THE Flexner DISCOVERY LECTURE SERIES

Upcoming Discovery Lecture:

AJIT VARKI, MBBS (M.D.)

University of California, San Diego
Distinguished Professor of Medicine and Cellular & Molecular Medicine

March 23, 2017
208 Light Hall / 4:00 P.M.

THE Flexner DISCOVERY LECTURE SERIES

PAUL D. BIENIASZ, PH.D.

INTRINSIC CELLULAR DEFENSES AGAINST RETROVIRAL ATTACK

MARCH 9, 2017
4:00 P.M.
208 LIGHT HALL

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DEPARTMENT OF PATHOLOGY, MICROBIOLOGY, & IMMUNOLOGY

VANDERBILT UNIVERSITY
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INTRINSIC CELLULAR DEFENSES AGAINST RETROVIRAL ATTACK

Throughout their evolution, most eukaryotic organisms have frequently been colonized by retroviruses. Indeed, selection pressures imposed by ancient retroviral infections are likely responsible for shaping the array of host defense mechanisms that currently influence susceptibility to modern retroviruses such as HIV-1. The Bieniasz laboratory works on several types of intrinsic defenses to understand the mechanistic details by which they inhibit retrovirus replication, including host molecules that inhibit virion release, block nuclear import, and deplete viral RNA.

PAUL D. BIENIASZ, PH.D.

INVESTIGATOR, HHMI

PROFESSOR AND HEAD,
LABORATORY OF RETROVIROLOGY,
AARON DIAMOND AIDS RESEARCH CENTER,
THE ROCKEFELLER UNIVERSITY

Paul Bieniasz studies the molecular biology of retroviruses and their interaction with host cells. His work on HIV-1 particle assembly includes the initial discovery and characterization of ESCRT pathway in HIV-1 budding, and the development of imaging techniques to quantitatively describe HIV-1 particle genesis. Most recently his group has redefined how HIV-1 selects its RNA genome for packaging into virion particles. The Bieniasz lab was among the first to demonstrate the existence of antiretroviral factors (so called restriction factors) that target the capsid of incoming lentiviruses. His group discovered Tetherin, an antiviral protein that is a target of the HIV-1 Vpu and SIV Nef proteins. Subsequently his group elucidated Tetherin's mechanism of action, demonstrating that it inhibits particle release by acting as a direct tether between nascent virions and the infected cell. More recently his group also discovered that Mx2 exhibits antiviral activity against HIV-1, by inhibiting the nuclear import of incoming capsids. His group have exploited these basic findings on antiviral proteins for the generation of simian-tropic HIV-1 strains that can cause AIDS in monkeys. As well as a particular interest in virion genesis and antiviral proteins, Dr. Bieniasz also has a broad interest in the molecular biology of retroviruses. He pioneered the emerging field of paleovirology, and over his career has published in the areas of HIV-1 entry, post-entry events, and transcription.