

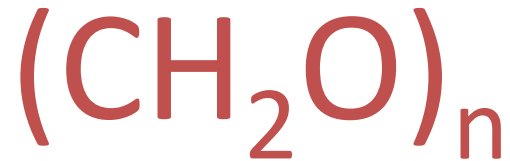
Glúcidos.

- ✓ Estructura y propiedades.
- ✓ Monosacáridos y disacáridos más comunes.
- ✓ Concepto de aldosas y cetosas.
- ✓ Oligosacáridos y polisacáridos (homo y hetero). Almidón, glucógeno y celulosa.
- ✓ Glúcidos complejos: Concepto de glicosaminoglicanos y proteoglucanos.
- ✓ Glucoproteínas y glucolípidos.
- ✓ Importancia biológica de los glúcidos.
- ✓ Los glúcidos en los alimentos.
- ✓ Estudio de los glúcidos.





Glúcidos. Estructura y propiedades



FUNCIÓN



ENERGÉTICA

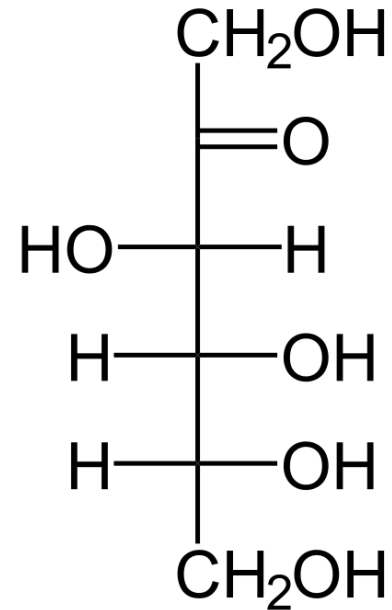
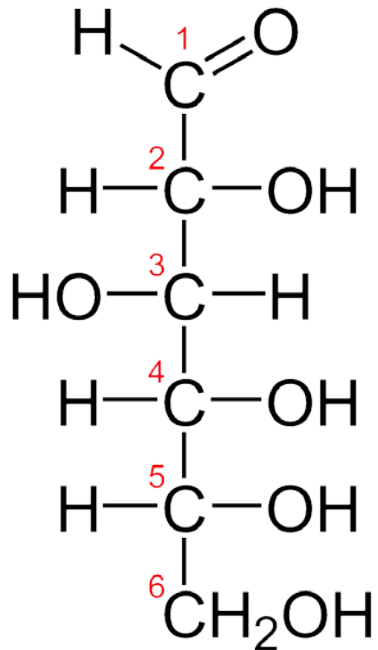
GLUCOSA
GLUCOGENO
ALMIDÓN



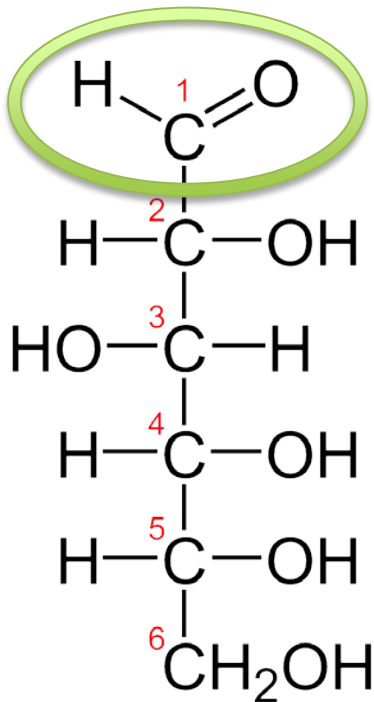
ESTRUCTURAL

CELULOSA
QUITINA
PARED BACTERIANA

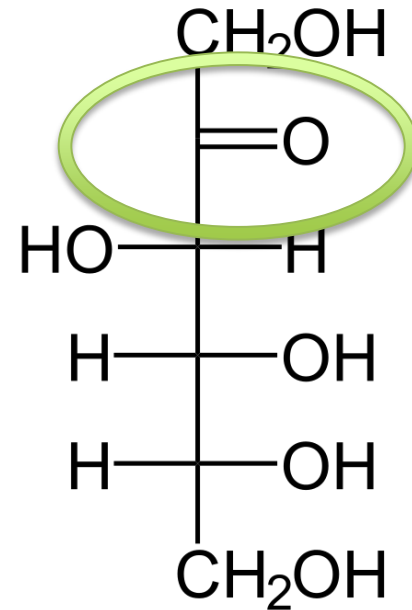
Glúcidos. Estructura y propiedades



Concepto de aldosas y cetosas.

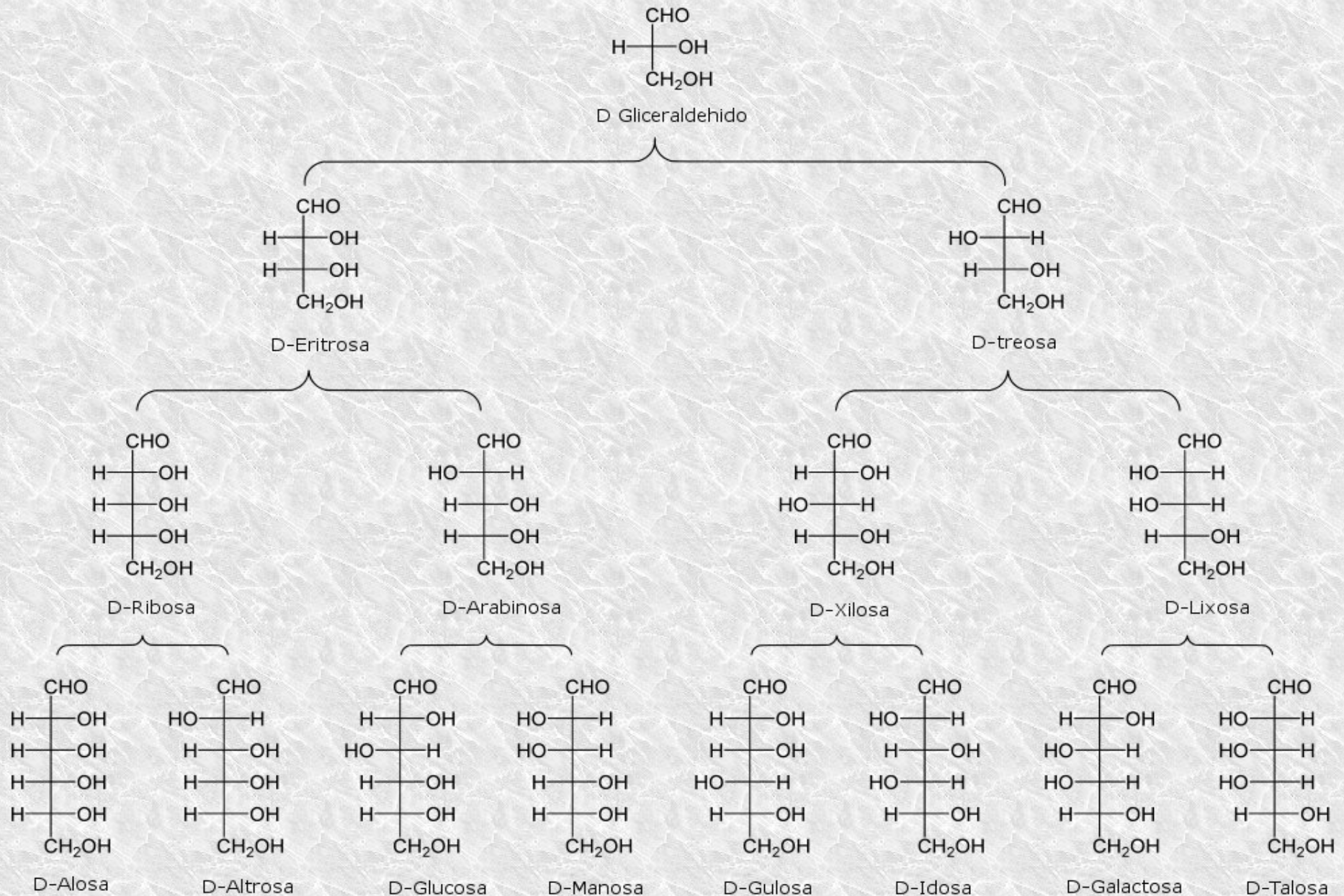


aldosa

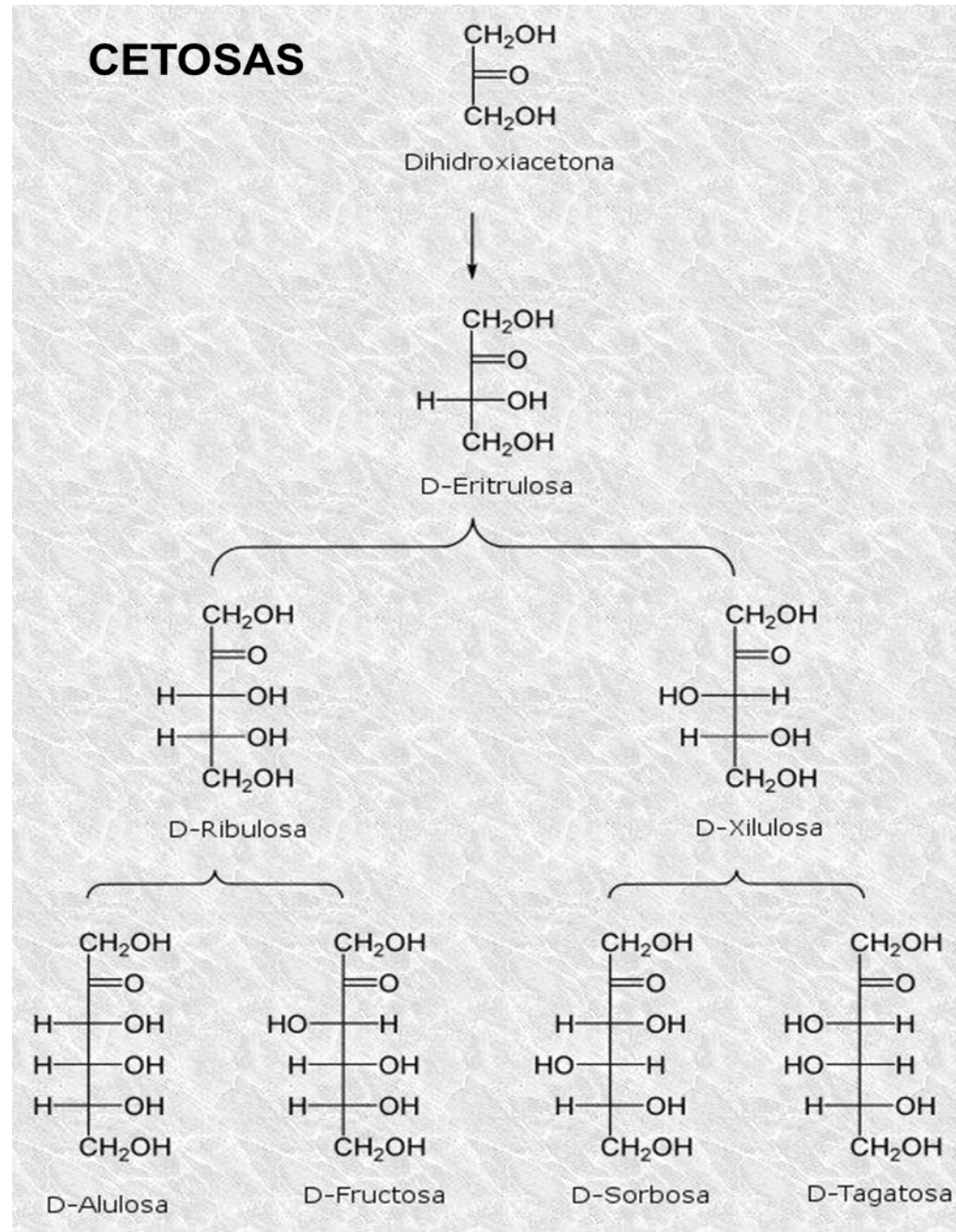


Cetosa

Concepto de aldosas y cetosas.



Concepto de aldosas y cetosas.



Monosacáridos. Propiedades

Función  Energética

Estructura  3-7 C $(\text{CH}_2\text{O})_n$

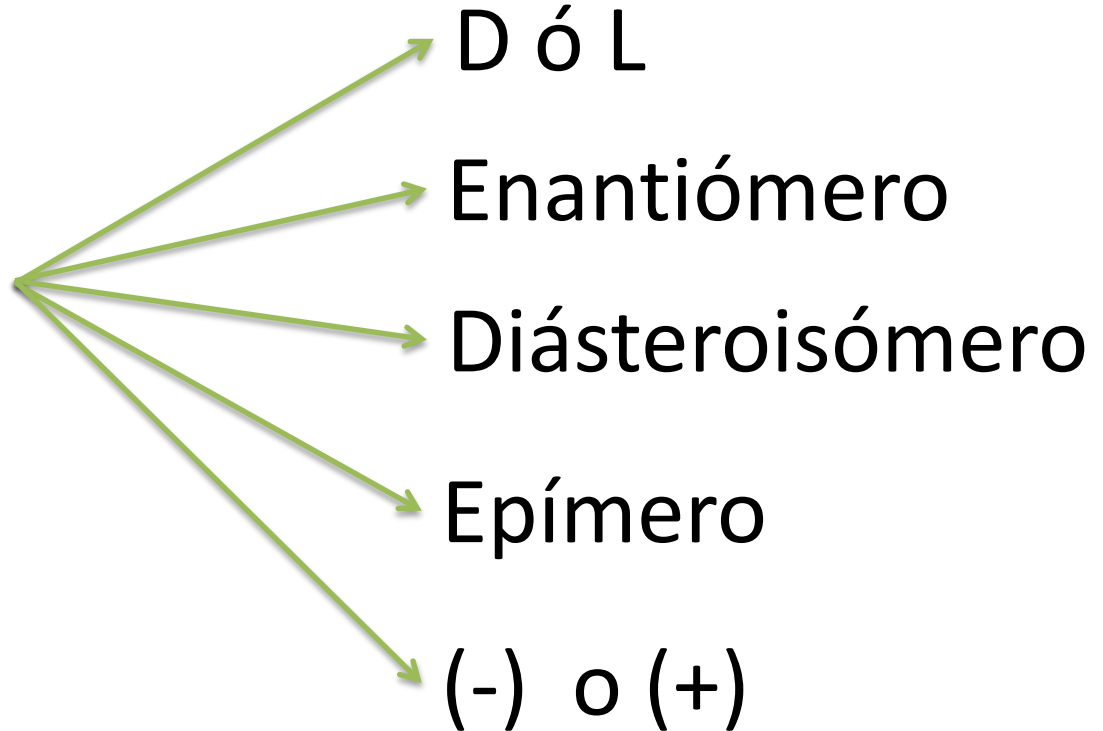
Propiedades  dulce
 blanco
 Soluble en agua

Monosacáridos. Propiedades

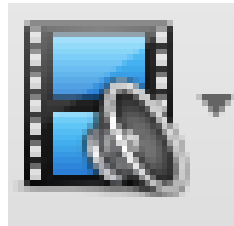
Carbonos
asimétricos



Esteroisomería

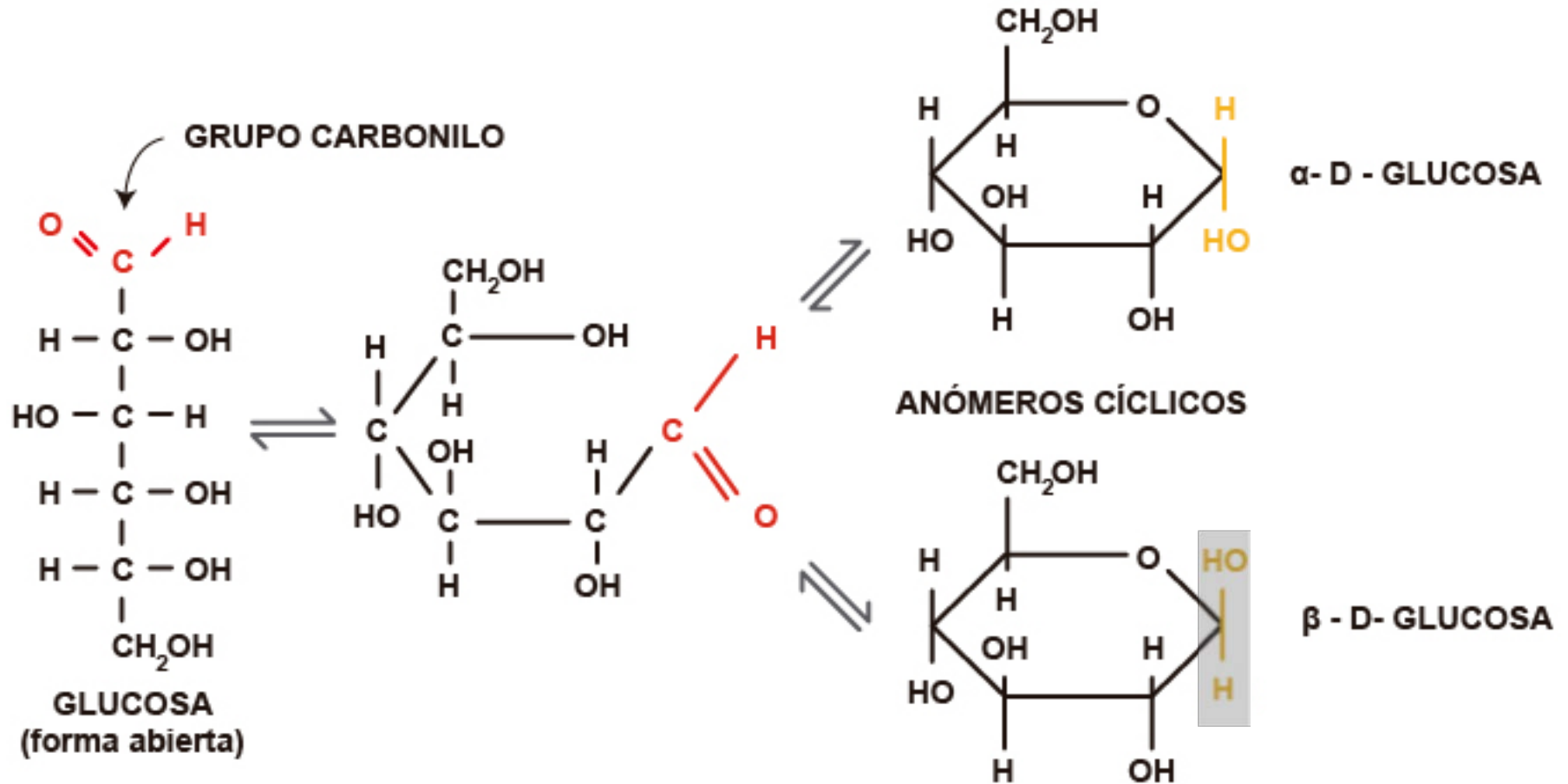


ESTEROISOMERÍA

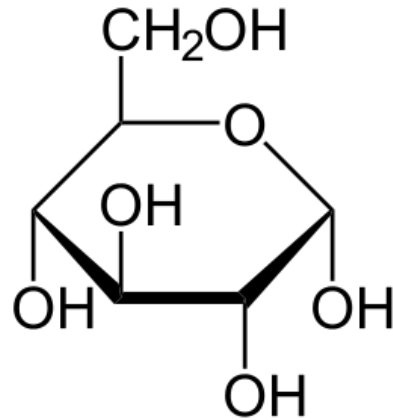


<https://youtu.be/hyrasKaCSlc>

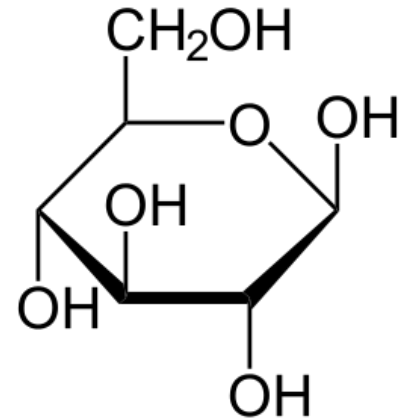
Monosacáridos. Propiedades



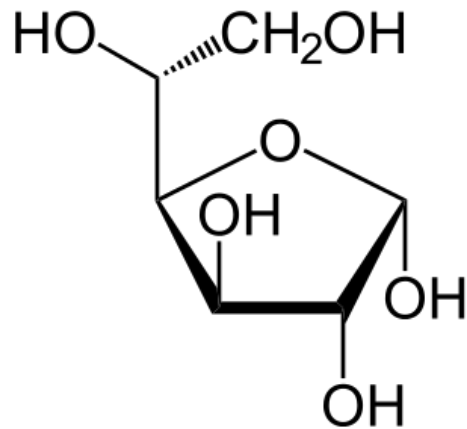
Monosacáridos. Propiedades



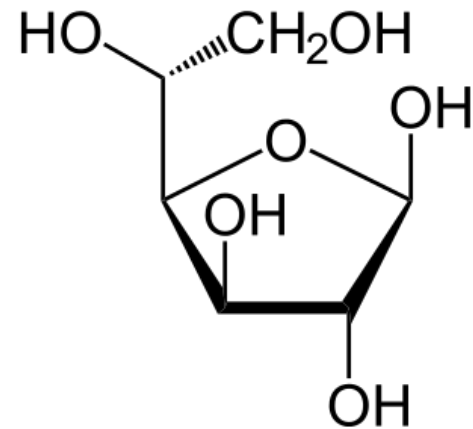
α -D-Glucopyranose



β -D-Glucopyranose

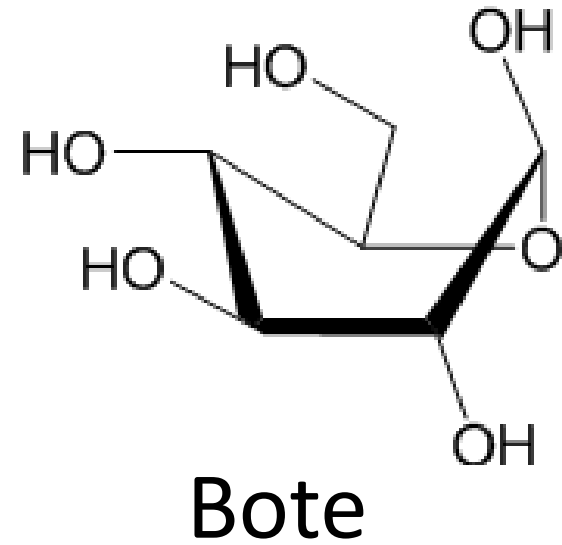
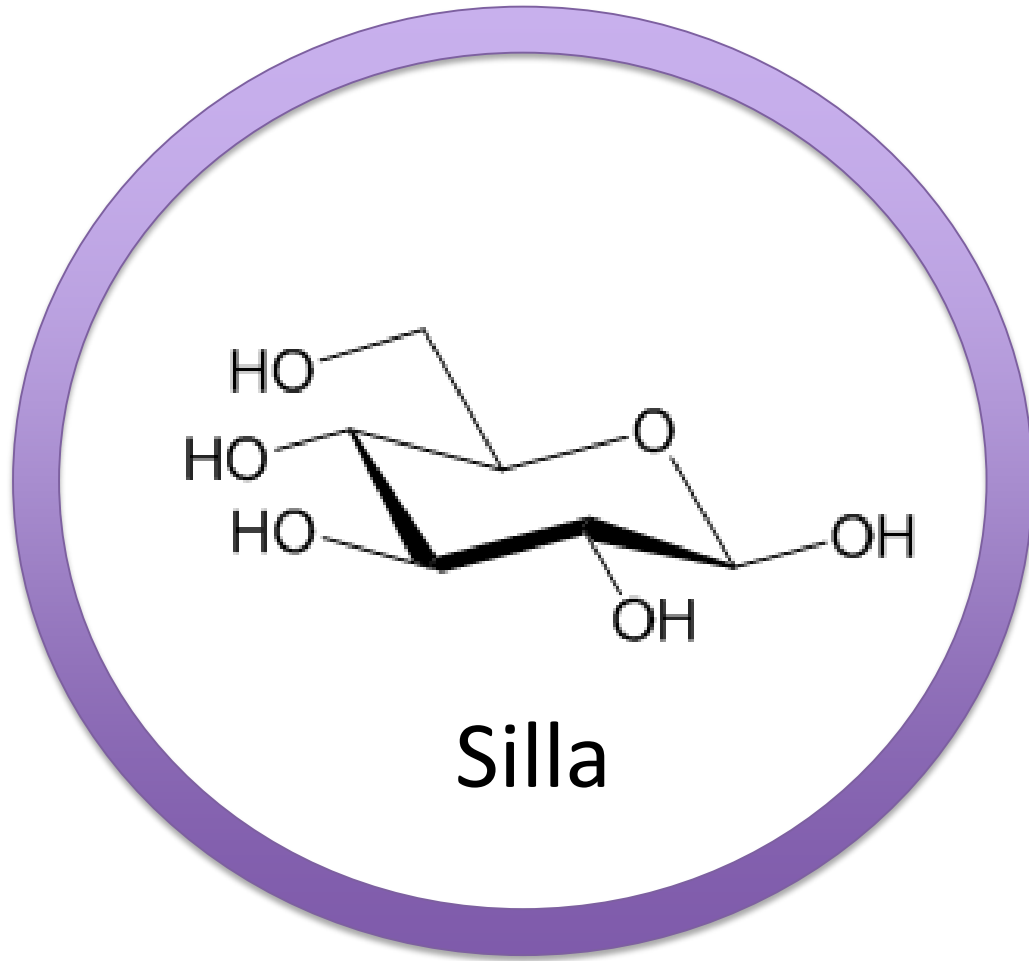


α -D-Glucofuranose

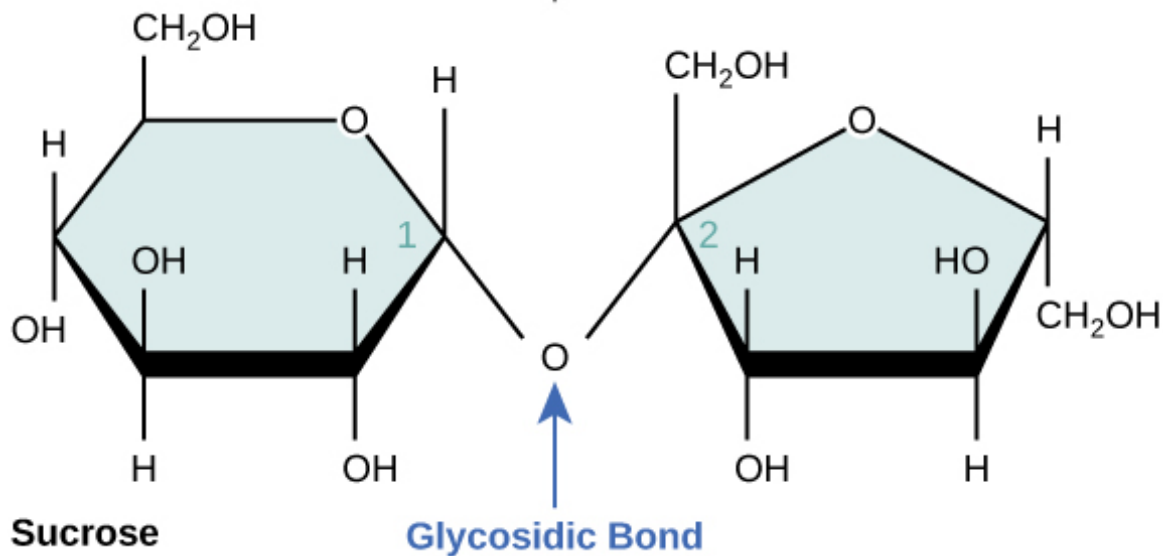
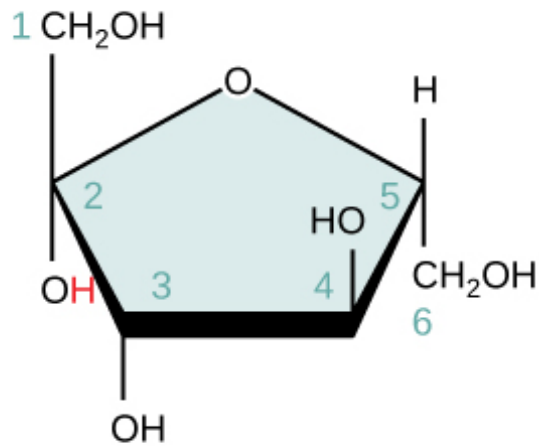
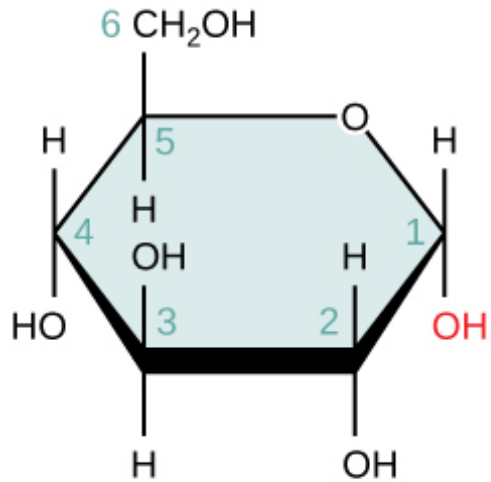


β -D-Glucofuranose

Monosacáridos. Propiedades



Disacáridos



Sacarosa

Disacáridos

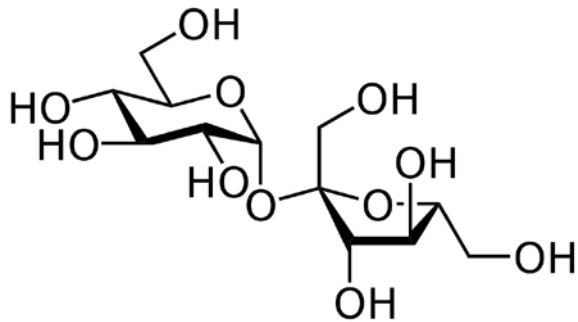
Propiedades

dulce

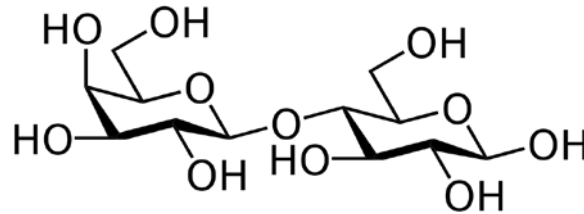
blanco

Soluble en agua

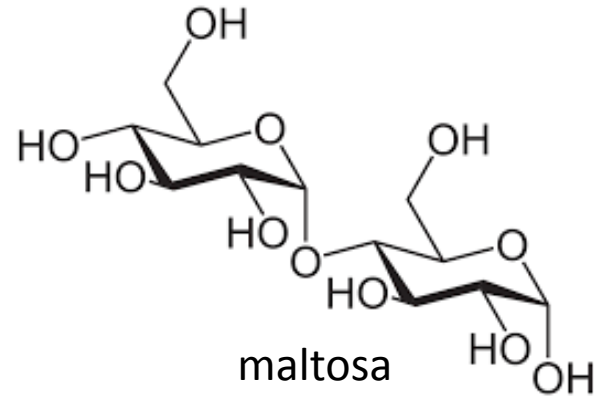
Monosacárido + monosacárido $\longrightarrow$ Disacárido + agua



sucrosa



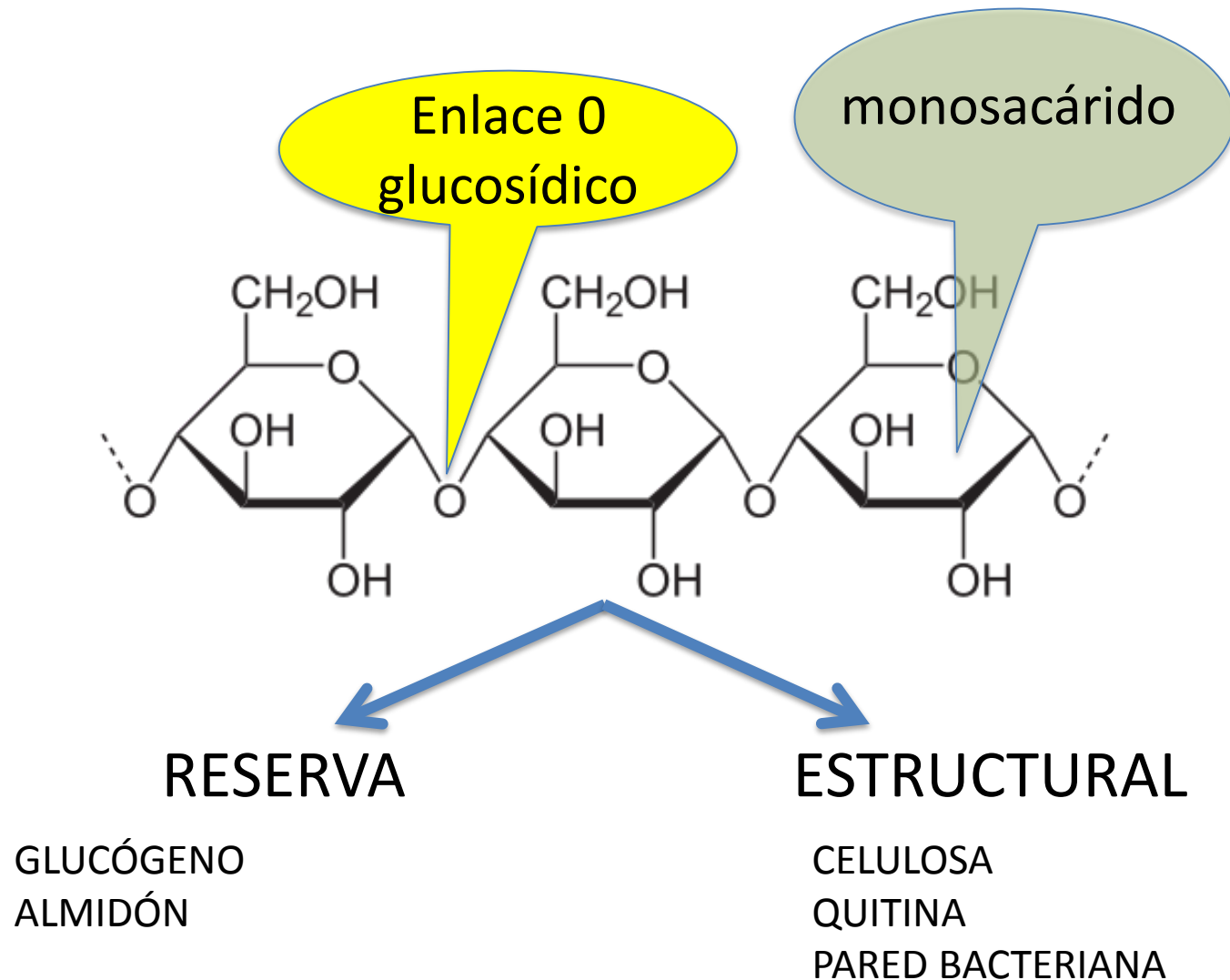
lactosa



maltosa

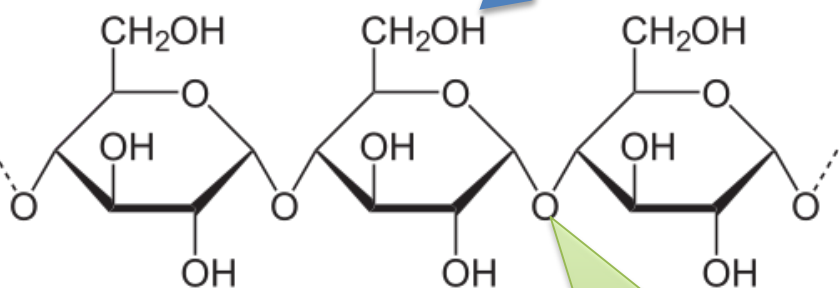


Oligosacáridos y polisacáridos (homo y hetero)



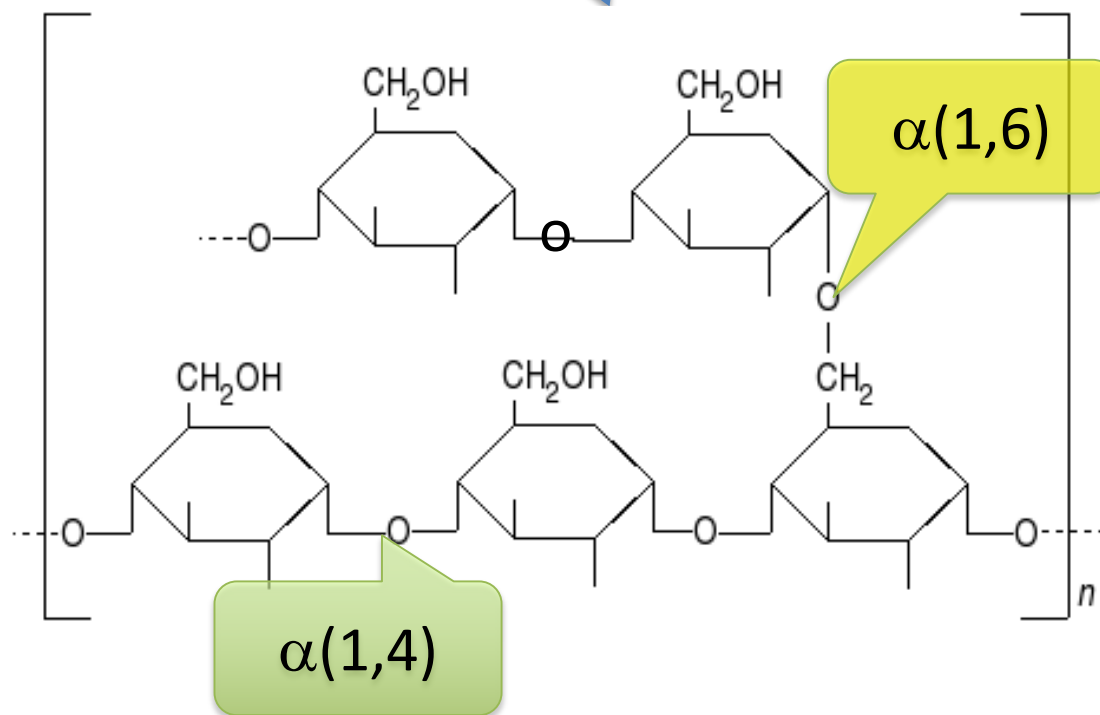
Almidón

Amilosa
20-30 %



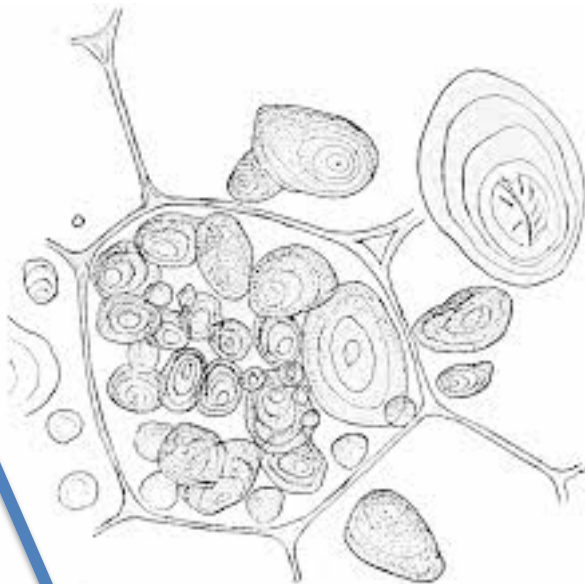
$\alpha(1,4)$

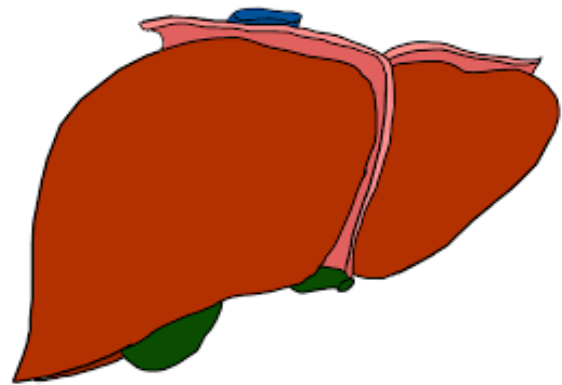
Amilopectina
70-80 %
(12-30C)



$\alpha(1,4)$

$\alpha(1,6)$

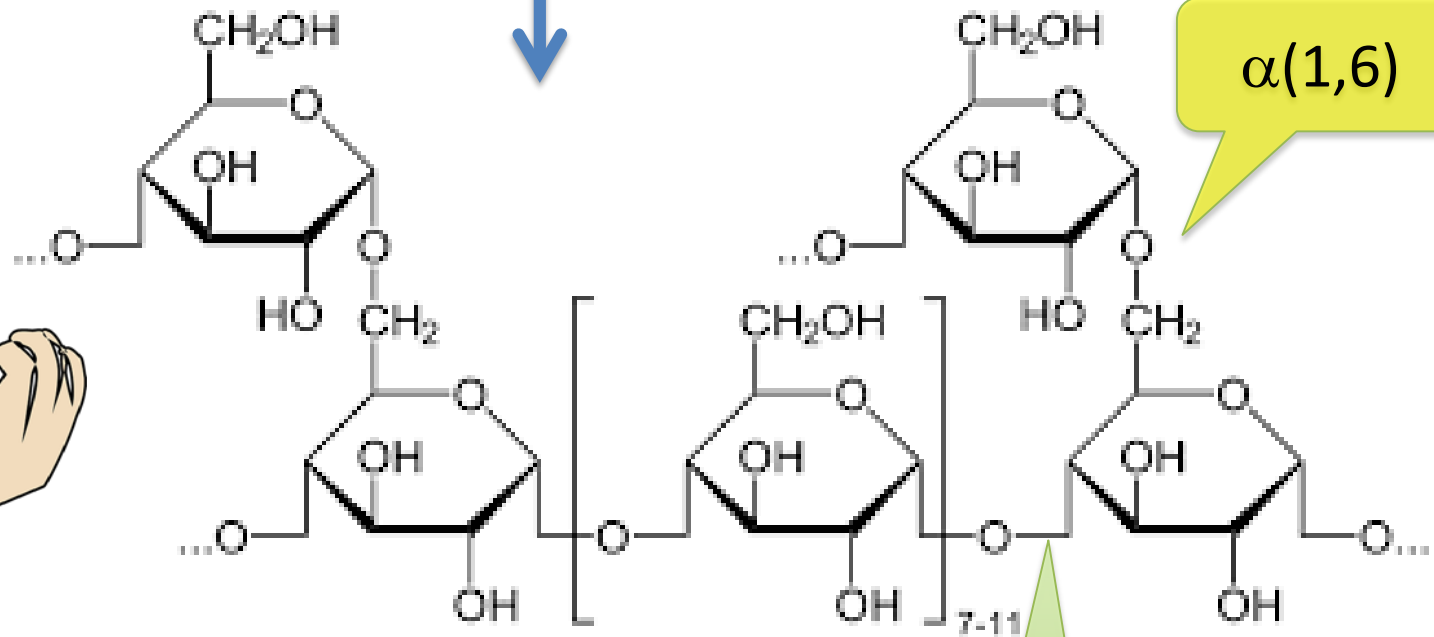
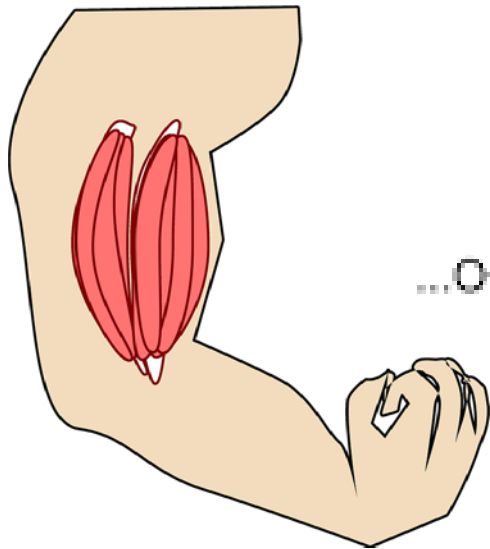




Glucógeno

Reserva animal

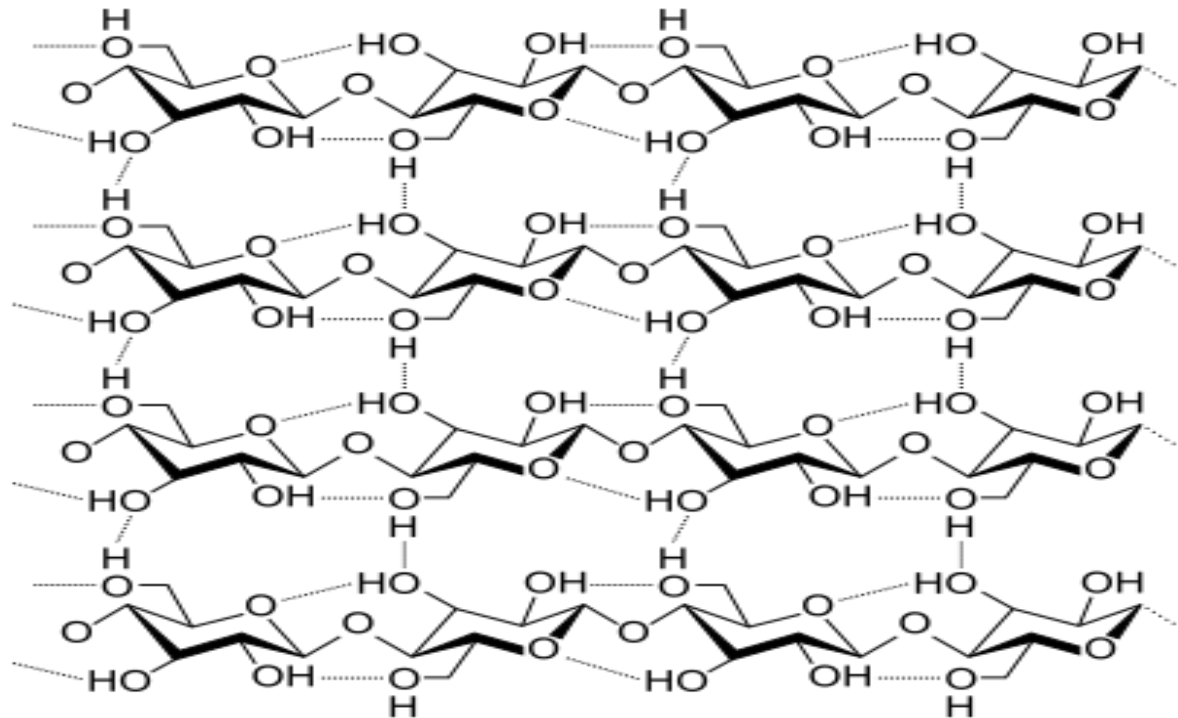
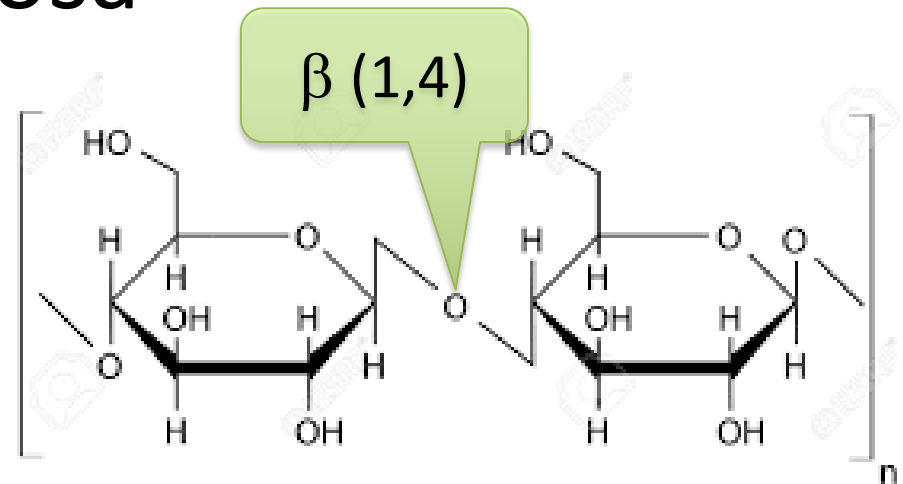
Ramificaciones
(6-12C)



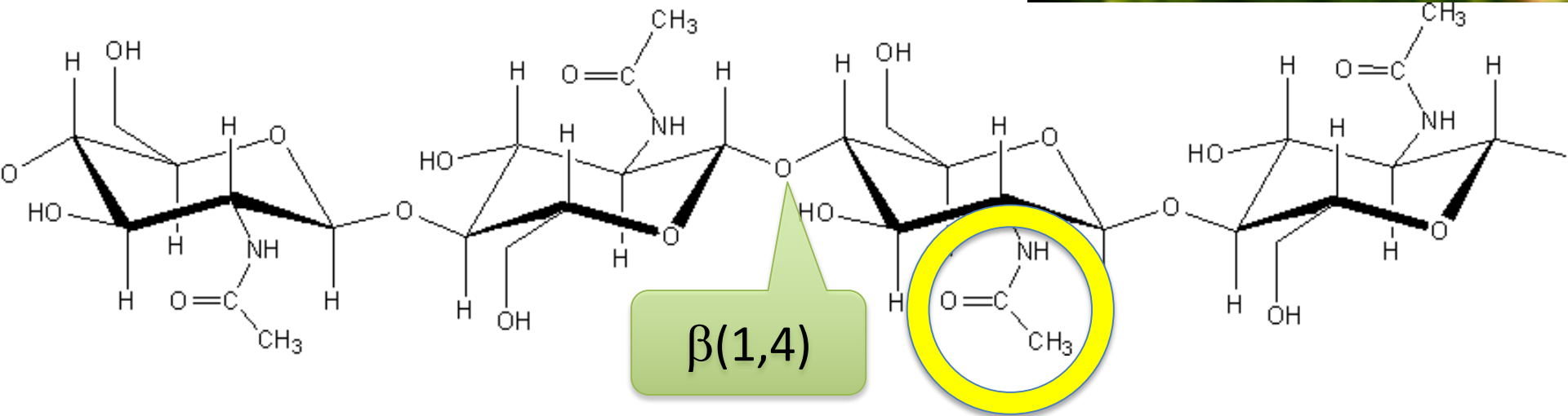
$\alpha(1,6)$

$\alpha(1,4)$

Celulosa

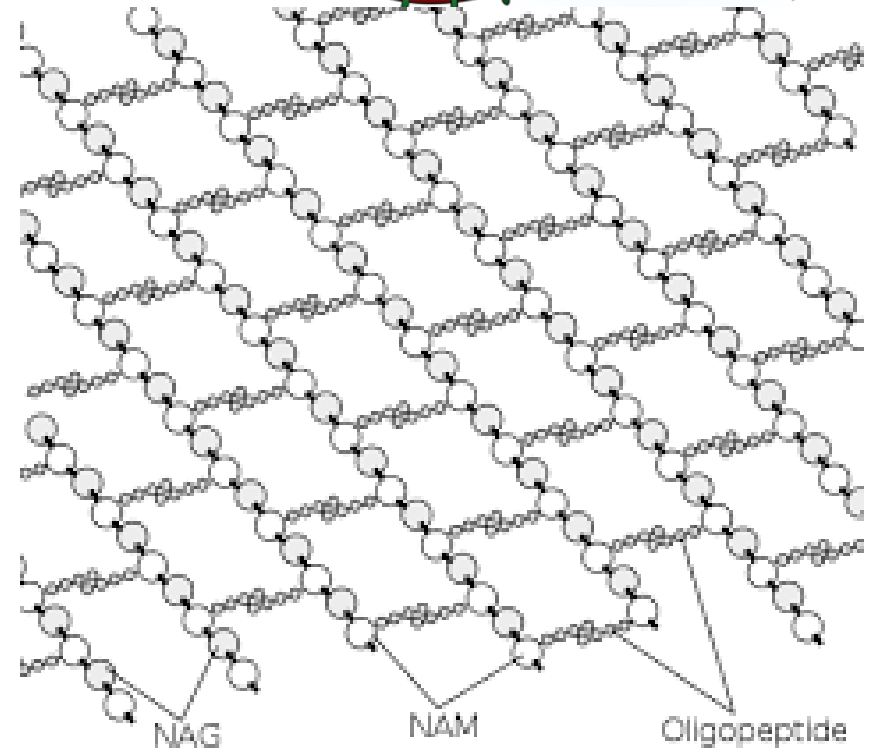
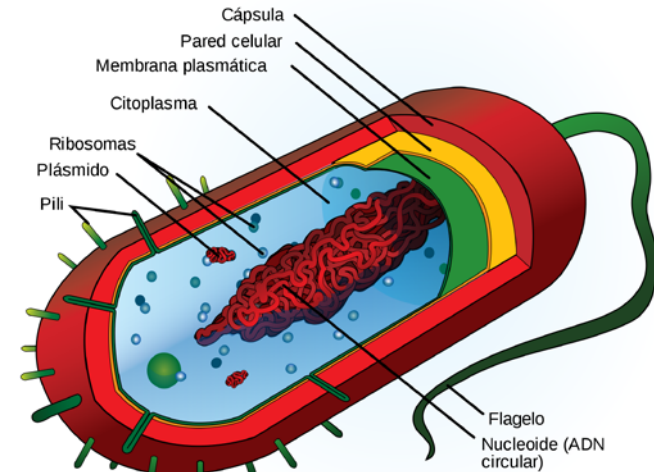
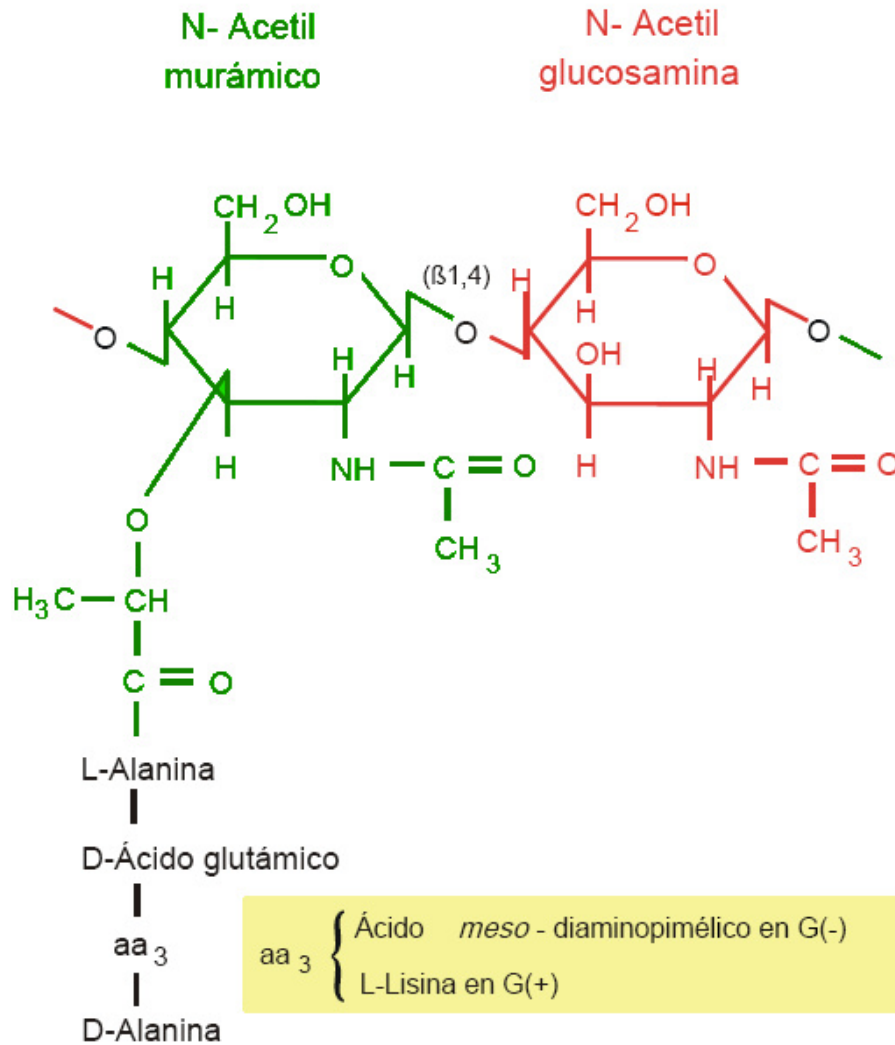


Quitina



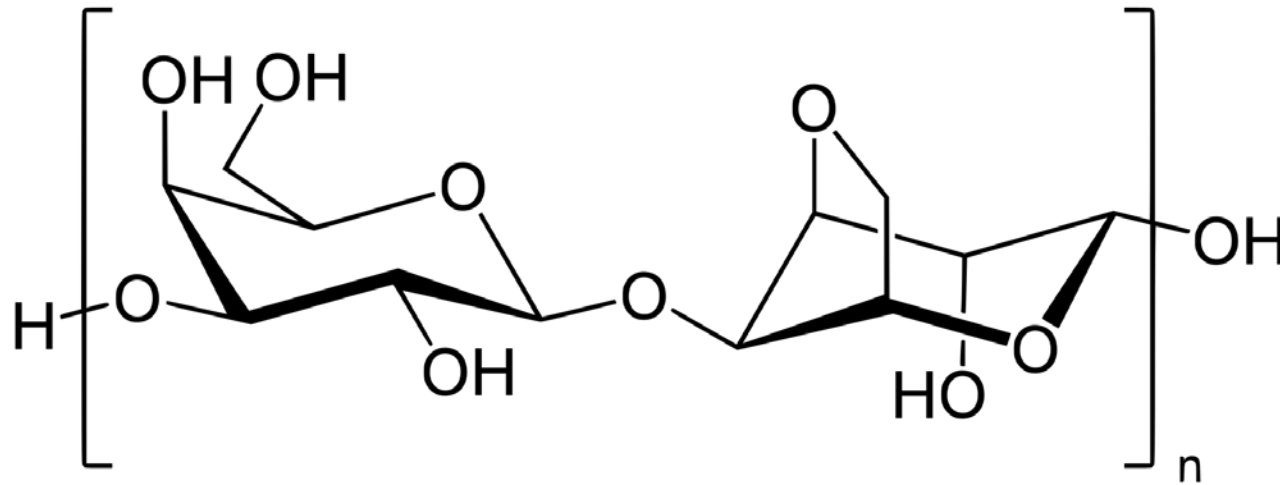
Glucosa N acetilada en C2

Glúcidos complejos (heteropolisacárido)



PEPTIDOGLUCANO

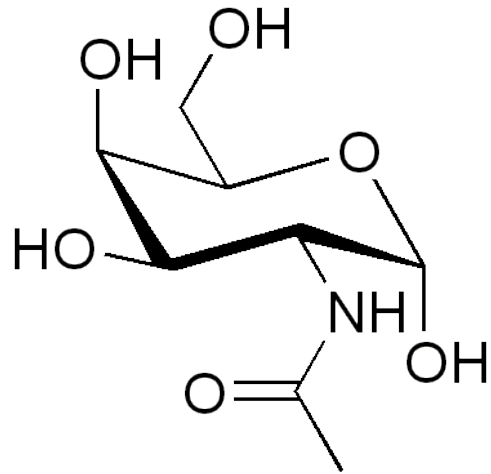
Glúcidos complejos (heteropolisacárido)



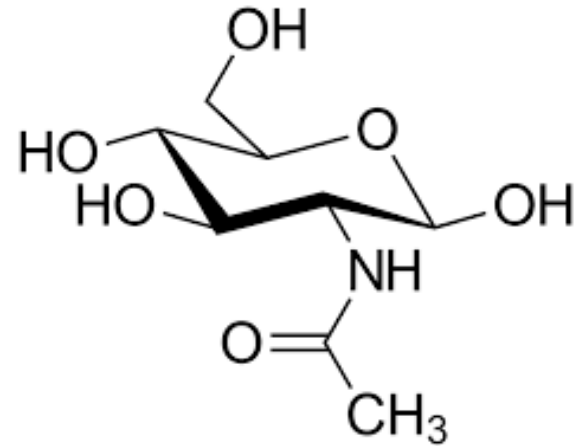
AGAROSA



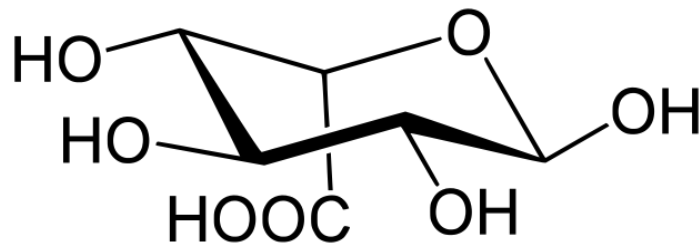
Glúcidos complejos (heteropolisacárido)



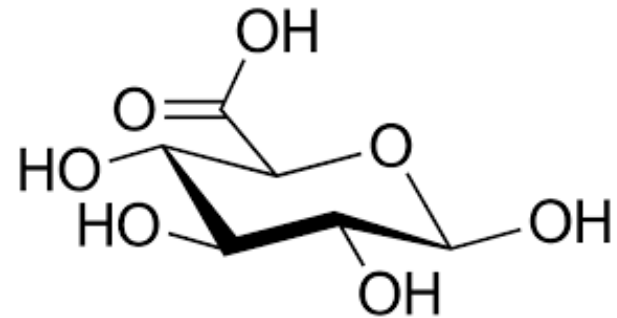
N acetilgalactosamina



N acetilglucosamina



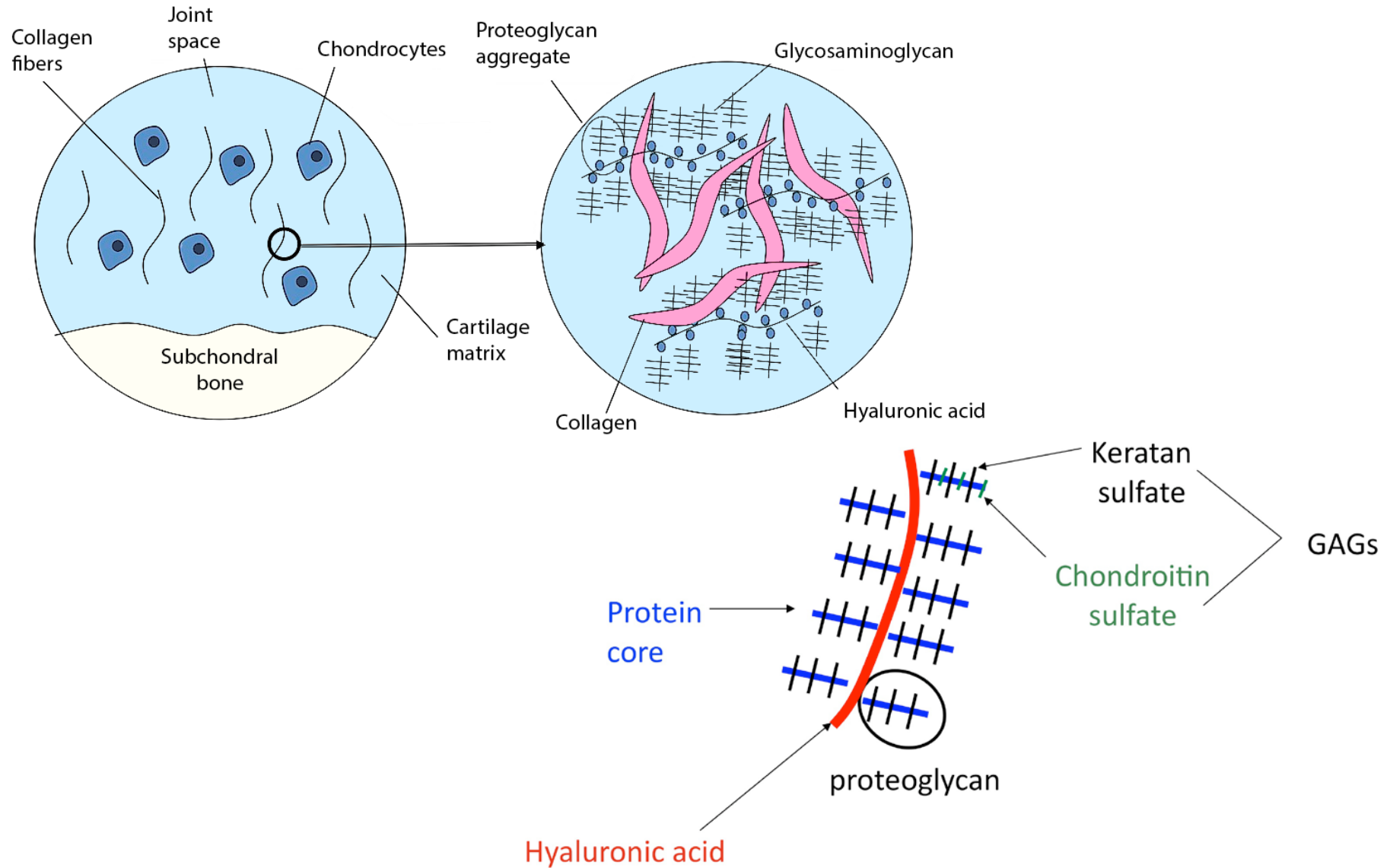
Ácido idurónico



Ácido glucurónico

GLUCOSAMINOGLUCANOS

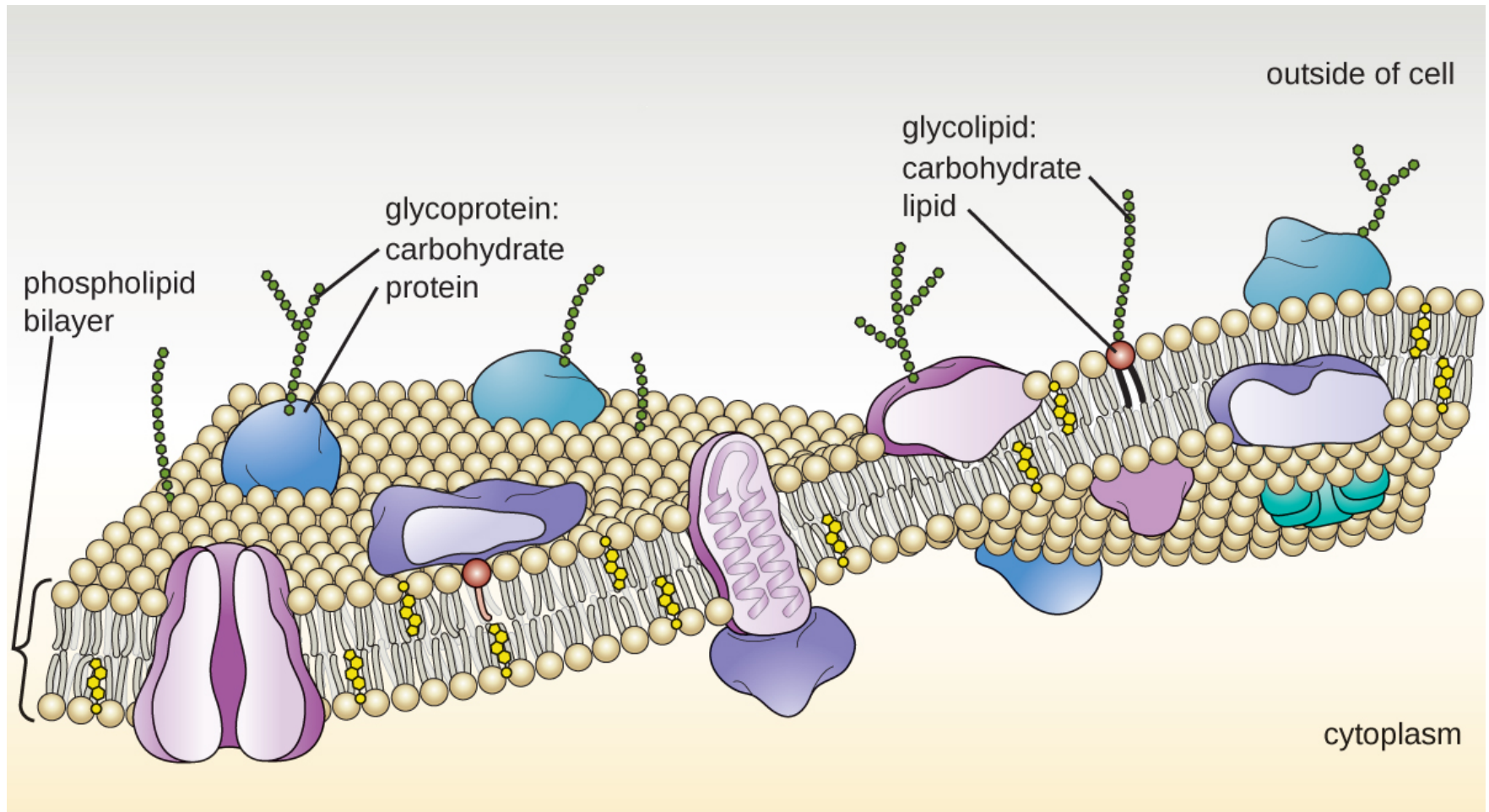
Glúcidos complejos (heteropolisacárido)



GLUCOSAMINOGLUCANOS

GLUCOCONJUGADOS

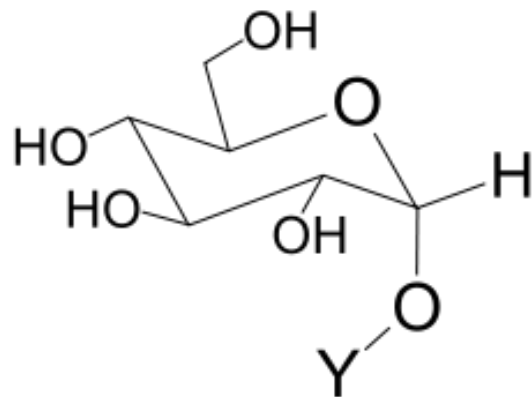
GLUCOLÍPIDOS Y GLUCOPROTEÍNA



GLUCOCONJUGADOS

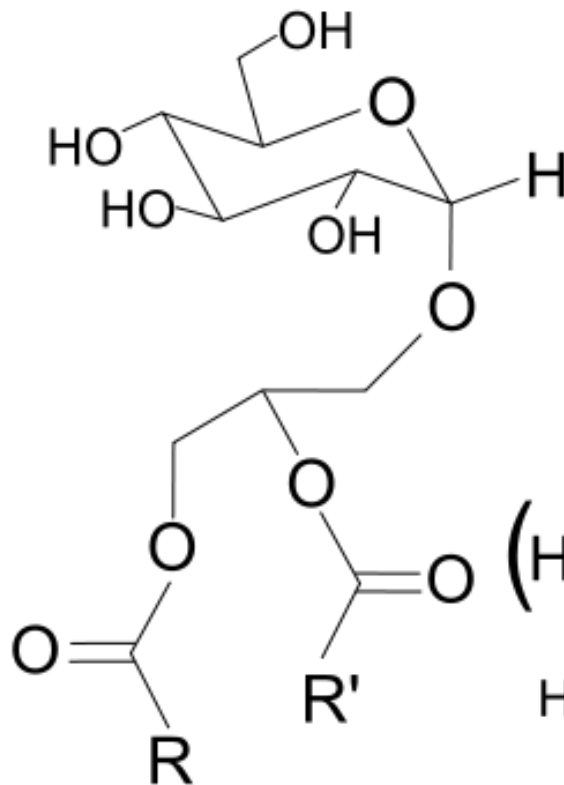
GLUCOLÍPIDOS Y GLUCOPROTEÍNA

Glycolipids

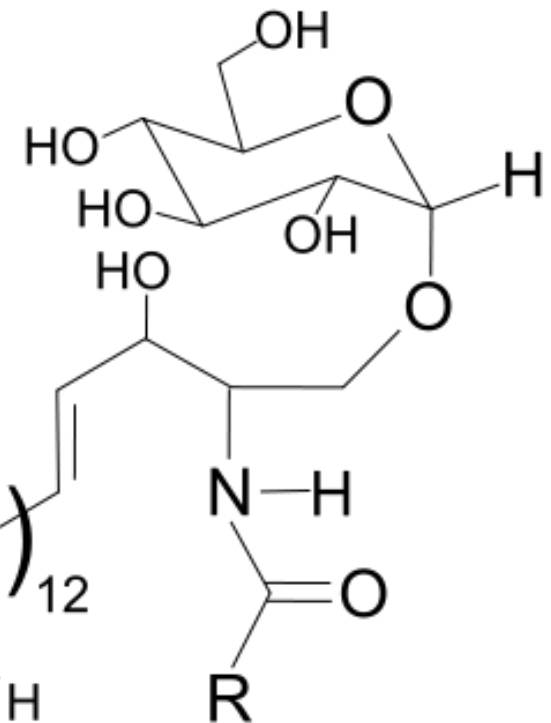


Y = Lipid

Glycero-
Glycolipids

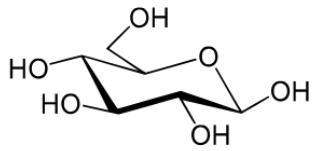


Sphingo-
Glycolipids

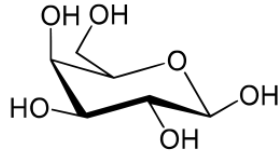


GLUCOCONJUGADOS

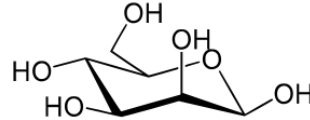
GLUCOLÍPIDOS Y GLUCOPROTEÍNA



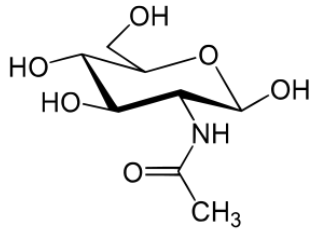
β -D-Glc



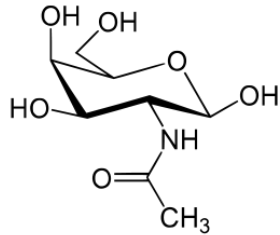
β -D-Gal



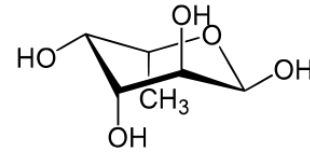
β -D-Man



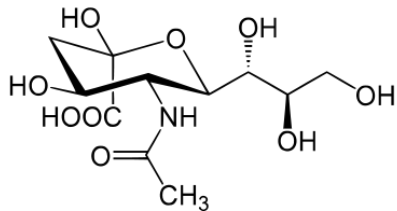
β -D-GlcNAc



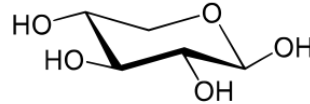
β -D-GalNAc



α -L-Fuc



α -D-Neu5Ac



β -D-Xyl

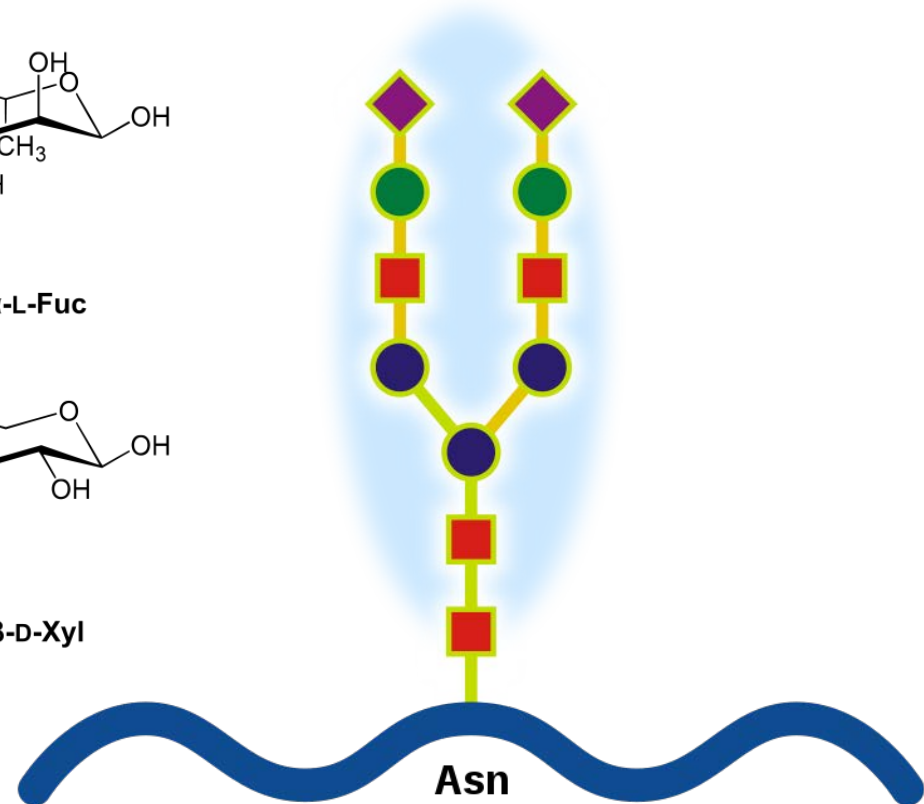


TABLA RESUMEN

CLASIFICACIÓN DE LOS HIDRATOS DE CARBONO

Unidad		Grupo funcional	Nº carbonos		Ejemplos	Poder reductor
Monosacárido		Aldosa Aldehído (HCO)	3C 4C 5C 6C	Aldotriosa Aldotetrosa Aldopentosa Aldohexosa	Gliceraldehído Eritrosa Ribosa Glucosa	Sí
		Cetosa Cetona (CO)	3C 4C 5C 6C	Cetotriosa Cetotetrosa cetopentosa Cetohexosa	Dihidroxiacetona Eritrulosa Ribulosa Fructosa	
Unidad		Tipo de enlace	Ejemplos		Fuente de origen	Poder reductor
Disacárido		O-glucosídico monocarbonílico	Lactosa Maltosa Celobiosa		Leche Cereales Celulosa	Sí
		O-glucosídico dicarbonílico	Sacarosa		Azúcar de caña	No
Polisacárido	Reserva	O-glucosídico enlace α	Dextranos Almidón Glucógeno		Bacterias Plantas Animales	No
	Estructural	O-glucosídico enlace β	Peptidoglucano Celulosa Quitina GAG		Bacterias Plantas An. invertebrado Animales superiores	

GLUCOCONJUGADOS

Glucolípido	Lípido (esfingolípido)	Monosacárido, disacárido, oligosacárido
Glucoproteína	Proteína	Oligosacáridos
Proteoglucano	Proteína	Polisacáridos (GAG)

Estudio de los glúcidos.

<https://www.powtoon.com/c/dqvaSVLe0Q8/1/m>