

Bimodular peptide synthetase SidE produces fumarylalanine in the human pathogen *Aspergillus fumigatus*.

Steinchen W, Lackner G, Yasmin S, Schrettl M, Dahse HM, Haas H, Hoffmeister D (2013) Bimodular peptide synthetase SidE produces fumarylalanine in the human pathogen *Aspergillus fumigatus*. *Appl Environ Microbiol* 79, 6670-6676.

[Details](#)



Abstract

The filamentous mold *Aspergillus fumigatus* causes invasive aspergillosis, a potentially life-threatening infectious disease, in humans. The *sidE* gene encodes a bimodular peptide synthetase and was shown previously to be strongly upregulated during initiation of murine lung infection. In this study, we characterized the two adenylation domains of SidE with the ATP-[(32)P]pyrophosphate exchange assay in vitro, which identified fumarate and l-alanine, respectively, as the preferred substrates. Using full-length holo-SidE, fumarylalanine (FA) formation was observed in vitro. Furthermore, FA was identified in *A. fumigatus* culture supernatants under inducing conditions, unless *sidE* was genetically inactivated. As FA is structurally related to established pharmaceutical products exerting immunomodulatory activity, this work may contribute to our understanding of the virulence of *A. fumigatus*.

Beteiligte Forschungseinheiten

[Infektionsbiologie Peter F. Zipfel](#) [Mehr erfahren](#)

[Pharmazeutische Mikrobiologie Dirk Hoffmeister](#) [Mehr erfahren](#)

Leibniz-HKI-Autor*innen



Hans-Martin Dahse

[Details](#)



Dirk Hoffmeister

[Details](#)



Gerald Lackner

[Details](#)

Identifier

doi: 10.1128/AEM.02642-13

PMID: 23974138