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POSTER SESSION ABSTRACTS
CS4T46

Tuesday 5th April
14:00 - 16:00

AERTS David (1), **HAEUR E** (1), **AERNTSHORTS M** (2). **TEERTSTRA WR** (1),
PHIPPEN C (3), **NIELSEN KF** (3), **RAM AFJ** (2), **FRISVAD JC** (3), **WOSTEN HAB** (1)

(1) Microbiology, Department of Biology, Utrecht University, Utrecht, The Netherlands

(2) Department of Molecular Microbiology and Biotechnology, Institute of Biology Leiden, Leiden University, Leiden, The Netherlands

(3) Department of Systems Biology, Technical University of Denmark, Lyngby, Denmark

FumR of *Aspergillus niger* is involved in production of fumonisin and secreted proteins

The sporulation pathway of *Aspergillus niger* represses protein secretion. Colonies of this filamentous fungus secrete proteins throughout the colony except for the sporulating zone. Inactivation of the sporulation gene *flbA* results in colonies that are unable to reproduce asexually and that secrete proteins throughout the mycelium. In addition, the $\Delta flbA$ strain mutant strain shows cell lysis and has thinner cell walls. This pleiotropic phenotype is associated with differential expression of 38 transcription factor genes. Here, one of these regulatory genes, *fumR*, was inactivated. Whole genome expression analysis revealed that 8 out of 63 downregulated genes in $\Delta fumR$ are implicated in amino acid metabolism. In addition, 11 out of 15 genes of the fumonisin biosynthetic gene cluster were strongly downregulated in $\Delta fumR$. This was accompanied by absence of fumonisin production in the deletion strain. When grown dispersed in liquid shaken cultures with xylose as a carbon source, the *fumR* deletion mutant showed reduced protein secretion and a different secretion profile when compared to the wild-type. This phenotype was complemented by adding amino acids to the medium. Taken together, it is concluded that *fumR* is involved in fumonisin production and amino acid production, the latter facilitating protein secretion. As such, *fumR* is an interesting lead for improving *A. niger* as a cell factory.
