Novel Fungi for biotech-applications

Have you ever heard of the anaerobic fungal phylum „*Neocallimastigomycota*“? If not, you are probably not the only one, since research on this peculiar group is relatively young and cultivation was so far highly frustrating if at all possible … Thanks to recent breakthroughs these fungi and their enzymes can now be used for biotechnological applications!

BACKGROUND

Although a multitude of fungi from the phylum *Neocallimastigomycota* has been around for ages and co-evolved with their herbivorous hosts, they have quite nicely evaded discovery by appearing as motile cells very similar to zooflagellates. It was quite a surprise when chitin in their cell walls unmistakably identified these microorganisms as fungi. They have been identified as common players in the digestive tracts of a multitude of different herbivores (both ruminant and non-ruminant mammals and even reptiles). This came as a surprise since until then their microbiome was thought to consist only of bacteria, archaea and protozoa. Due to their widespread presence in all kinds of herbivores it became clear that they play an essential role in the digestion of fibre-based plant material, being able to degrade the most recalcitrant plant polymers by using their potent enzymes and also via mechanical disruption of lignocellulosic material through their fungal hyphae.

TECHNOLOGY

Cultivation of *Neocallimastigomycota*-representatives often ended in frustration for researchers, since cultivation requirements were not fully understood, and long-term cultivation was often not possible. acib-researcher Dr. Sabine Podmirseg leads an international team to overcome such methodological obstacles and could develop suitable culturing methods and provide basics for up-scale production. Her team performed also NGS-sequencing and investigated the biotechnological potential, discovering enzymes which show high promise towards utilization of recalcitrant lignocellulosic residues and other plant (poly-) saccharides.

OFFER

Under protection of a CDA/NDA we provide you with professional strategies for tapping the potential of *Neocallimastigomycota* for your favourite project. Any IP developed in such a project would fully belong to our investor/industrial partner.

EXPERTS

Dr. Sabine Podmirseg
Prof. Dr. Heribert Insam

AVAILABLE FOR

- Joint Research Project
- Contract Research
- Investments

DEVELOPMENT STATUS

Technology Readiness Level 2
(Technology concept formulated)

IPR

IP will belong to you as our industrial partner/ our clientr

KEYWORDS

- *Neocallimastigomycota*
- Newly discovered strains
- Untapped potential
- Novel Enzymes
- Anaerobic fermentation
- Continuous Cultivation
- Lignocellulosic Residues (LCR)
- Closed Loop Recycling
- Bioreactor

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