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Overview of Research Interests and Scientific Accomplishments

Emerging and re-emerging human infectious diseases including viral infections constitute an ever-increasing public health threat with devastating socioeconomic consequences of global proportions. In the last forty years alone, humanity has witnessed a number of devastating viral epidemics such as those caused by Human Immunodeficiency Virus (HIV), the virus that causes the Acquired Immunodeficiency Syndrome (AIDS), Ebola virus and most recently Zika virus (ZIKV) among many others. HIV currently infects significant fractions of the worldwide population and causes chronic disease resulting in a major burden to public health. In the last twenty years, combined antiretroviral drug therapy (CART), has been developed to specifically target HIV-1 with outstanding success, resulting in a dramatic decrease in mortality among HIV-1-infected individuals. However, the genetic variability of HIV-1 constitutes the most striking challenge in effectively treating HIV-1 infection. Specifically, the accumulation of drug resistant mutations during suboptimal therapy severely affects the clinical benefits of CART, leading to therapy failure and potentially the transmission of drug-resistant HIV-1 strains to newly-infected individuals. Furthermore, the transmission dynamics of HIV-1 in human populations in different geographic regions is important in formulating tailored prevention policies including preventive antiretroviral treatment strategies.

For more than two decades, Prof. Kostrikis' research efforts focus, on a translational research program that characterizes human genetic and viral factors responsible for major global viral infectious disease threats, that studies the molecular dynamics of HIV-1 infection and the global spread of HIV-1 drug-resistance and that translates this knowledge into novel therapeutic interventions. Over the years, Prof. Kostrikis has made significant contributions to the study of human genetics in the transmission of HIV-1 and disease progression, the global molecular epidemiology of HIV-1 infection and global transmission drug resistance. He is considered as one of the world's pioneers and top experts in establishing the role of human genetics in the transmission of HIV-1 and progression to AIDS. He has made seminal contributions by creating innovative nucleic-acid-based molecular methodologies and applying them to demonstrate the important implications of natural polymorphisms found in human chemokine receptor genes in the transmission of HIV-1 and disease progression by utilizing well-established American and European HIV/AIDS study cohorts. He is a cofounder of the European Society for Translational Antiviral Research (ESAR) and the founder of the Cyprus HIV-1 Transmission Cohort Study (CHICS) with a number of seminal publications. The results of his studies have a direct impact on the clinical care of HIV-1-infected individuals including Cypriot patients and underline the world-wide dedication towards achieving the goal of diminishing new HIV-1 infections and AIDS by taking full advantage of the therapeutic and preventive effects of combined antiretroviral drug therapy. Prof. Kostrikis has now turned his attention to novel concepts in HIV-1 vaccine development and prevention of HIV-1 transmission.

Biography



Leondios Kostrikis is a Professor of Biological Sciences at the University of Cyprus and Head of the Laboratory of Biotechnology and Molecular Virology. He received his *B.Sc.* (1987), *M.Sc.* (1989), *M.Ph.* (1990) and *Ph.D.* (1993) degrees from New York University, United States. This was followed by post-doctoral research at the Aaron Diamond AIDS Research Center of Rockefeller University (New York) on the molecular virology of Human Immunodeficiency Virus. He joined the faculty of the Aaron Diamond AIDS Research Center as a staff investigator in 1998 and the Rockefeller University as an Assistant Professor in 1999. He returned to Cyprus in 2003, joining the University of Cyprus.

He was a Fulbright Scholar for his undergraduate studies in the US and received scholar awards from the Elizabeth Glazer Pediatric AIDS Foundation, the Aaron Diamond Foundation and the Patti Cadby Birch Trust in the US. In 2005 he received an Honorary Distinction from the J. William Fulbright Foreign Scholarship Board for his accomplishments which have contributed to the betterment of the world. He was among the forty Fulbright scholars selected from 250,000 Fulbright alumni from 140 countries since 1946. He has directed over twenty research grants from the US National Institutes of Health (NIH), the European Commission, the Cyprus Research Promotion Foundation (RPF) and international charitable foundations. He is an Editorial Board member for thirteen international journals, and has served on numerous study sections and committees for European and international grant agencies and charities. His laboratory at the University of Cyprus is collaborating with the Cyprus Ministry of Health for the diagnosis of HIV-1 infection and the surveillance of transmission of antiretroviral drug-resistant HIV-1 strains in Cyprus.