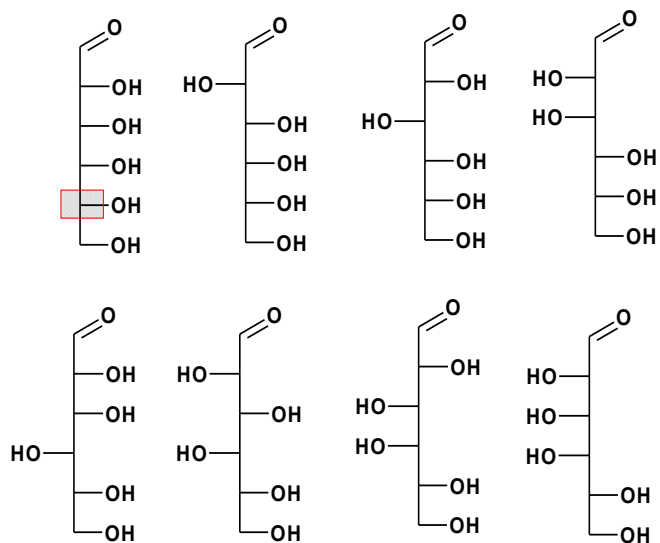
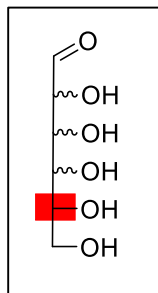


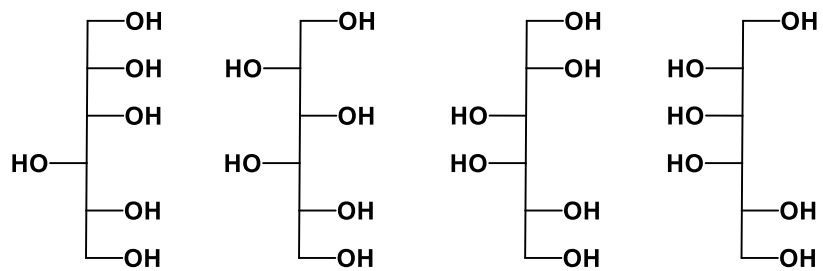
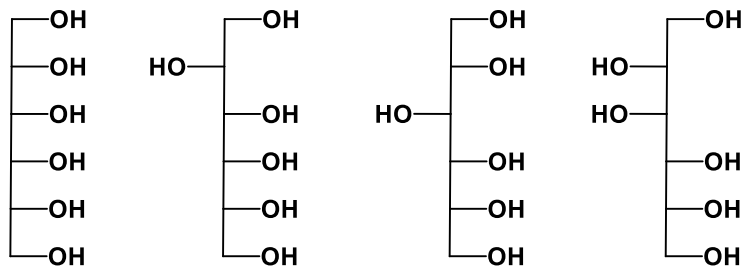
Lecture 4 – Organic stereochemistry Sławomir Jarosz

Draw the formula of D-galactose in the zig-zag conformation, Fischera projection and as hexopyranose having the following data:

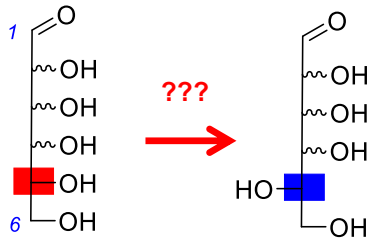
1. Reduction (to hexitol) provides optically non-active derivative
2. Decarbonylation and subsequent reduction affords optically active derivative



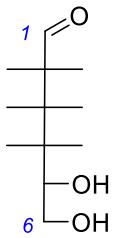
Show stereochemical relations between hexitols



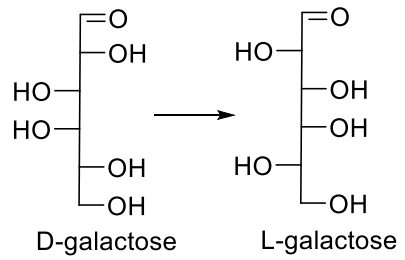
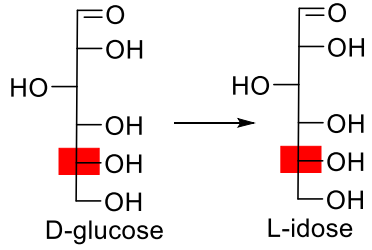
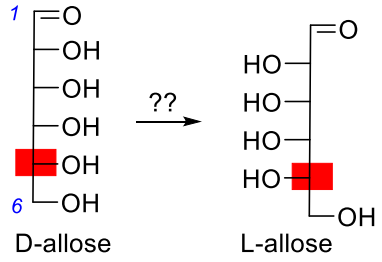
Is it possible (and eventually how) to obtain sugars of the L-series from the D-ones??



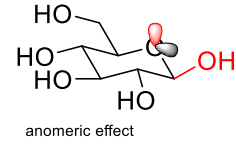
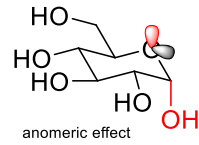
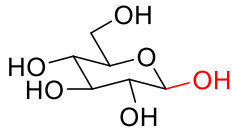
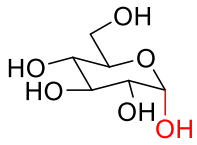
real structure of D-galactose



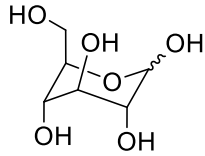
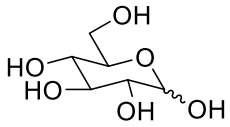
Synthesis of L-sugars; examples



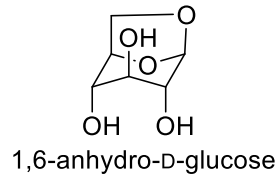
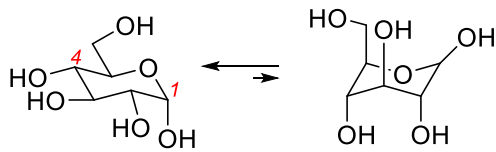
Anomeric effect



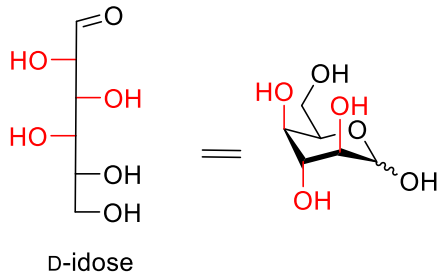
Description of the conformation



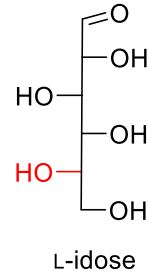
anhydrosugars



1,6-anhydro-D-glucose

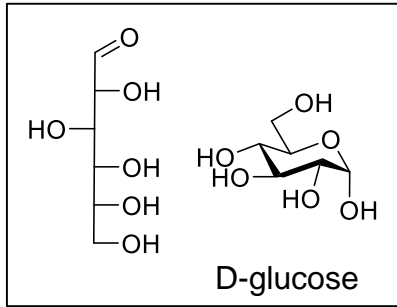


D-idose

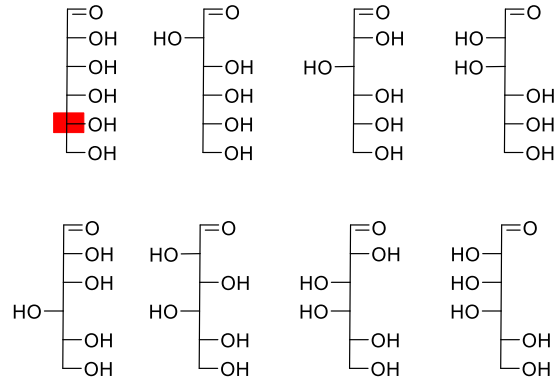


L-idose

How to draw sterically the formulae of aldo-hexose ??

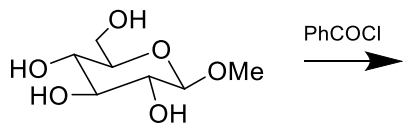
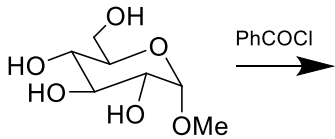
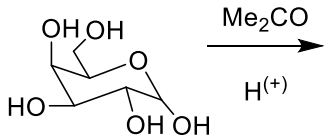
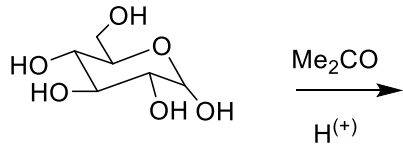
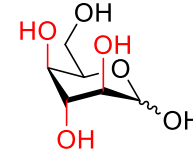
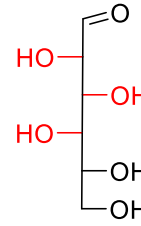
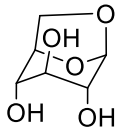
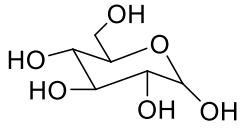


steric formulae of: mannose, galactose, talose

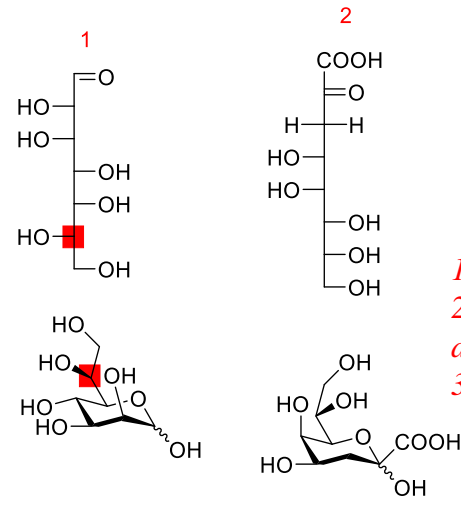
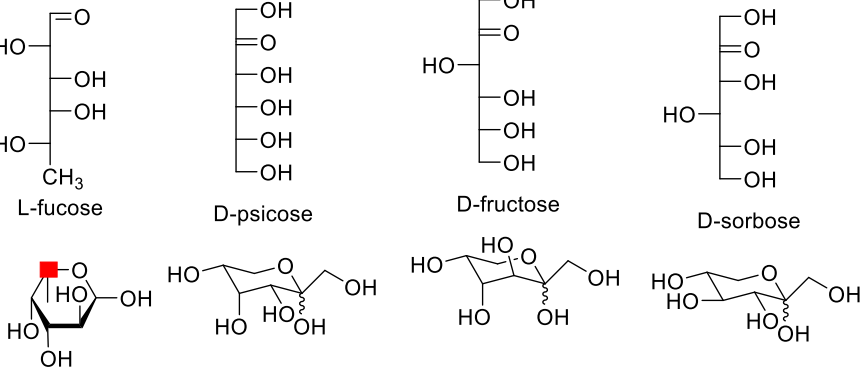


Allose Altrose
Glucose Mannose
Gulose Idose
Galactose Talose

Reactivity of sugars

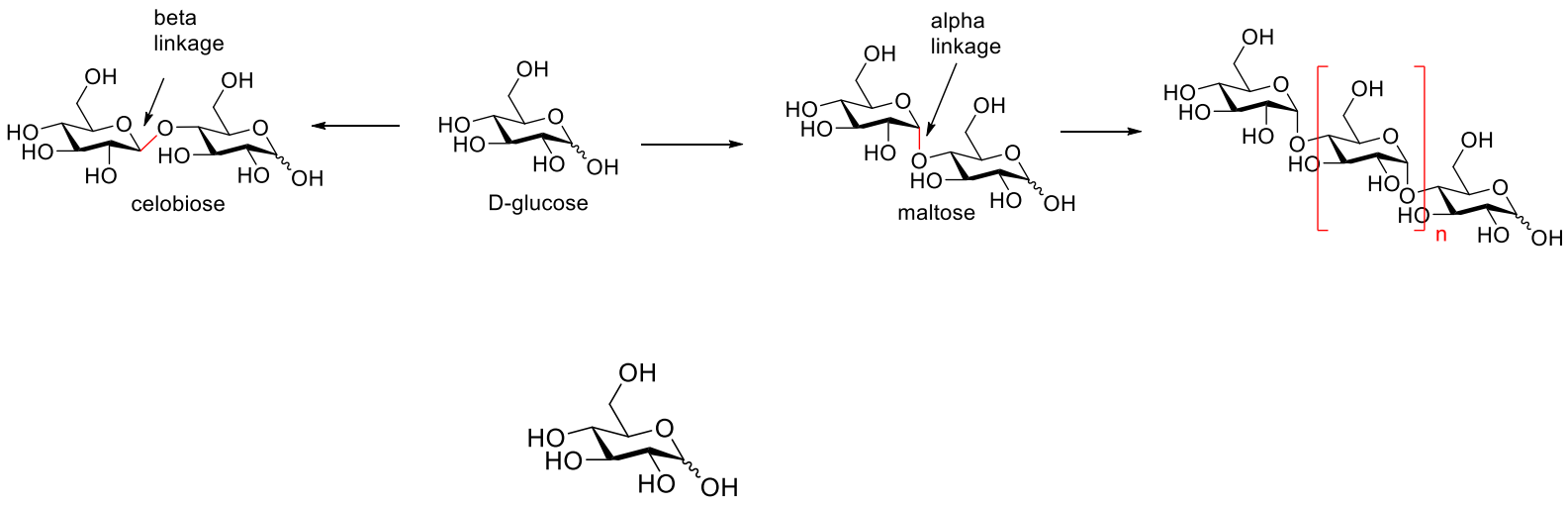


Hexoses: Aldoses: *glucose, 2-amino-2-deoxyglucose, mannose, galactose, L-fucose;* Ketoses: *fructose, psicose, sorbose*



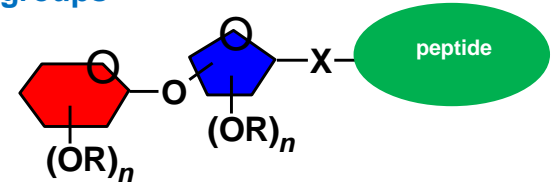
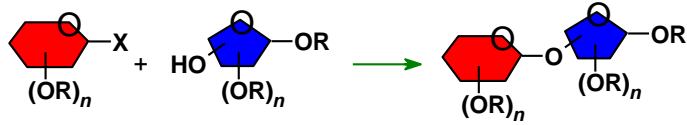
*1. L-glycero-D-manno-heptose
2. 2-keto-3-deoxy-D-manno-octulosonic acid (Kdo)
3. N-acetylneuraminic acid (sialic acid)*

oligosaccharides



1. Polysaccharides are important components of bacteria cell walls; 2. Their synthesis is based on coupling of simple sugars or bigger units. One of the most important reactions is the formation of the glycosidic bond(s); 3. Oligosaccharides (poly) form glycoconjugates by a coupling with the corresponding proteins (peptides).

Sugar antigens of the blood groups



Cyclodextrines (CD) – cyclic oligosugars α – 6 glucose units, β – 7, γ – 8

