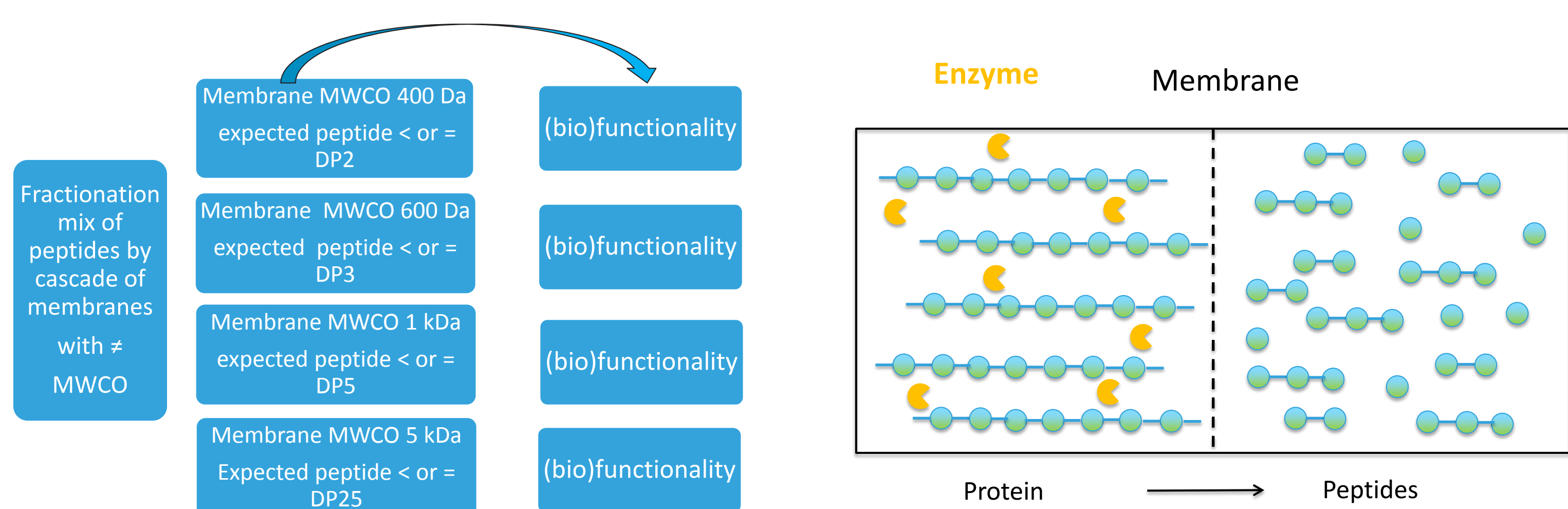


ENZYMATIC HYDROLYSIS OF PROTEINS INTO TAILORED PEPTIDES AND THEIR USE IN DIFFERENT APPLICATIONS

Introduction

- Proteins from different sources can be chemically or enzymatically hydrolyzed into peptides that have different medical, nutraceutical and chemical functionalities.
- Traditional hydrochloric acid hydrolysis may form toxicologically critical substances, and results in high sodium chloride concentrations in the neutralized products.
- The enzymatic processing alternative is more sustainable and environmentally friendly but suffers from enzyme inhibition by the peptides and L-amino acids resulting in the use of high protease activities and long incubation times reducing the economic viability of this procedure.
- On the other hand, enzyme membrane reactors avoid the inefficient use of enzymes, inconsistent products due to batch-to-batch variation, substrate-product inhibition, low productivity and excessive hydrolysis leading to bitter peptides and amino acids instead of peptides.

Hydrolysis of proteins into peptides



by a two-step process: hydrolysis followed by fractionation over membranes with different molecular weight cut off (MWCO)

in a continuous enzyme membrane reactor

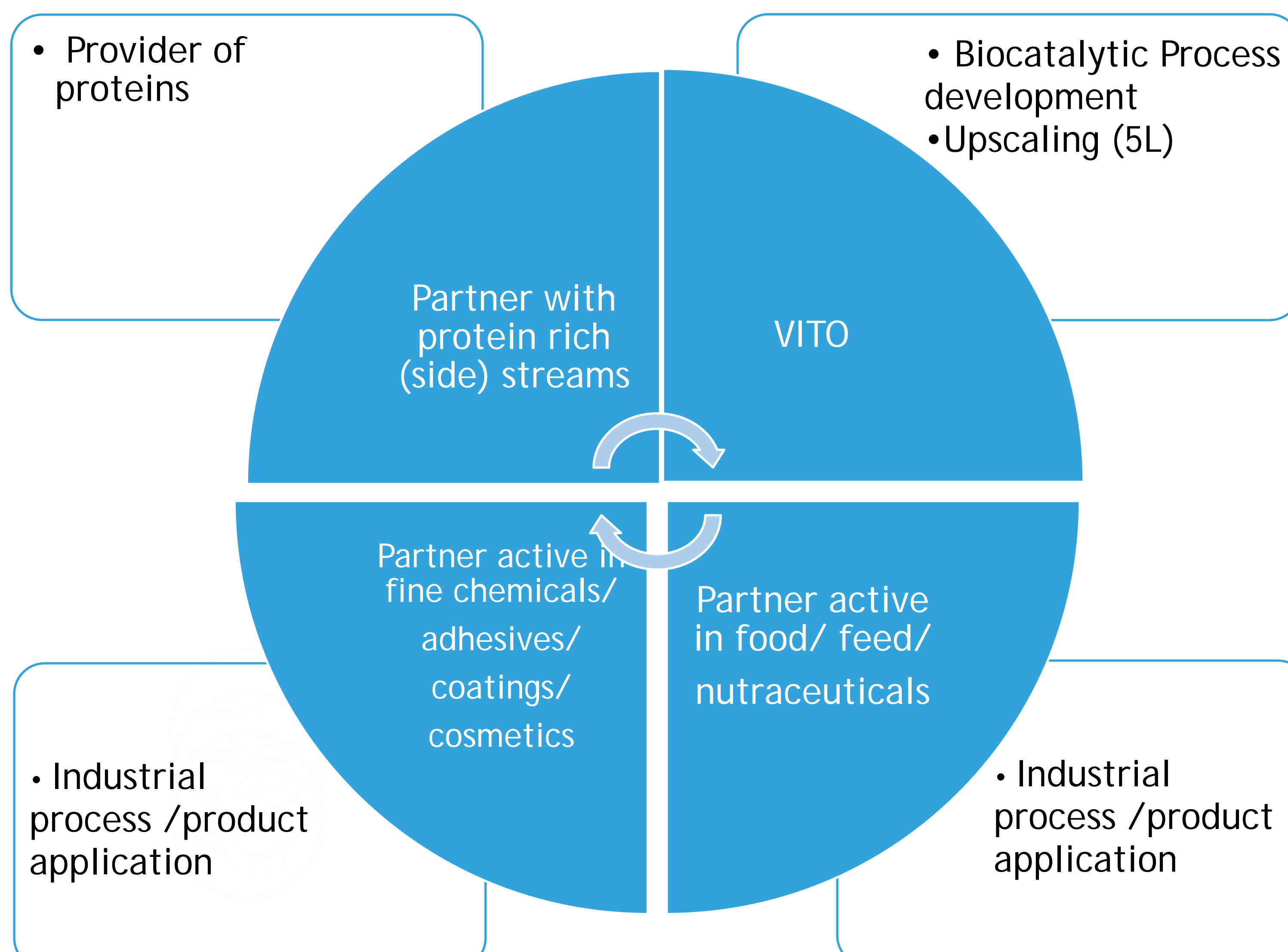
Applications tailored peptides



Functional food, feed & Nutraceuticals

Project aims

- This project aims at the development of a two-step or continuous membrane-assisted enzymatic hydrolysis process for the industrial production of tailored peptides from proteins obtained from different sources.
- The use of membranes will enable the convenient separation of the tailored peptides so peptides with a certain size and functionality will be obtained.
- In addition, the removal of the peptides will decrease enzyme inhibition thereby maximizing yields, productivities and minimizing costs.



For more information:

Roel Vleeschouwers
Roel.vleeschouwers@vito.be
 Kathy Elst
Kathy.elst@vito.be
 Winnie Dejonghe
Winnie.dejonghe@vito.be