

Biosynthesis of pentangular polyphenols: deductions from the benastatin and griseorhodin pathways.

Lackner G, Schenk A, Xu Z, Reinhardt K, Yunt ZS, Piel J, Hertweck C (2007) Biosynthesis of pentangular polyphenols: deductions from the benastatin and griseorhodin pathways. *J Am Chem Soc* 129(30), 9306-9312. [PubMed](#)

Projects

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Abstract

The benastatins, pradimicins, fredericamycins, and members of the griseorhodin/rubromycin family represent a structurally and functionally diverse group of long-chain polyphenols from actinomycetes. Comparison of their biosynthetic gene clusters (ben, prm, fdm, grh, rub) revealed that all loci harbor genes coding for a similar, yet uncharacterized, type of ketoreductases. In a phylogenetic survey of representative KRs involved in type II PKS systems, we found that it is generally possible to deduce the KR regiospecificity (C-9, C-15, C17) from the amino acid sequence and thus to predict the nature of the aromatic polyketide (e.g., angucycline, anthracycline, benzoisochromanquinones). We hypothesized that the new clade of KRs is characteristic for biosynthesis of polyphenols with an extended angular architecture we termed

Identifier

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