

Search over **3 million articles** onWILEY
InterScience

Journals

Online Books

Reference Works

Databases

Systems Maintenance, Monday, 14th December 2009

My Cart

My Profile

Log In

Athens Log In

[Home](#) / [Chemistry](#) / [Biochemistry](#)**Frontiers of Chemistry:**
From Molecules to Systems
Symposium on 21st May 2010 in Paris**Celebrating 10 Years of**
CHEMPHYSCHEM
CHEMBIOCHEM**ChemBioChem****Early View (Articles online in advance of print)**

Published Online: 8 Dec 2009

Copyright © 2009 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim

- [Get Sample Copy](#)
- [Recommend to Your Librarian](#)
- [Save journal to My Profile](#)
- [Set E-Mail Alert](#)
- [Email this page](#)
- [Print this page](#)
- [RSS web feed \(What is RSS?\)](#)

A Journal of

[Go to Society Site](#)
[Save Article to My Profile](#)
[Download Citation](#)
[Request Permissions](#)
< [Previous Abstract](#) | [Next Abstract](#) >**Abstract** | [References](#) | Full Text: [PDF](#) (Size: 331K) | [Related Articles](#) | [Citation Tracking](#)

Full Paper

The Thioesterase Bhp is Involved in the Formation of β -Hydroxytyrosine during Balhimycin Biosynthesis in *Amycolatopsis balhimycina*Sri Mulyani, Dr. ^{1,2}, Ellen Egel ¹, Claudia Kittel, Dr. ³, Suada Turkanovic ⁴, Wolfgang Wohlleben, Prof. ³, Roderich D. Süssmuth, Prof. ⁴, Karl-Heinz van Pée, Prof. ^{1*}¹Biochemistry, TU Dresden, 01062 Dresden (Germany), Fax: (+49) 351-463-35506²Prodi P. Kimia, FKIP, Universitas Sebelas Maret, Jl. Ir. Sutami 36 A, Surakarta 57126 (Indonesia)³Lehrstuhl für Mikrobiologie/Biotechnologie, Eberhard-Karls-Universität Tübingen, Auf der Morgenstelle 28, 72076 Tübingen (Germany)⁴Institut für Chemie/FG Organische Chemie, Technische Universität Berlin, TC Gebäude TC2, Strasse des 17. Juni 124, 10623 Berlin (Germany)**email:** Karl-Heinz van Pée (karl-heinz.vanpee@chemie.tu-dresden.de)*Correspondence to Karl-Heinz van Pée, ¹Biochemistry, TU Dresden, 01062 Dresden (Germany), Fax: (+49) 351-463-35506**Funded by:**

- The World Bank
- Deutsche Forschungsgemeinschaft; Grant Number: DFG Pe 438/16-1 and 16-2, DFG Su 239/3-3
- EU; Grant Number: COMBIG-TOP-LSHB-CT-2003-503491

KEYWORDS

antibiotics • balhimycin • beta-hydroxytyrosine • glycopeptides • thioesterases • vancomycin

ABSTRACT

The putative hydrolase gene *bhp* from the balhimycin biosynthetic gene cluster has been cloned and overexpressed in *Escherichia coli*. The corresponding enzyme Bhp was purified to homogeneity by nickel-chelating chromatography and characterized. Although Bhp has sequence similarities to hydrolases with “haloperoxidase”/perhydrolase activity, it did not show any enzymatic activity with standard “haloperoxidase”/perhydrolase substrates (e.g., monochlorodimedone and phenol red), nonspecific esterase substrates (such as *p*-nitrophenyl acetate, *p*-nitrophenyl phosphate and *S*-thiophenyl acetate) or the model lactonase substrate dihydrocoumarin. However, Bhp could be shown to catalyse the hydrolysis of *S*- β -hydroxytyrosyl-*N*-acetyl cysteamine thioester (β -OH-Tyr-SNAC) with 15 times the efficiency of *S*-L-tyrosyl-*N*-acetyl cysteamine thioester (L-Tyr-SNAC). This is in agreement with the suggestion that Bhp is involved in

balhimycin biosynthesis, during which it was supposed to catalyse the hydrolysis of β -OH-Tyr-S-PCP (PCP=peptidyl carrier protein) to free β -hydroxytyrosine (β -OH-Tyr) and strongly suggests that Bhp is a thioesterase with high substrate specificity for PCP-bound β -OH-Tyr and not a "haloperoxidase"/perhydrolase or nonspecific esterase.

Received: 29 September 2009

DIGITAL OBJECT IDENTIFIER (DOI)

10.1002/cbic.200900600 [About DOI](#)

Related Articles

- Find other [articles](#) like this in Wiley InterScience
- Find articles in Wiley InterScience written by any of the [authors](#)

Wiley InterScience is a member of CrossRef.



[Request Reprint](#)



[Copyright](#) © 1999-2009 [John Wiley & Sons, Inc.](#) All Rights Reserved.