CLIB2021 Project:
Biotechnological pathways for functional polymer- and oligomer products;
microorganisms (yeasts and bacteria) as whole cell catalysts (BioCat)

Description:
Aim of this project is the development of stable and recyclable whole cell biocatalysts converting
the transformation of monomeric substrates to functional chiral products which are used in the
pharmaceutical, chemical and/or cosmetic industry. The focus is on the proprietary yeast
systems Hansenula polymorpha and Arxula adeninivorans as well as on Escherichia coli as a
reference organism.

In the end these biocatalysts should be able to replace chemical catalysts or expensive purified
enzymes with specifically designed whole cell biocatalysts.

The scientific challenge of this project is on the one hand the optimization of molecular tools and
methods and on the other hand the utilization of a micro-scale screening tool for the
identification of production strains and mutants as well as the development of a method for
gentle yeast cell wall permeabilisation. Furthermore is it necessary to understand which
membrane transport system in E.coli is required for the correct biological substrate
transformation.

The expected results should strengthen the CLIB 2021 technology-platform “Expression”

period of project: 2008 - 2013

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