Distinguished Professor of Pathology and Medicine and holds the Florence Seeley Riford Chair in AIDS Research. He is Director of the Center for AIDS Research at UCSD, and he attends in infectious diseases at the San Diego VA Healthcare System. He is a Fellow of the American Association for the Advancement of Science, the American Association of Physicians, and the Infectious Disease Society of America.

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Dr. Mario Stevenson is currently Professor in the Department of Medicine, Chief of the Division of Infectious Diseases, Director of the University of Miami AIDS Institute, Director of the Global Virus Network at the University of Miami, and Co-Director of the Center for AIDS Research. Prior to 2011, Dr. Stevenson was the David Freeland Chair for AIDS Research at the University of Massachusetts Medical School and the Director of the Center for AIDS Research at that institution. Dr. Stevenson obtained his B.Sc. (1980)

and Ph.D. (1984) in Glasgow, Scotland. Dr. Stevenson is a molecular virologist who has been working on the viral etiology of AIDS for over 30 years. Dr. Stevenson has provided insight into the mechanisms regulating HIV replication, persistence, and disease pathogenesis. Dr. Stevenson has served as Chair of the HIV AIDS Virology Study Section at the National Institutes of Health, Chair of the Scientific Advisory Board of the National AIDS Conference (CROI), and has served on the NIH Office of AIDS Research that sets AIDS research directives. From 2006 to 2015, he served as Chair of the Scientific Advisory Board and a member of the Board of Trustees of the American Foundation for AIDS Research (amfAR) and a scientific board member of the Elizabeth Glaser Pediatric AIDS Foundation. Dr. Stevenson is a recipient of Harvard Medical School's Shipley Lectureship, recipient of the Gertrude Elion Award, Schally Research Award, and Barcelona's IRSI-Caixa Award for accomplishments in AIDS research.

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