

One distinguishes between  $\alpha$ - and  $\beta$ -glycosidic bonds based on the relative stereochemistry of the anomeric position and the stereocentre furthest from C1 in the saccharide. In D-hexose sugars in their pyranose forms, an  $\alpha$ -glycosidic bond is formed in an axial orientation, whereas a  $\beta$ -glycosidic bond will be oriented equatorially. Two anomers are designated alpha ( $\alpha$ ) or beta ( $\beta$ ), according to the configurational relationship between the anomeric centre and the anomeric reference atom. The anomeric centre in hemiacetals is the anomeric carbon C-1, which is attached to the hemiacetal oxygen (in the ring) and in hemiketals carbon C-2, attached to the hemiketal oxygen. In aldohexoses and smaller carbohydrates the anomeric reference atom is the furthest chiral centre in the ring (the configurational atom, defining the sugar as D or L). In  $\alpha$ -D-glucopyranose the reference atom is C-5. If the anomeric centre and the anomeric reference atom have opposite stereochemistries, this is an alpha linkage. If they have the same stereochemistry, this is a beta linkage.