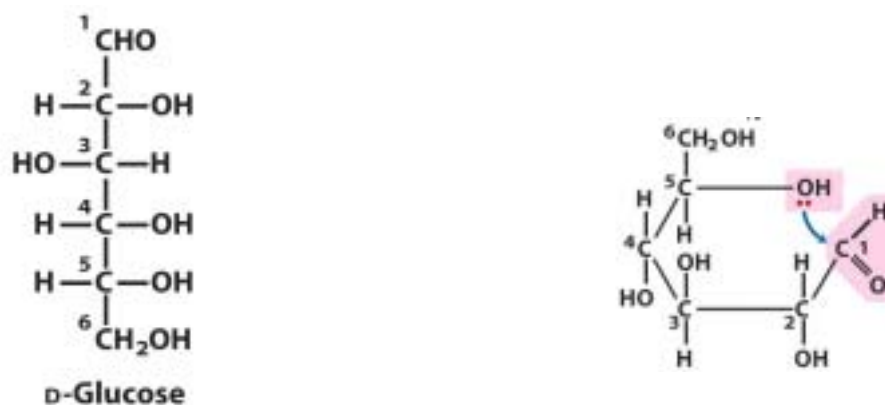


台大生化科技學系 生化實驗
 分子模型建構—碳水化合物
 楊健志

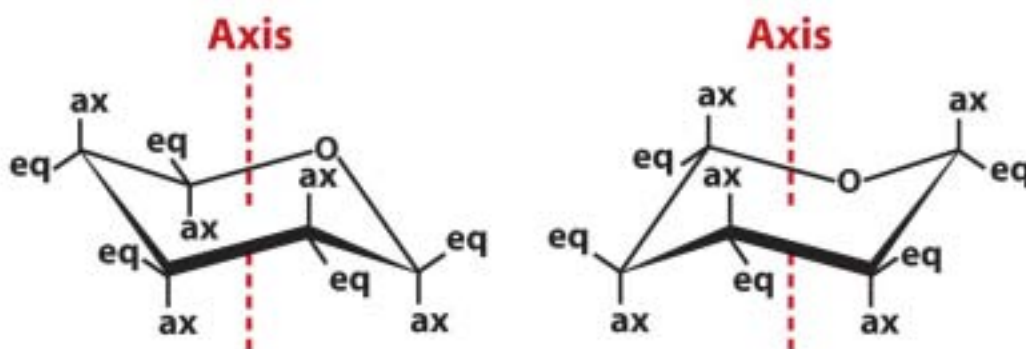
In this practical, you will learn how to build models for carbohydrate starting from monosaccharide. We will employ the plastic model available from HGS/Maruzen, Japan. **Please check the quantity for all parts are correct as listed in the box.** 請助教協助清點，離開前需由助教確認數量無誤始可離開。

Step 1. Build a glucose based on the Fischer projection shown below (P. 241, Lehninger)



Step 2. You will find that it is quite close to a ring structure. Link the C1 and C5 to form the cyclic form as above right.

Step 3. Two possible chair forms, 4C_1 or 1C_4 , exist for the pyranose. Which one is more stable? Pay attention to the positions of substituents, hydroxyl group.



Step 4 Two possible anomers are present. Try to convert between α -form and β -form.

Step 5. Make a maltose by α -1,4 linkage.

Step 6. Together with maltose made by your partner(s), make a maltotetraose, and maltohexaose. Observe the overall structure.



Step 7. Make a α -cyclodextrin. Borrow a glucose from other group, and make a β -cyclodextrin.

Step 8. Dissect the cyclodextrin to glucose units. Connect them by β -1,4 linkages. Observe the overall structure.

Step 9. Make GlcNAc and GalNAc.