EFFICIENT SYNTHESIS OF SPHINGOLIPID AND SPHINGOSINE-TYPE CHEMICAL MEDIATORS OF MICROBIAL ORIGIN

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Sphingolipids and sphingosine-type compounds are widely distributed in nature; they convey a diverse set of signal transduction and stress response pathways and have profound physiological impacts.[1] Despite their recognized importance fully characterized examples of structure-activity relations are still rare. Recently, we became interested in the rosette-inducing sulfonosphingolipids, named RIFs, which induce cell differentiation in the predatory eukaryote choanoflagellate *Salpingoeca rosetta*.[2] We became particularly intrigued by the 6-hydroxy-(4*E*)-sphingenine-containing sulfonolipid named RIF-2 and its inhibitor IOR-1, both produced by the same prey bacterium. To generate the different possible stereoisomers of the (2*S*,3*S*)-6 hydroxy-(4*E*)-sphingenine-containing lipids and to determine the absolute configuration and further analyze the structure-activity relationship of these highly bioactive molecules,[3] we make use of a hydrozirconation addition reaction to Garner's aldehyde and derivatives. Here, we report about the synthesis of several unnatural (2*S*,3S)-6-hydroxy-(4*E*)-sphingenine-containing lipids including a fluorescence-labelled derivative for future biological studies.

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