ABSTRACT

TITLE:	Asymmetric Total Synthesis Of The Antiviral Natural Product Sattabacin
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ABSTRACT: Natural products are organic compounds isolated from natural sources: plants, animals, bacteria, and fungi. Natural products and derivatives of natural products comprise more than two-thirds of the drugs approved by the FDA in the last 15 years, and as a result, natural product chemistry remains the major driving force in new drug discovery. Within this context, the sattazolins and sattabacins are natural products isolated from soil bacteria in Italy, and these compounds were found to exhibit potent antiviral activity. Unfortunately, research on these promising antiviral treatments has been hampered by the inability to isolate useful amounts of (+)-sattabacin from the producing soil bacteria. We report an asymmetric total synthesis of (+)-sattabacin allowing access, for the first time, to therapeutically useful amounts of this promising antiviral agent. The synthetic route also led to the determination of the previously unknown absolute stereochemistry of (+)-sattabacin and was used to prepare structural variants of the natural product that will be studied for increased antiviral activity.