Analysis of differentially expressed genes associated with tryptophan-dependent pigment synthesis in *M. furfur* by cDNA subtraction technology.

Hort W, Lang S, Brunke S, Mayser P, Hube B (2009) Analysis of differentially expressed genes associated with tryptophan-dependent pigment synthesis in *M. furfur* by cDNA subtraction technology. *Med Mycol* 47(3), 248-258.

Details

PubMed

Abstract

Malassezia species are associated with pityriasis versicolor (PV) and its depigmented variant pityriasis versicolor alba (PVa), widespread fungal skin infections in humans. The pathogenesis of PV and PVa remains unclear, including their clinical and histological symptoms such as hyper- and depigmentation, reduced responsiveness to ultraviolet radiation and lack of inflammatory reaction despite high fungal load. Pigments produced by M. furfur are possibly involved in the pathogenesis of PV. In vitro, M. furfur produces a wide range of pigments and fluorochromes when cultured with tryptophan as the sole nitrogen source. We have begun to analyse the molecular basis of pigment production by searching for genes associated with tryptophan-based pigment production. A suppression subtractive hybridization (SSH) protocol was used to identify genes expressed in M. furfur cells producing pigments, but not in non-induced cells. SSH was performed 3 and 5 h after onset of pigment induction. Up-regulation of genes in the pigment-producing cells was confirmed by reverse northern analysis. More than 1,500 cDNA sequences of both the indicated time points

were analysed. We identified a wide variety of genes associated with metabolism and several genes with unknown function are specifically expressed during pigment production. Furthermore, a fraction of genes possibly involved in different steps of the newly discovered indolic pathway of M. furfur were expressed in pigment producing cells. These data provide the first molecular insight into pigment production of M. furfur.

Involved units

Microbial Pathogenicity Mechanisms Bernhard Hube Read more

Leibniz-HKI-Authors



Sascha Brunke

Details



Bernhard Hube

Details

Identifier

doi: 10.1080/13693780802238842

PMID: 18654915