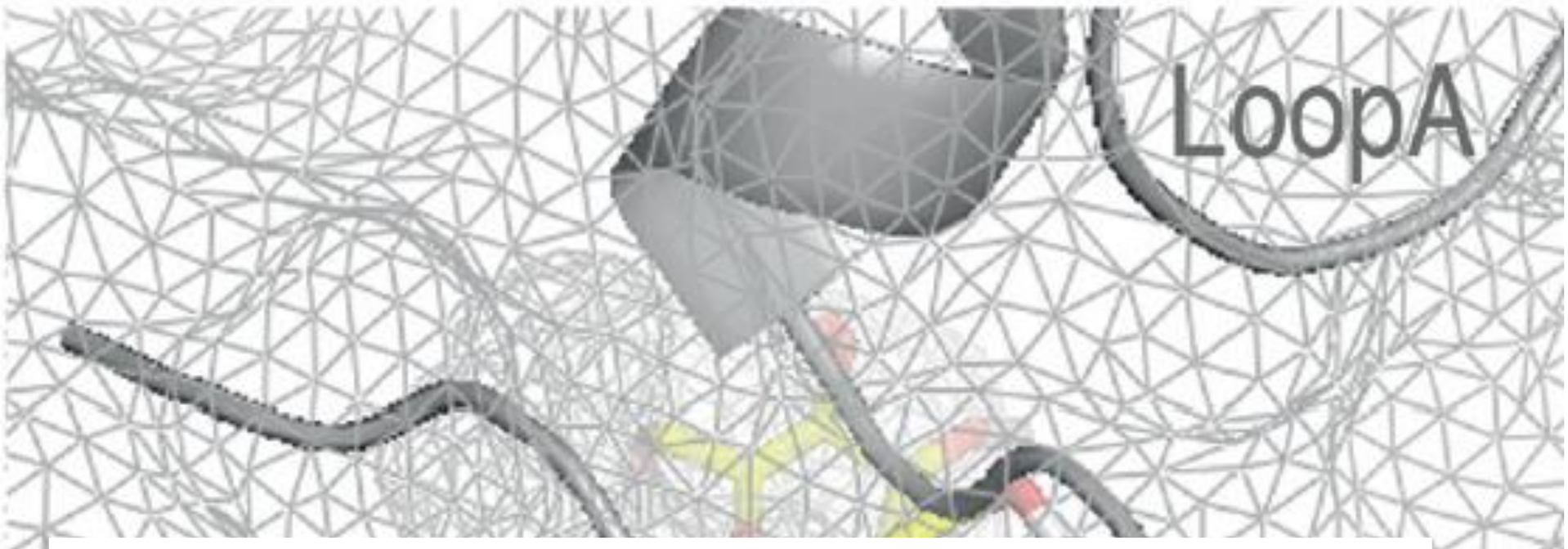


ENZYMATIC SYNTHESIS OF GLYCOSYLATED MOLECULES FOR USE IN FOOD, COSMETICS AND FINE CHEMICALS

Introduction

- Glycosylation can significantly improve solubility and stability of small molecules e.g. vitamins, antibiotics, antioxidants. etc.
- Enzymatic glycosylation can be applied for aglycons ranging from simple phenols such as hydroquinone and pyrogallol, a series of gallate esters, and even polyphenols such as resveratrol, quercetin, and catechin.
- Sucrose is particularly attractive as donor substrate (Figure 1) because it is not only cheap and abundant, but also highly reactive.

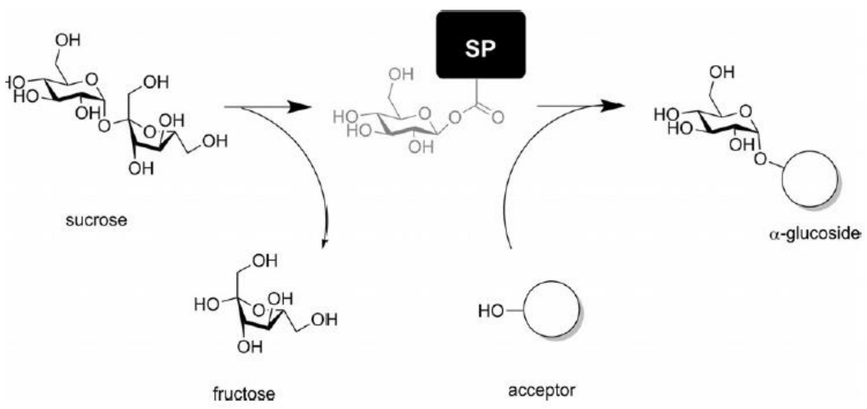


Figure1: α-Glucoside formation by sucrose phosphorylase

Angew Chem Int Ed Engl. 2015, 54(32):9289-92

Applications

Cosmetics

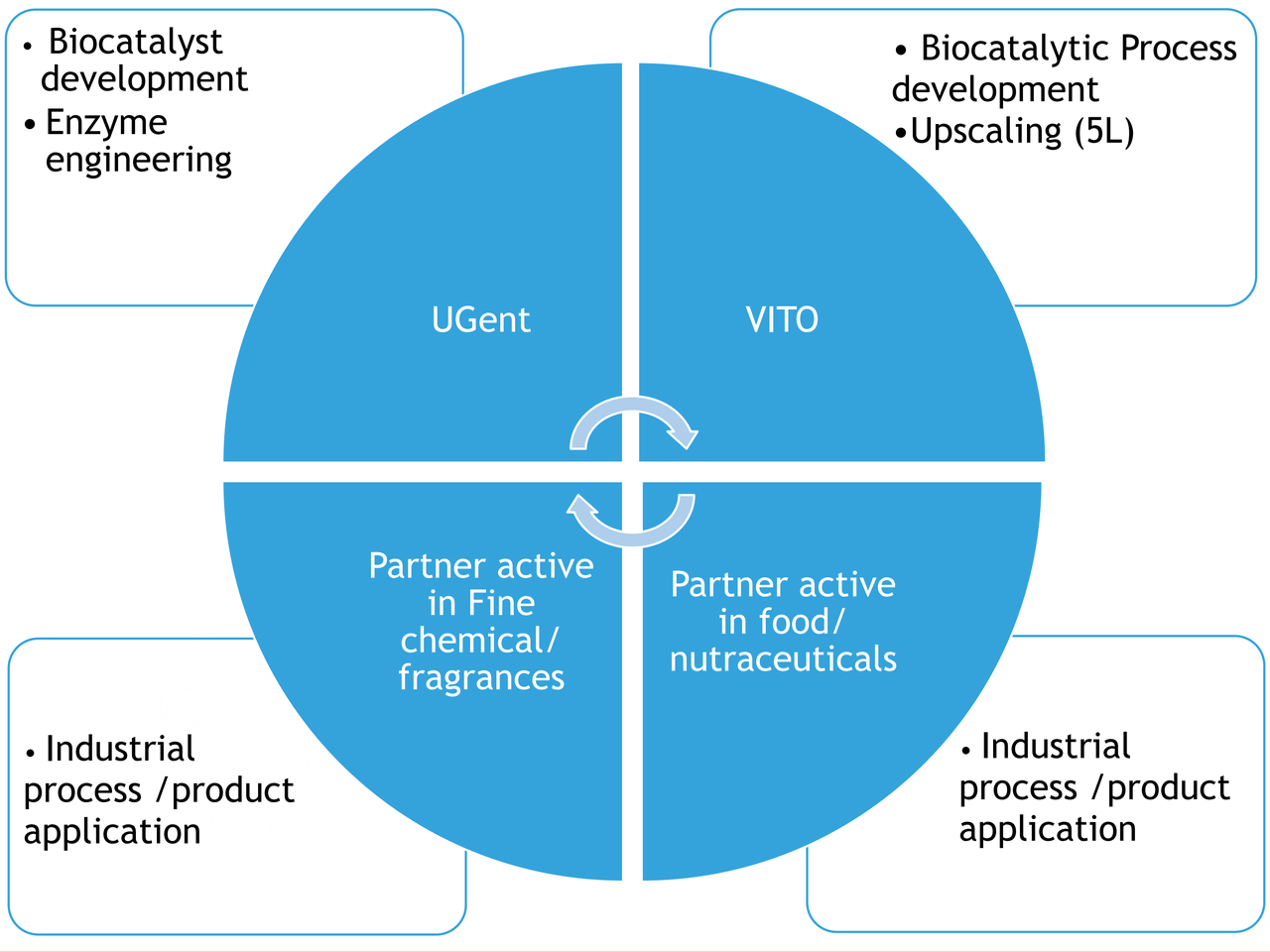
Fine chemicals

Functional foods & Nutraceuticals

http://flextec.net/Nutraceuticals.aspx

Project aim

- This project aims at the development of a membrane-assisted enzymatic glycosylation process for industrially important acceptor molecules.
- The use of membranes will enable the convenient separation of the target product, thereby maximizing yields, productivities and minimizing costs.
- The enzymes to be evaluated in this process are transglycosidases that can use simple sugars as glycosyl donor. Sucrose is our preferred substrate because it results in a degree of conversion (>90%) that cannot be achieved with any other carbohydrate (<50%).



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