

Speaker name: Astrid R. Mach-Aigner, TU Wien, Austria

Title: “Regulatory interplay of a long non-coding RNA and a transactivator in a filamentous fungus”

Short abstract:

In nature, the filamentous fungus *Trichoderma reesei* has a saprotrophic lifestyle. In industry, that property is used for production of carbohydrate-active enzymes such as cellulases. We discovered that an undescribed, intergenic region influences the expression of these enzymes. It turned out that this region actually is transcribed into a long non-coding RNA (HAX1). Interestingly, the length of the most abundantly detected HAX1 is different in different *T. reesei* strains. We observed a relation between the version of HAX1 and the cellulase productivity. The essential transactivator of the cellulases (i.e. the Xylanase regulator 1) activates the encoding genes by binding to their promoter regions. Surprisingly, we found an unusual high number of binding sites for the transactivator on the HAX1 sequence. This raised the questions if and how those two interact and how exactly the regulation of gene expression works on the molecular level. Based on our recent findings we are able to present a model on this regulatory mechanism.

Short bio:

Astrid Mach-Aigner studied Technical Chemistry at TU Wien in Austria. For her PhD-studies she investigated the regulation of gene expression in a filamentous fungus. During that time she was accepted for an industry training at Boehringer Ingelheim in the fields of process design for microorganism fermentation and lead discovery for cancer research. In 2010 she was invited as a postdoctoral researcher to the University of Wageningen in the Netherlands. Back in Austria she completed the requirements for habilitation in the field of Synthetic biology at TU Wien and is currently there head of a research group.

Link lab website:

https://www.vt.tuwien.ac.at/biochemical_technology/synthetic_biology_and_molecular_biot_echnology/EN/