

Accelerated Solid Phase Glycan Synthesis ASGS

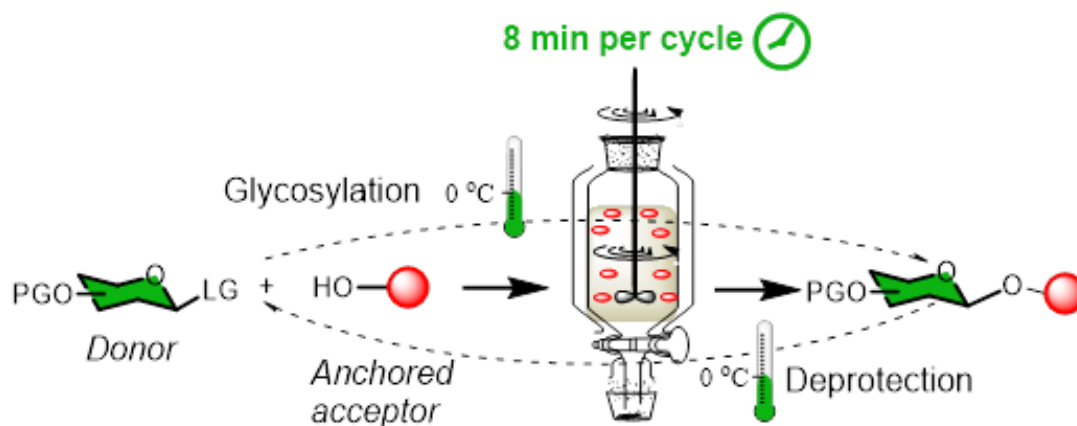
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Solid phase oligosaccharide synthesis is a complicated process. Each step of the assembly is done at different temperatures and under unique reaction conditions. Glycosylation on solid support suffers from poor mixing conditions which leads to diffusion-independent hydrolysis of the activated donors and results in excessive use of expensive glycosyl donors. Sophisticated machinery is used to control the temperature and reaction conditions in order to maximize the efficiency of the process but these manipulations require prolonged reaction times.

In this work, we established a new strategy that utilizes high shear stirring to accelerate solid phase oligosaccharides synthesis. By applying efficient mixing, we show that reactive intermediates can diffuse faster to the solid support thereby increase the kinetics of the reactions. We show that the efficient mixing eliminates the need in using high excess of glycosyl donors and enabled performing extremely fast glycosylation cycles in ambient atmosphere.



Accelerated solid phase glycan synthesis (ASGS), the new approach relies on high shear mixing, it is continuous, performed under constant temperature

Bibliographic references:

Bakhatan Y, Alshanski I, Chan C-K, Lo W-C, Lu P-W, Liao P-H, et al. Accelerated Solid Phase Glycan Synthesis ASGS. ChemRxiv.