Engineering fungal secondary metabolism: A roadmap to novel compounds.

Scharf DH, Brakhage AA (2013) Engineering fungal secondary metabolism: A roadmap to novel compounds. *J Biotechnol* 163(2), 179-183. (Review)

Details

PubMed

Abstract

Natural products play important roles not only in the environment but also as useful compounds in various applications like in medicine or plant protection. An enormous number of such compounds have derived from microorganisms colonizing various habitats. Traditionally, new isolates of bacteria or fungi have been screened for their potential to produce biologically active compounds. In the post genomic era, however, there is a growing number of novel methods based on genetic engineering to obtain new metabolites. In this review, we summarize the recent progress made in the development of novel promising approaches for natural product discovery in fungi using genome mining, activation of silent gene clusters, heterologous expression of biosynthesis genes, exchange of enzyme modules as well as redesign of metabolic flux.

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doi: 10.1016/j.jbiotec.2012.06.027

PMID: 22820338