

Biosynthesis of *pseudomonas*-derived butenolides.

Klapper M, Schlabach K, Paschold A, Zhang S, Chowdhury S, Menzel KD, Rosenbaum MA, Stallforth P (2020) Biosynthesis of *pseudomonas*-derived butenolides. *Angew Chem Int Ed* 59(14), 5607-5610.

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Abstract

Butenolides are well-known signaling molecules in Gram-positive bacteria. Here, we describe a novel class of butenolides isolated from a Gram-negative *Pseudomonas* strain: the styrolides. Structure elucidation was aided by the total synthesis of styrolide A. Transposon mutagenesis enabled us to identify the styrolide biosynthetic gene cluster and using a homology search we discovered the related and so-far unknown acaterin biosynthetic gene cluster in another *Pseudomonas* species. Mutagenesis, heterologous expression and identification of key shunt and intermediate products were crucial to propose a biosynthetic pathway for both *Pseudomonas*-derived butenolides. Comparative transcriptomics suggests a link between styrolide formation and the bacterium's regulatory networks.

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