



Universiteit  
Leiden  
The Netherlands

## **Carbon starvation in the filamentous fungus *Aspergillus niger***

Nitsche, B.M.

### **Citation**

Nitsche, B. M. (2012, October 23). *Carbon starvation in the filamentous fungus Aspergillus niger*. Retrieved from <https://hdl.handle.net/1887/20011>

Version: Not Applicable (or Unknown)

License: [Leiden University Non-exclusive license](#)

Downloaded from: <https://hdl.handle.net/1887/20011>

**Note:** To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/20011> holds various files of this Leiden University dissertation.

**Author:** Nitsche, Benjamin Manuel

**Title:** Carbon starvation in the filamentous fungus *Aspergillus niger*

**Date:** 2012-10-23

# Stellingen

1. Enrichment analysis of functional annotations can strongly facilitate omics data analysis.

*This thesis*

2. Loss of mycelial integrity and productivity during carbon starvation in submerged cultures of *Aspergillus niger* is not necessarily associated with hydrolytic weakening of the fungal cell wall and subsequent hyphal fragmentation.

*This thesis*

3. The autophagy-related genes *atg1* and *atg8* but not *atg17* are essential for efficient autophagy in *Aspergillus niger*.

*This thesis*

4. Impairment of autophagy accelerates the emergence of empty hyphal compartments and cryptic growth in response to carbon starvation during submerged cultivation of *Aspergillus niger*.

*This thesis*

5. It is worth noting that the term “autophagic cell death” describes autophagy associated cell death rather than cell death executed by autophagy.

*Kroemer et al. (2008) Cell Death and Differentiation (16):3-11*

6. Retentostat cultivation of *Aspergillus niger* approaching a specific growth rate of zero is a promising approach for the production of small cystein rich proteins and secondary metabolites.

*Jørgensen et al. (2010) Applied and Environmental Microbiology (76):5344-55*

7. Not only do open source and open development packages for data analysis such as R and Bioconductor have cost-saving potential, but they have been developed by experts from within the scientific community and thus strongly promote academic independence.

*This thesis and personal communications*

8. It is important to note that the mind can only see what it is prepared to see, in particular during data analysis.  
*Edward de Bono*
9. Like babies, maltose as the sole carbon source in batch cultures of *Aspergillus niger* causes sleepless nights.
10. A biologist capable of automating everyday computational tasks feels like the “One-Eyed Man” in the “Country of the Blind”.
11. It is advisable to watch out for speed traps, even when leaving the Netherlands for good in a removal van!

Benjamin M. Nitsche  
August 26, 2012