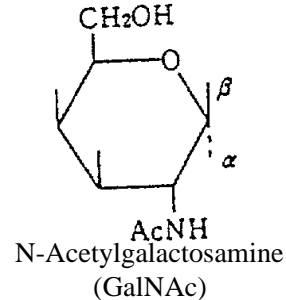
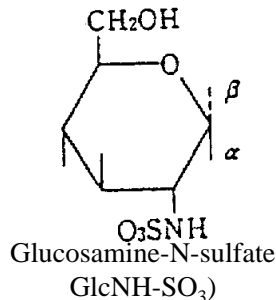
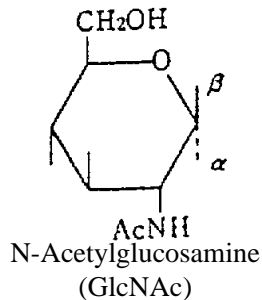
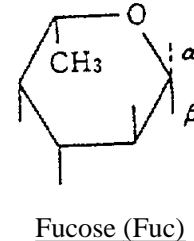
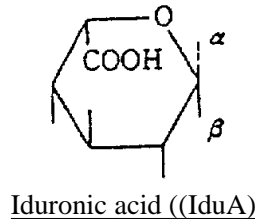
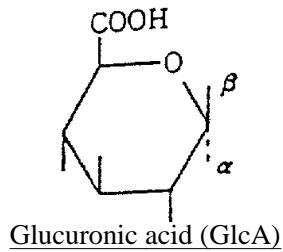
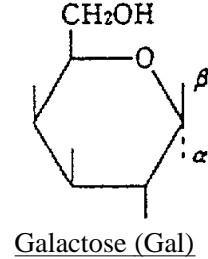
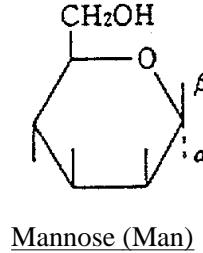
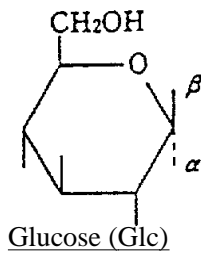
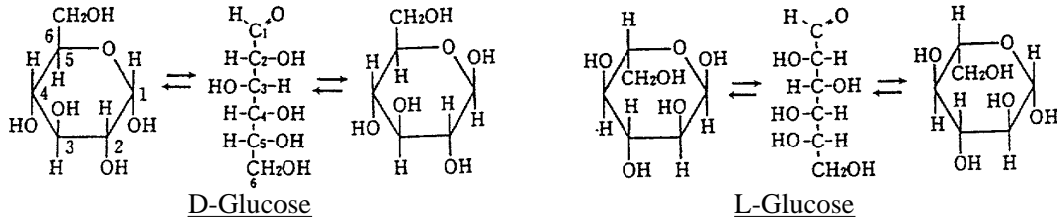


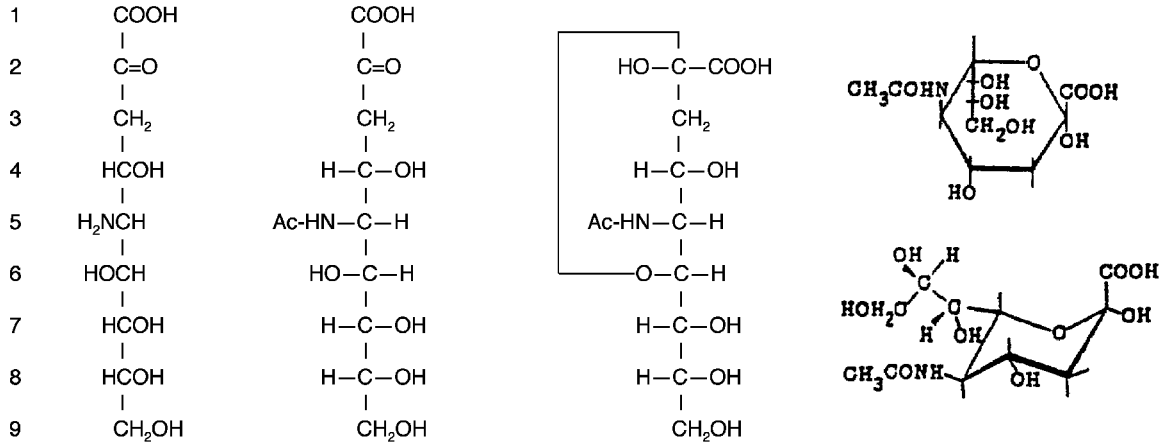
INTRODUCTION TO GLYCOPATHOLOGY

Carbohydrates have been considered as major sources of energy and as structural materials for living organisms. Research in this area has focused mainly on simple sugars and homopolysaccharides such as glycogen, starch, cellulose and chitin. During the last two decades, there has been a shift of emphasis to the study of complex carbohydrates, especially proteoglycans, glycoproteins and glycolipids, which are collectively referred to as glycoconjugates. Glycoconjugates have been shown to serve as recognition markers in the biological system and they are also intimately related to clinical medicine.

Structures of Monosaccharides Found in Glycoconjugates

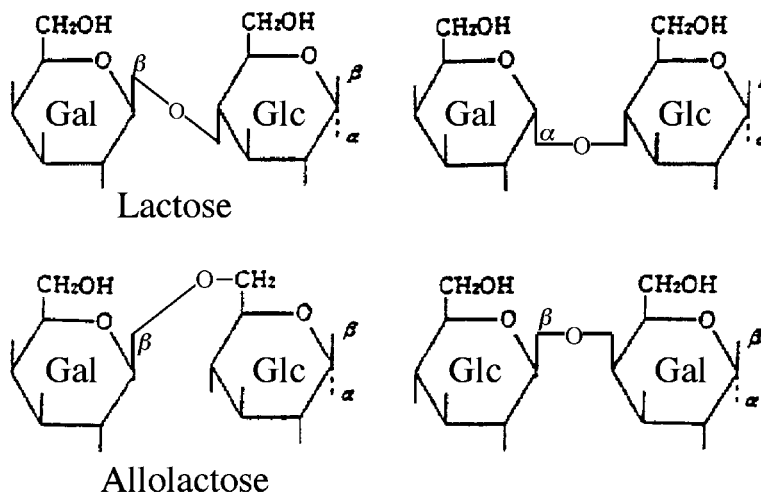


Neuraminic acid = basic structural backbone of sialic acids

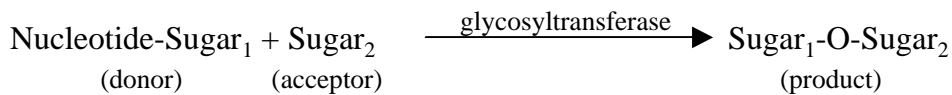


Sialic acids = acyl (acetyl or glycolyl) derivatives of neuraminic acid

Primary Structure of a Complex Carbohydrate Chain is determined by the sugar sequence, anomeric configuration and linkage.



Biosynthesis of Complex Carbohydrates



Sugar donors - UDP-Gal UDP-Glc UDP-GlcNAc UDP-GalNAc
 UPD-GlcA GDP-Man GDP-Fuc CMP-NeuAc
 Dol-P-Man Dol-P-Glc

Degradation – Glycosidases are responsible for the catabolism of complex carbohydrates.