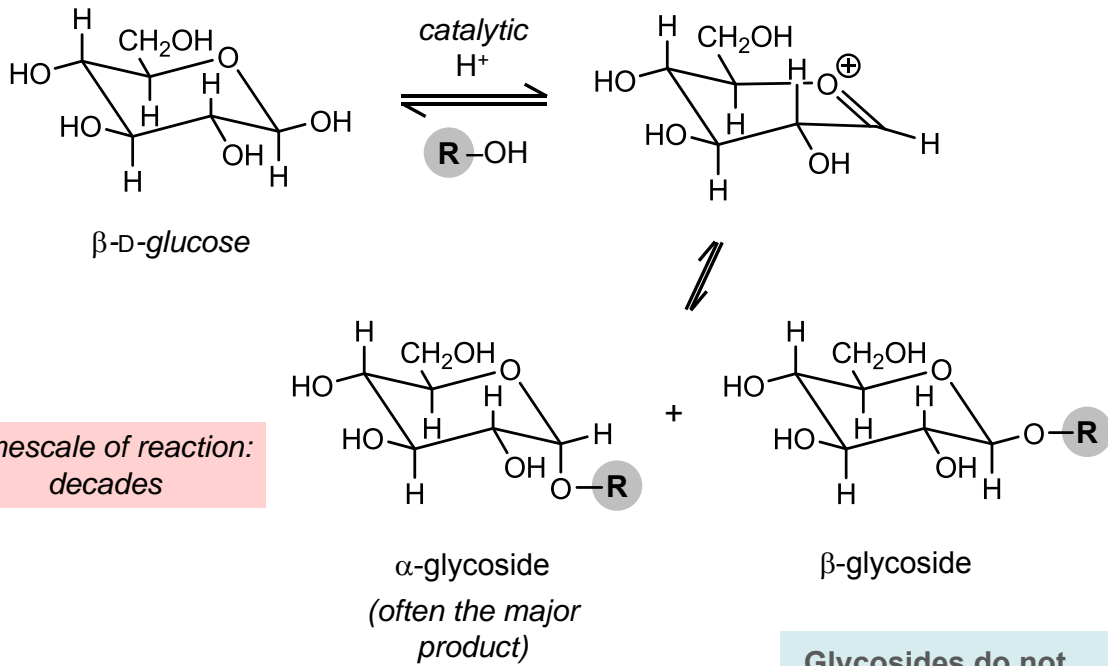
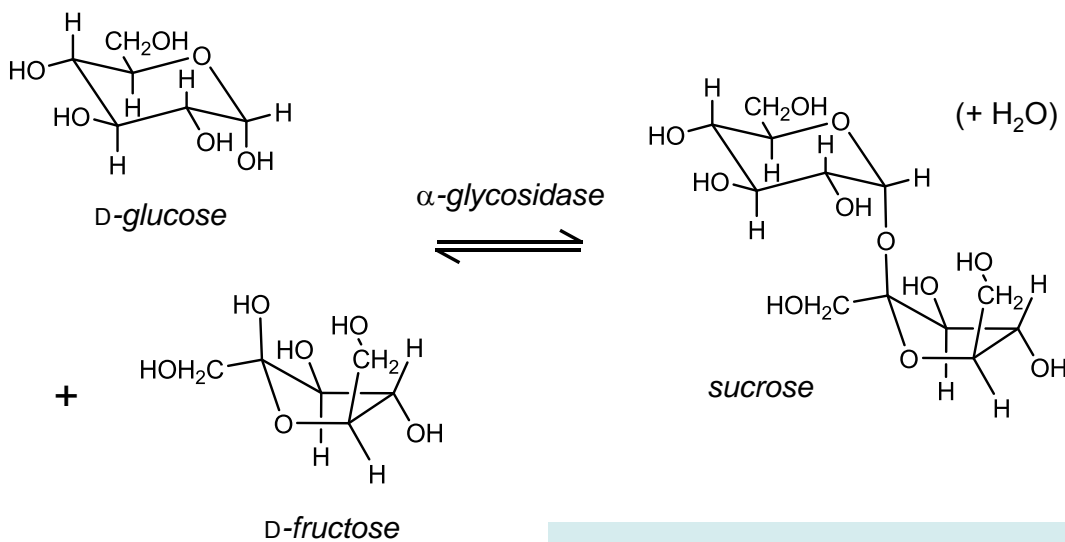


Glycosides



Glycosides do not undergo mutarotation.

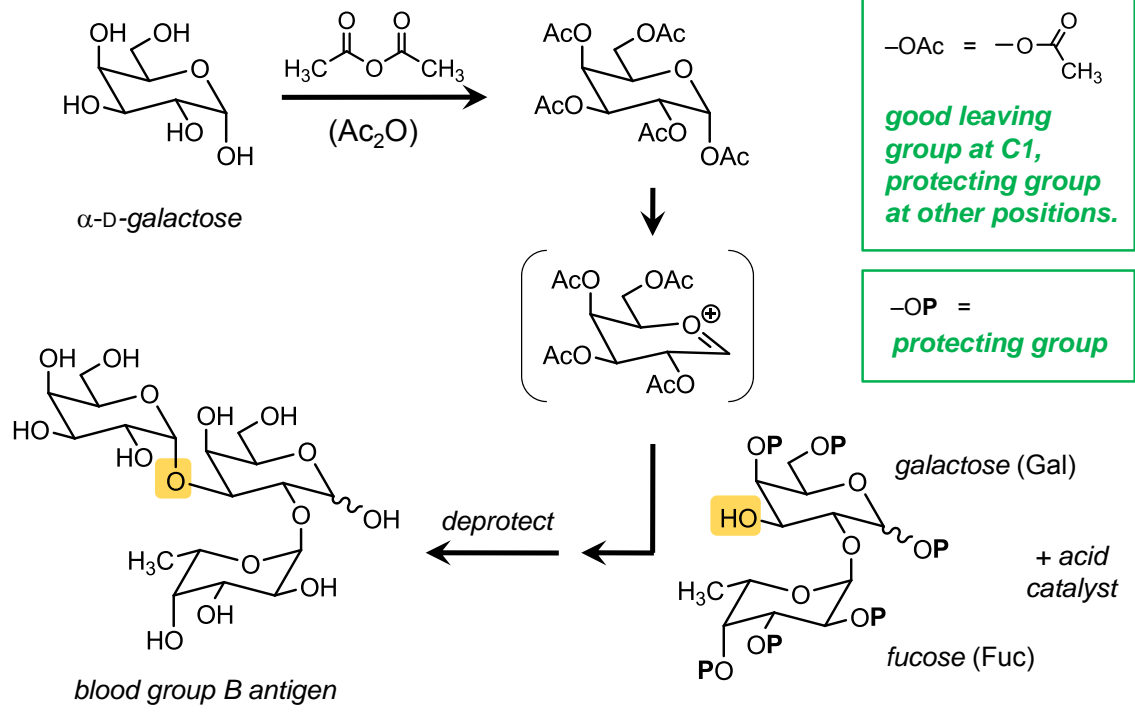
Disaccharides via Enzymatic Glycosidation



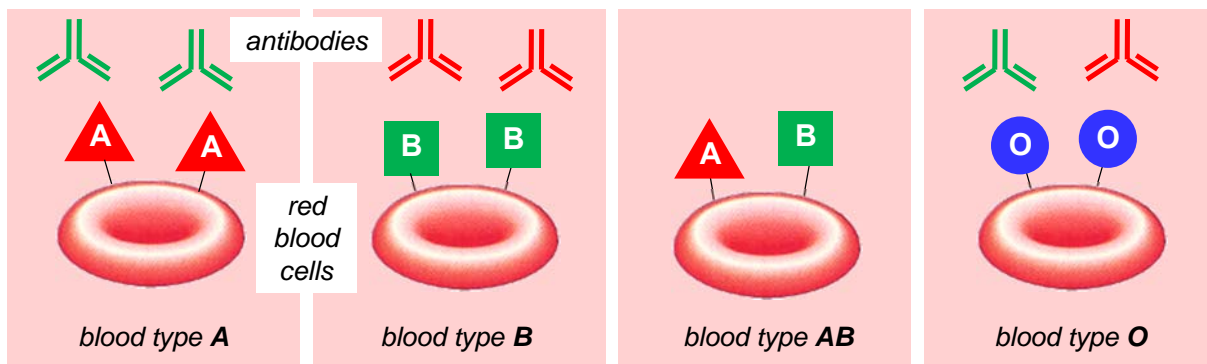
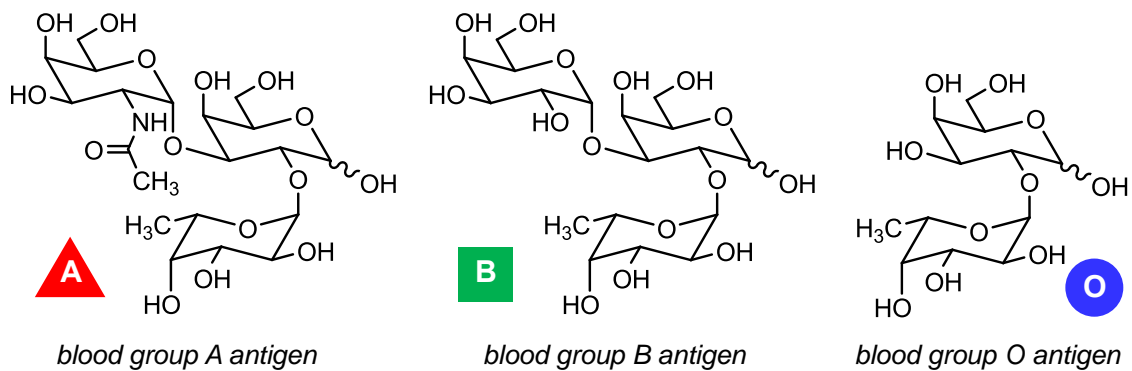
Enzyme catalyst increases reaction rate, makes reaction stereospecific.

In absence of catalyst, at pH 7, reaction too slow to observe.

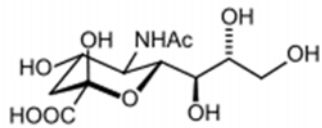
Oligosaccharide Synthesis in the Laboratory



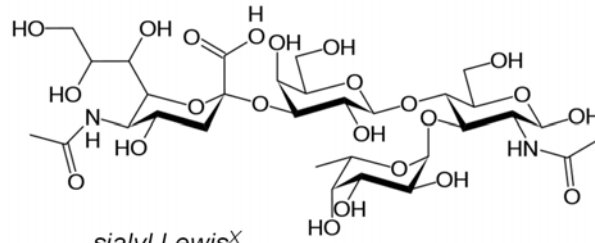
Complex Sugars on Cell Surfaces



Why Synthesize Complex Sugars?



sialic acid

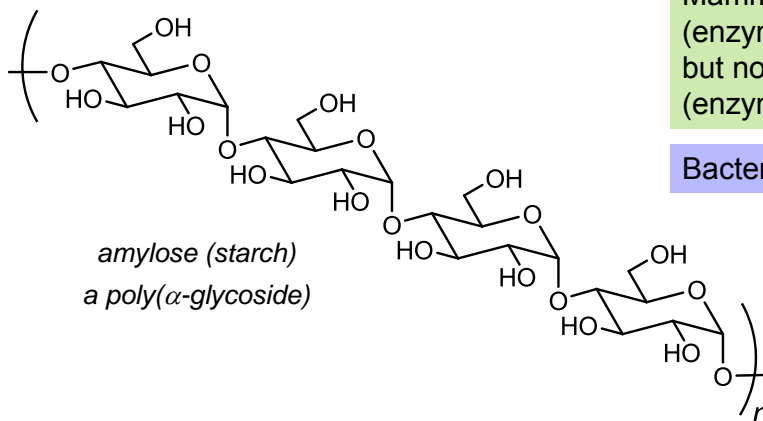


sialyl Lewis^x

Making oligosaccharides allows scientists to

- test biological function of sugars
- create vaccines (e.g., meningococcus vaccine) and pharmaceuticals (daunomycin)

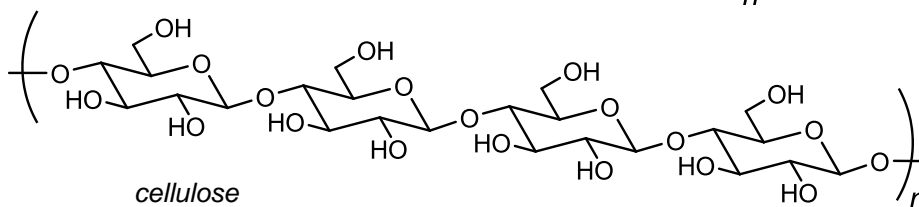
Polysaccharides



amylose (starch)
a poly(α -glycoside)

Mammals have amylases
(enzymes that digest amylose)
but not cellulases
(enzymes that digest cellulose).

Bacteria have cellulases.



cellulose
a poly(β -glycoside)