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Article

The Synthesis of Novel 5ÃƒÂ¢Ã‚Â€Ã‚Â²ÃƒÂ¢Ã‚Â€Ã‚Â•DeoxyÃƒÂ¢Ã‚Â€Ã‚Â•3ÃƒÂ¢Ã‚Â€Ã‚Â²,5ÃƒÂ¢Ã‚Â€Ã‚Â²,5ÃƒÂ¢Ã‚Â€Ã‚Â²ÃƒÂ¢Ã‚Â€Ã‚Â•trifluoroÃƒÂ¢Ã‚Â€Ã‚Â•apiosyl Nucleoside Phosphonic Acid Analogs as Antiviral Agents

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Abstract

Racemic syntheses of novel 5Ãƒ Â¢Ã‚Â€Ã‚Â²Ãƒ Â¢Ã‚Â€Ã‚Â•deoxyÃƒ Â¢Ã‚Â€Ã‚Â•3Ãƒ Â¢Ã‚Â€Ã‚Â²,5Ãƒ Â

¢Ã‚Â²,5Ãƒ Â¢Ã‚Â²Ãƒ Â¢Ã‚Â•trifluoroÃƒ Â¢Ã‚Â•apiose nucleoside phosphonic acid analogs were carried out from 1,3Ãƒ Â¢Ã‚Â•dihydroxyacetone, to be used as antiviral agents. Nucleophilic displacement of the triflate intermediate with diethyl (lithiodifluoromethyl)phosphonate was performed to yield the corresponding (ÃƒÂŽÃ‚±,ÃƒÂŽÃ‚±Ãƒ Â¢Ã‚Â•difluoroalkyl) phosphonate. Condensation successfully proceeded from a glycosyl donor under VorbrÃƒÂƒÃ‚¼ggen conditions to yield the nucleoside phosphonate analogs. Ammonolysis and hydrolysis of the phosphonates yielded the corresponding nucleoside phosphonic acid analogs. Furthermore, the lipophilic prodrug of the adenine derivative was synthesized to increase cellular uptake. The synthesized nucleoside analogs were screened for their antiviral activity against human immunodeficiency virus (HIV)Ãƒ Â¢Ã‚Â•1. The bis(SATE) prodrug of the adenine analog exhibited significant *in vitro* activity against HIVÃƒ Â¢Ã‚Â•1.

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