Epidithiodiketopiperazine biosynthesis: A four-enzyme cascade converts glutathione conjugates into transannular disulfide bridges.

Scharf DH, Chankhamjon P, Scherlach K, Heinekamp T, Willing K, Brakhage AA, Hertweck C (2013) Epidithiodiketopiperazine biosynthesis: A four-enzyme cascade converts glutathione conjugates into transannular disulfide bridges. *Angew Chem Int Ed* 52(42), 11092-11095.

Details

PubMed

Abstract

Enzyme quartet: Isolation of the first sulfur-bearing intermediate of the gliotoxin pathway in Aspergillus fumigatus and successful in vitro conversion of the bisglutathione adduct into an intact epidithiodiketopiperazine by a four-enzyme cascade (including glutamyltransferase GliK and dipeptidase GliJ) revealed an outstanding adaptation of a primary metabolic pathway into natural product biosynthesis that is widespread in fungi.

Involved units

Biomolecular Chemistry Christian Hertweck Read more

Molecular and Applied Microbiology Axel Brakhage Read more

Bio Pilot Plant Miriam Agler-Rosenbaum Read more

Leibniz-HKI-Authors



Axel A. Brakhage

Details



Pranatchareeya Chankhamjon

Details



Thorsten Heinekamp

Details



Christian Hertweck

Details



Daniel H. Scharf

Details



Karsten Willing

Details

Identifier

doi: 10.1002/anie.201305059

PMID: 24039048