CONCEPT: MONOSACCHARIDES — CYCLIZATION

In aqueous solutions, monosaccharides are most stable in a cyclic form.

□ Furanose = ___-carbon cyclic sugar

□ Pyranose = ___-carbon cyclic sugar

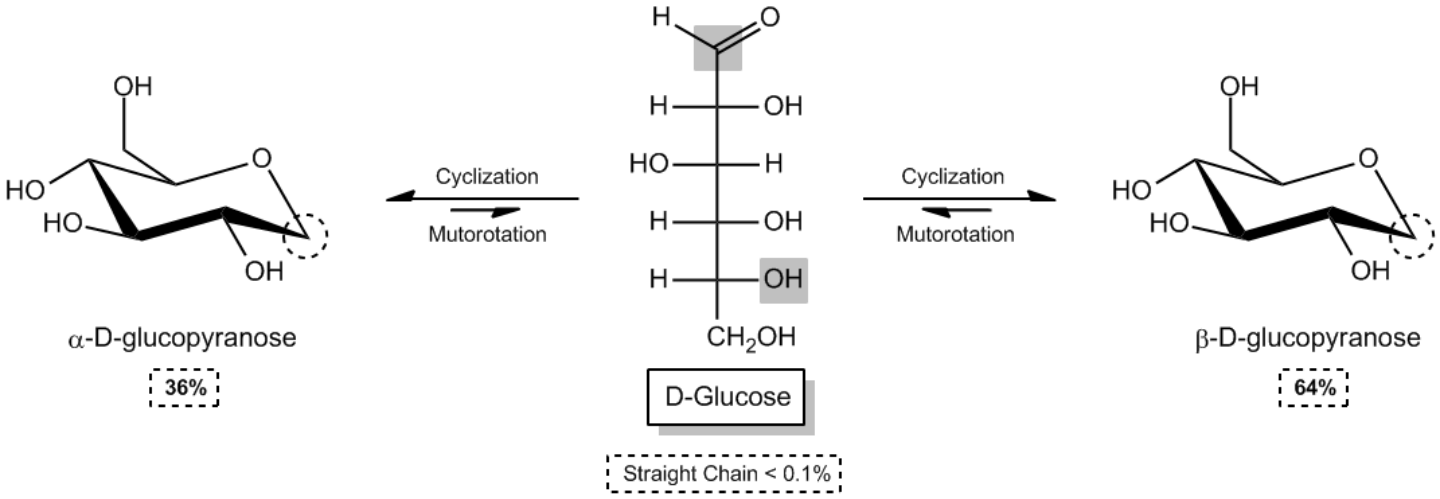
● *Nucleophilic addition* of the ***penultimate alcohol*** to the electrophilic carbonyl carbon leads to cyclization

□ The carbonyl carbon is _____, so it can be attacked from either the top or bottom

□ When monosaccharides *cyclize*, two different C-1 *epimers* are possible. These are known as ***anomers***

- The α-anomer = anomeric oxygen is _____ with the *stereodescriptor* (C-5) carbon

- The β-anomer = anomeric oxygen is _____ with the *stereodescriptor* (C-5) carbon



□ The OH's on the _____ in the straight chain point _____ in the ring

□ The OH's on the _____ in the straight chain point _____ in the ring

"Downright"

- D-Sugars: *Stereodescriptor* (C-5) faces _____ on the ring

PRACTICE: Draw the β-anomer predicted through the cyclization of D-mannose.