**Novel biotechnological applications for the riboflavin producer Ashbya gossypii**

**Supervisors:** Lucília Domingues (UMinho), Merja Penttilä (VTT)

**FCT associated research project:** AshByofactory - Ashbya gossypii: a systems metabolic engineered cell factory

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**Objectives of the PhD**

- Explore Ashbya gossypii’s potentialities as a cell factory organism.
- Engineer A. gossypii as an alternative production system.

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**Work plan**

- Study the effect of different culture media and environmental conditions on protein production and secretion
- Characterize the A. gossypii secretome using computational and analytical approaches
- Characterize the glycan profile of the proteins secreted by A. gossypii
- Develop genetic engineering strategies based on integrated data from the computational, proteomic and transcriptomic analyses performed (Fig. 1)

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**Results**

- Initial research was focused on the posttranslational modifications carried out by A. gossypii when grown in complex and minimal defined medium. The samples collected are being subjected to glycan analysis by mass spectrometry, after which we will have the glycan profile of A. gossypii available.
- Regarding the protein secretion in A. gossypii, computational and proteomic analyses were initiated, but not yet conclusive. Further analyses and protocols optimization need to be performed.

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**Fig. 1 - Schematic work plan**