Functional Reconstitution of a Fungal Natural Product Gene Cluster by Advanced Genome Editing.

Weber J, Valiante V, Nødvig CS, Mattern DJ, Slotkowski RA, Mortensen UH, Brakhage AA (2017) Functional Reconstitution of a Fungal Natural Product Gene Cluster by Advanced Genome Editing. *ACS Synth Biol* 6(1), 62-68.

Details

PubMed

Abstract

Filamentous fungi produce varieties of natural products even in a strain dependent manner. However, the genetic basis of chemical speciation between strains is still widely unknown. One example is trypacidin, a natural product of the opportunistic human pathogen *Aspergillus fumigatus*, which is not produced among different isolates. Combining computational analysis with targeted gene editing, we could link a single nucleotide insertion in the polyketide synthase of the trypacidin biosynthetic pathway and reconstitute its production in a nonproducing strain. Thus, we present a CRISPR/Cas9-based tool for advanced molecular genetic studies in filamentous fungi, exploiting selectable markers separated from the edited locus.

Beteiligte Forschungseinheiten

Molekulare und Angewandte Mikrobiologie Axel Brakhage Mehr erfahren

Biobricks mikrobieller Naturstoffsynthesen Vito Valiante Mehr erfahren

Leibniz-HKI-Autor*innen



Axel A. Brakhage

Details



Derek J. Mattern

Details



Vito Valiante

Details



Jakob Weber

Details

Identifier

doi: 0.1021/acssynbio.6b00203

PMID: 27611015