ABSTRACT

TITLE:	New Antiviral Therapies Inspired by the Study of Naturally Occurring Compounds
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ABSTRACT: Natural products are organic compounds that are produced by plants, fungi, bacteria, and animals that often are used for medicinal purposes. Sattazolin is a natural product reported to exhibit potent antiviral activity, with an ID50 of 1.5 g/mL against herpes simplex virus type 1 (HSV1) and type 2 (HSV2). New treatments for HSV infections are critical considering that much of the world population is infected with some member of the human herpesvirus family. In particular, HSV infections can be life threatening for immunocompromised patients, pregnant women, and newborns. Acyclovir and related nucleoside analogs are currently prescribed for HSV infections, but nucleoside-resistant HSV infections have become more common. Our interest in the synthesis of sattazolin was sparked by these considerations as part of a project to determine the mechanism of action of this and other antiviral natural products and analogs. In addition, we are interested in studying the activity of these acyloins against the related herpesvirus, varicella zoster, as well as other viral strains. Described here is the first total synthesis of (+)-sattazolin, which allowed for the assignment of the previously unknown stereochemistry. More importantly, experiments to unravel the unique mechanism by which sattazolin inhibits viral growth are underway and will be described.