

Stereoselective synthesis of unnatural (2S,3S)-6-hydroxy-4-sphingenine-containing sphingolipids.

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Abstract

6-Hydroxy-(4*E*)-sphingenine-containing sphingolipids are found in mammalian and bacterial membranes and have multiple intra- and intercellular functions. Most sphingolipids contain a (2*S*,3*R*)-2-amino-1,3-diol core structure, but only limited examples of unnatural (2*S*,3*S*)-2-amino-1,3-diol derivatives have so far been reported. Using an underexplored hydrozirconation-transmetalation reaction and an unusual three-step-one-pot deprotection sequence, we were able to synthesize several unnatural (2*S*,3*S*)-6-hydroxy-(4*E*)-sphingenine-containing sphingolipids in only three (protected) or four (deprotected) consecutive steps, respectively, including a fluorescence-labeled derivative suitable for future biological studies.

Beteiligte Forschungseinheiten

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Leibniz-HKI-Autor*innen



Christine Beemelmans

[Details](#)



Daniel Lechnitz

[Details](#)



Sebastian Pflanze

[Details](#)

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