

## Master Thesis / Internship

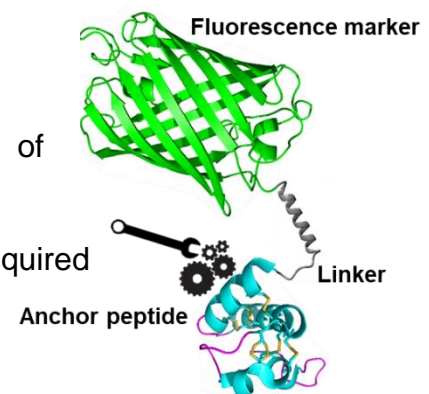
### Directed evolution of anchor peptides to accelerate enzymatic microplastic degradation

**Project:** Microplastics (MPs) steadily accumulate in the environment and especially so in the world's oceans. To face this issue, biotechnological solutions for marine plastic management including enzymatic degradation and peptide-mediated scavenging approaches for MPs are evaluated. Enzymes degrading natural polymers rely on binding domains for efficient depolymerization. Such binding domains were designed by nature over millions of years. In the short period since the discovery of synthetic polymers, however, plastic degrading enzymes (plastizymes) did not yet evolve equivalent binding domains. To this end, your project will focus on the directed evolution of anchor peptides, which strongly and selectively bind to synthetic polymers. Following this, engineered peptides will be fused to plastizymes and evaluated for their impact on microplastic degradation kinetics.

**Methods:** Molecular biology (PCR, Golden Gate, Gibson cloning), fluorescence-based MTP assays, protein expression in *E. coli* and *P. pastoris* (MTP format and shake flask), protein chromatography

#### Your profile:

- Master/Internship student (f/m/d) in the field of biotechnology, biochemistry, biology or related
- Experience with molecular biology techniques is required
- Experience with proteins is advantageous
- Conversational in German and/or English
- Highly motivated and independent person with the drive to learn and create



The position is available from August 2021. For the master thesis, a period of 6 month is planned (with the option of a shorter precedent internship). For research internships, a minimum duration of 6 months is planned.

Contact: Please contact me via e-mail together with your CV and current GPA

Hendrik Pütz, M.Sc., [H.puetz@biotec.rwth-aachen.de](mailto:H.puetz@biotec.rwth-aachen.de)

Lehrstuhl für Biotechnologie

RWTH Aachen University