

ABSTRACT

A growing interest exists in the development of new value chains based on protein-rich deboning residues from the meat and poultry industry. Herein, enzymatic hydrolysis is an attractive refinement process to achieve new products with market potential, but its breakthrough is prevented by the lack of suitable commercial enzymes able to access the recalcitrant bone components. Driven by industrial demands, the ProBone project focuses on streamlining discovery of valuable bone hydrolytic enzymes, by selectively prospecting the unique genes and proteins of the non-cultivable marine bone-degrading microbiome. Despite its resilience, bones are degraded by free-living bacteria as well as symbiotic microorganisms associated to bone-thriving invertebrates in the marine environment. This bone-degrading microbiome is, however, largely unexplored for its biotechnological potential. ProBone aims at delivering an innovative toolbox based on omics technologies and synthetic biology methods, to expedite discovery of active bone-degrading enzymes, and to accelerate the transition from discovery to end-user applications. An international consortium with recognized scientists of complementary expertise in marine biology, microbiology, bioinformatics and biochemistry, will apply and develop a refined computational workflow for gene discovery as well as ground-breaking improvements in recombinant expression and activity assessment. These developments are key to identify tailored enzymes for the emerging bio-based economy.



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CONSORTIUM

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Topic:

- Bone-degrading enzymes

Marine biomass:

- Microorganisms

Source of marine biomass:

- Biobanks and repositories that are held within institutions/companies

Keywords:

Marine microbiome, bone-degrading, meta-omics, toolbox, enzymes

Total costs*: € 1.004.000

Funding granted*: € 940.000

Duration: 3 years (2018-2020)

** Exact amount may change after completion of national contracts*

