A genome-wide polyketide synthase deletion library uncovers novel genetic links to polyketides and meroterpenoids in Aspergillus nidulans - DTU Orbit (23/12/2018)

Fungi possess an advanced secondary metabolism that is regulated and coordinated in a complex manner depending on environmental challenges. To understand this complexity, a holistic approach is necessary. We initiated such an analysis in the important model fungus Aspergillus nidulans by systematically deleting all 32 individual genes encoding polyketide synthases. Wild-type and all mutant strains were challenged on different complex media to provoke induction of the secondary metabolism. Screening of the mutant library revealed direct genetic links to two austinol meroterpenoids and expanded the current understanding of the biosynthetic pathways leading to arugosins and violaceols. We expect that the library will be an important resource towards a systemic understanding of polyketide production in A. nidulans.

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