PURDUE INNOVATES | Office of Technology Commercialization

HIV-1 Protease Inhibitors Fused Tris-Tetrahydrofuran (Tris-THF) as P2-ligand

A novel class of HIV-1 protease inhibitors offers a tenfold potency increase over current treatments, effectively combating multidrug-resistant strains of HIV.

The AIDS epidemic is one of the most challenging problems in medicine in the 21st century. A retrovirus designated human immunodeficiency virus (HIV) is the etiological agent of the acquired immune deficiency syndrome (AIDS), a complex disease that includes progressive destruction of the immune system and degeneration of the central and peripheral nervous system.

Among many strategies to combat this disease, highly active antiretroviral therapy (HAART) with HIV protease inhibitors (PIs) in combination with reverse transcriptase inhibitors (RTIs) continues to be the first-line treatment for control of HIV infection. This treatment regimen has definitely improved quality of life, enhanced HIV management, and halted the progression of the disease. Today, more people than ever before are living with HIV/AIDS thanks to this first-line treatment. However, despite the impressive success, there remain many challenges to treating this devastating disease, including decreasing both the toxicity and complexity of the treatment regimens. In addition, there is a growing population of patients that are developing multidrug-resistant strains of HIV, and there is ample evidence that these strains can be further transmitted.

Purdue University researchers have designed and synthesized a novel class of HIV-1 protease inhibitors, which show potency 10x greater than that of Darunavir, an FDA-approved inhibitor developed by the same researchers. A number of these inhibitors are very potent against multidrug-resistant HIV-1 variants and could lead to additional drugs used in HIV/AIDS treatment.

Advantages:

-HIV therapeutic with 10-fold potency increase over current standard

-Effective for the treatment of multidrug-resistant strains of HIV

Technology ID

65566

Category

Pharmaceuticals/Small Molecule Therapeutics

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Potential Applications:

-Medical/Healthcare

-Pharmaceuticals

-Drug Development

-HIV/AIDS Treatment

TRL: 2

Intellectual Property:

Provisional-Patent, 2010-09-02, United States | NATL-Patent, 2011-09-02, Canada | NATL-Patent, 2011-09-02, India | PCT-Patent, 2011-09-02, WO | NATL-Patent, 2011-09-02, Japan | NATL-Patent, 2011-09-02, European Patent | NATL-Patent, 2013-02-26, United States | CON-Patent, 2013-10-08, United States | DIV-Patent, 2016-09-08, Japan

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