

Gene cluster activation in a bacterial symbiont leads to halogenated angucyclic maduralactomycins and spirocyclic actinospirols.

Guo H, Schwitalla JW, Benndorf R, Baunach M, Steinbeck C, Görls H, de Beer ZW, Regestein L, Beemelmans C (2020) Gene cluster activation in a bacterial symbiont leads to halogenated angucyclic maduralactomycins and spirocyclic actinospirols. *Org Lett* 22(7), 2634-2638.

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Abstract

Growth from spores activated a biosynthetic gene cluster in *Actinomadura* sp. RB29, resulting in the identification of two novel groups of halogenated polyketide natural products, named maduralactomycins and actinospirols. The unique tetracyclic and spirocyclic structures were assigned based on a combination of NMR analysis, chemoinformatic calculations, X-ray crystallography, and ¹³C labeling studies. On the basis of HRMS2 data, genome mining, and gene expression studies, we propose an underlying noncanonical angucycline biosynthesis and extensive post-polyketide synthase (PKS) oxidative modifications.

Involved units

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