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Design and Discovery of Functionalized Cp-THF, Tp-THF-based Novel Protease Inhibitors

A promising class of novel HIV-1 protease inhibitors has been developed, demonstrating high potency and a drug-resistance profile with the potential to outperform the current industry standard, Darunavir.

AIDS is an epidemic of global proportion; over 30 million people currently live with HIV/AIDS worldwide. Among many strategies to combat this disease, highly active antiretroviral therapy (HAART) with HIV protease inhibitors in combination with reverse transcriptase inhibitors 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, and today, more people than ever before are living with HIV/AIDS.

However, HIV is quick to develop resistance to new protease inhibitors. As a result, the pharmaceutical industry is continuously searching for new drugs to fight drug-resistant HIV. Darunavir is currently the industry gold standard and has shown the most efficacy in treating drug-resistant HIV strains.

Researchers at Purdue University have designed a series of novel HIV-1 protease inhibitors for treatment of HIV infection and AIDS. These compounds have shown enzyme inhibitory activity and antiviral potency on par with Darunavir. Detailed virological studies suggest drug-resistance profiles with the potential to outperform Darunavir, positioning this promising class of HIV-1 protease inhibitors on deck in the fight against drug-resistant HIV.

Advantages:

-High enzyme inhibitory activity and antiviral potency

-Exceptional drug-resistance profile

Potential Applications:

-Medical/Healthcare

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Category
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