Three AIDS Scientists Win NIH Funding for These Unusually Creative Projects

The Avant-Garde Awards promote research in HIV treatment and prevention in drug users.

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Three scientists received 2017 Avant-Garde Awards for HIV/AIDS Research, which highlight novel approaches to HIV prevention and treatment among drug users. According to a press release from the National Institute on Drug Abuse (NIDA), each scientist will receive $500,000 a year for five years for his specific research.

NIDA, which is part of the National Institutes of Health, grants the awards as a way to stimulate high-impact research that could lead to breakthroughs regarding HIV/AIDS among people with substance use disorders.

“With nearly 37 million people living with HIV worldwide, it is essential that researchers continue to develop effective prevention and treatment strategies for those suffering from this devastating disease, including people with substance use disorders,” said NIDA director Nora D. Volkow, MD, in the press release. “These scientists are pioneering exciting new approaches aimed at preventing and treating new cases of HIV and helping people at risk live longer, healthier lives.”

According to the press release, the awardees and their projects are:

Michael Farzan, PhD, The Scripps Research Institute
Project: A safety switch for an effective HIV-1 vaccine
Farzan plans to use preclinical models to explore safe and effective gene therapies for the long-term prevention of HIV infection in high-risk populations, such as injection drug users. He will use an adeno-associated virus to deliver broadly neutralizing antibodies (bNAbs) or eCD4-Ig, proteins that prevent HIV-1 from infecting cells. His group will also explore safety switch mechanisms to control bNAbs and eCD4-Ig, thereby increasing safety during long-term exposure to these molecules.

Eric M. Poeschla, PhD, University of Colorado Denver
Project: Novel approaches to innate immunity against HIV-1 and other coinfection viruses
Poeschla will use animal and human cells to explore the use of viral RNA-dependent RNA polymerase (RdRP) to enhance broad-spectrum (innate) immunity against various viruses, including HIV-1. Evidence suggests that this stable innate immune system activation does not

trigger autoimmunity or inflammatory pathways. This approach may also protect against viruses that infect people with addiction.

Peter S. Kim, PhD, Stanford University
Project: Making the HIV-1 gp41 pocket amenable to small-molecule drug discovery
Kim’s group proposes a strategy that alters the HIV-1 gp41 region, thereby increasing structural rigidity in this region. This will enhance testing of new therapeutics that target the gp41 pocket to prevent HIV infection. Because the pocket is structurally similar across different HIV-1 strains, these therapeutics could treat patients, including people with substance use disorders, who are at higher risk of developing resistance to one or more classes of anti-HIV drugs.
