



Office of Technology Management

Novel compounds for treatment of multi-drug resistant HIV/AIDS

Technology Reference

CV049

Contact

Connie Cleary
Office of Technology Management
1737 West Polk
Suite 312 AOB
MC 682
Chicago, Illinois
60612

ccleary@uic.edu

Phone: 312-996-0447

Fax: 312-996-1995

Inventor

Arun K. Ghosh

Field

Virology

Key Words

HIV

Multi-drug resistance

Protease inhibitors

License Status

Seeking licensing partners

Patent StatusPatents pending
US and Foreign**Overview**

According to the Center for Disease Control (CDC), an estimated 850,000-950,000 people in the United States are infected with the Human Immunodeficiency Virus (HIV), which can cause Acquired Immune Deficiency Syndrome (AIDS). HIV has evolved from a death sentence for all patients to a chronic condition for most. While this is true, HIV can mutate in a way that allows it to become resistant to existing drugs, even when they are given in combination. As a result, people with multi-drug resistant HIV may find themselves without an effective treatment option. In addition to this problem, combination therapy (which includes HIV protease inhibitors (PIs) and HIV reverse transcriptase inhibitors) also has the following limitations:

- High toxicity with a host of complex side effects
- Emergence of multidrug resistant strains that are resistant to current PI's
- Low bioavailability

Technical Summary

Based upon X-ray crystallographic analysis of HIV P1-ligand complexes, inventors at UIC have developed a class of non-peptidyl HIV PIs that are optimized for potency against multidrug resistant strains of HIV. Furthermore, many of the compounds have also demonstrated high bioavailability and low toxicity. Efforts are currently underway for synthesizing analogs for this new class of PIs for testing. .

Benefits

- High potency against multidrug resistant HIV strains
- High bioavailability
- Low toxicity

Areas of Application

- Treatment of wild type HIV
- Treatment of multidrug resistant strains of HIV

Publication

UIC-02031 A Novel Nonpeptidic Protease Inhibitor containing a stereochemically defined fused cyclopentanyltetrahydrofuran potent against multi-PI- resistant HIV-1 in Vitro
<http://www.retroconference.org/2005/cd/PDFs/562.pdf>

Stage of Development

- Industry collaborator tested one of the compounds for activity against multidrug resistant strains; bioavailability and toxicity using in vitro assays validated for other HIV protease inhibitors. UIC 02031 tested and active against multiple PI- resistant strains of HIV with IC50 of 15-38 nM