Antiviral Compounds to Inhibit Enveloped Virus Release

First-in-class broad-spectrum antivirals with lowered risk of resistance

Background
The treatment of viral infections, including AIDS (i.e., the human immunodeficiency virus, HIV), rabies, genital herpes, various liver diseases (hepatitis, B, C, and E), and Ebola, is plagued by the rise of drug resistance. This rapid emergence of drug-resistant variants requires vigilant monitoring by the physician and continuous changing of the drug regimen, which is costly to the payee and difficult for the patient. In addition, the available drugs are designed for use against an individual type of virus, rather than a broad range, thus requiring specific identification of the etiologic agent prior to initiation of treatment which most often is not feasible.

Technology
Dr. Carol Carter, Professor of Molecular Genetics and Microbiology, School of Medicine SBU, has identified a host cell element commonly used by many envelope viruses. Tumor Suppressor Gene product 101 (Tsg101) is a component of the endocytic sorting complex required for transport-I (ESCRT-I) and is exploited to facilitate viral exit from the infected cell by budding from the plasma membrane. Viruses use Tsg101 differently from the manner in which the host cell uses it, thereby minimizing the potential for cell toxicity. Novel compounds that target the viral Tsg101 site are currently in development, and promise a reduced chance of drug resistance with a better safety profile. This strategy eliminates costly and impractical initial diagnostic testing and also circumvents the selection of viral mutations that confer drug resistance.

Patent number:
• Application, US 14/138,053, filed 12/21/13; Additional provisional application filed

Advantages
• Broad Spectrum
• Novel Pathway
• Strong Safety Profile

Applications
• Viral Infection
• HIV, HPV, Hepatitis, Ebola, Rabies

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