Efficient synthesis of a structure critical for producing the HIV-1 drug, Darunavir

Track Code: 2020-GHOS-68848

Categories:
- Medical/Health
- Pharmaceuticals

Keywords:
- Pharmaceuticals

Researchers at Purdue University have developed an efficient method to synthesize an optically pure sub-unit bis-THF, a key structure for producing the HIV-1 drug Darunavir. Darunavir is the most recent FDA approved HIV-1 protease inhibitor drug for the treatment of patients with HIV-1 infection and AIDS. It is potent against highly multidrug resistant HIV-1 variants and has become the front-line therapy for the treatment of HIV/ AIDS. Current methods of Darunavir synthesis often involve numerous complex steps and the resulting bis-THF may not be optically pure. Further, these methods frequently have high cost associated with the starting materials and reagents and the synthesis time is often lengthy.

Researchers at Purdue University have developed a method that uses optically active sugars to synthesize optically pure bis-THF. This inexpensive and efficient method is beneficial for scaling up the synthesis of Darunavir.
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Technology Validation: Reactions were carried out under an atmosphere of argon. Purification was performed by flash chromatography. Analytical thin layer chromatography, NMR spectroscopy, and mass spectroscopy were conducted on samples for analysis.

Advantages
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-”Æðw cost
-”V 6–Ç’ 66 ÆVB W
-• &öGV6W2 †–v†W" V çF—G’ öb ÷ F–6 ÆÇ’ W&R Æ–pand

Applications
-•@reatment of HIV/Aids
-”G'Vr Ö çV`acture (HIV/AIDS drug products)

People:
- Ghosh, Arun K (Project leader)

- Robinson (DECEASED), William Lewis

Intellectual Property:

Application Date: February 8, 2023
Type: NATL-Patent
Country of Filing: United States
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Issue Date: (None)

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Contact OTC:

Purdue Office of Technology Commercialization
The Convergence Center
101 Foundry Drive, Suite 2500
West Lafayette, IN 47906

Phone: (765) 588-3475
Fax: (765) 463-3486
Email: otcip@prf.org