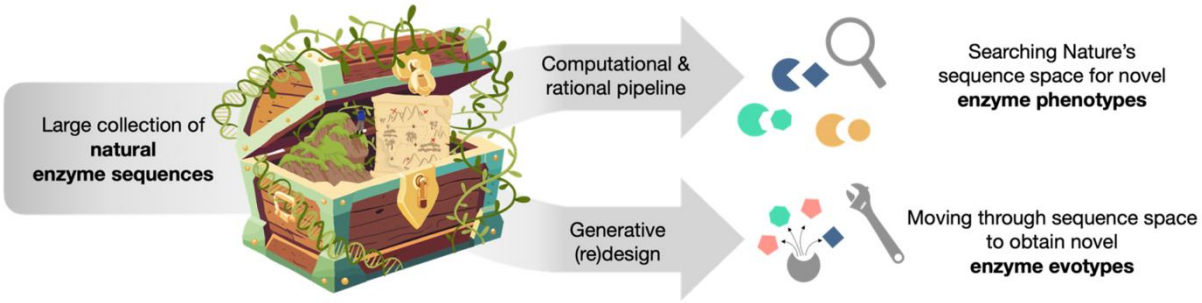
On Expedition in Sequence Space

- a computational search for new phenotypes and evotypes in enzyme families -

The group of Prof. Tom Desmet at **UGent is recruiting two PhD candidates** for a joint FWO-FWF project with Prof. Bernd Nidetzky at TU Graz, where two more positions are available. We aim for August 2026 as starting date but are somewhat flexible. Please contact us via email if you're interested or want more information.

The explosive growth of DNA sequencing has generated huge databases that form a treasure trove of potentially useful enzymes. However, most of these remain uncharacterized, leaving a massive gap between the sequences we have and the biochemical reactions we can exploit. The EXPEDITION project aims to develop a **bioinformatics pipeline that navigates** this vast sequence space to automatically identify enzymes with truly novel properties. Furthermore, the EXPEDITION project also wants to facilitate the optimization of promising enzymes by applying **generative AI models to design** sequences that are more malleable to directed evolution.



At UGent, you will be integrated in a **multidisciplinary research group**, comprising on average 3 postdocs, 10 PhD students and 5 master students. Our main focus is the identification, engineering and application of new enzymes for the production of specialty carbohydrates. We are embedded within the Centre for Synthetic Biology that provides additional technical and analytical support. In Belgium, a **PhD scholarship lasts four years** and offers a generous salary. The university of Ghent is consistently listed in the top 100 of all major academic rankings, and the city of Ghent has a truly vibrant atmosphere, with about 85.000 students on a population of 270.000 inhabitants.

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