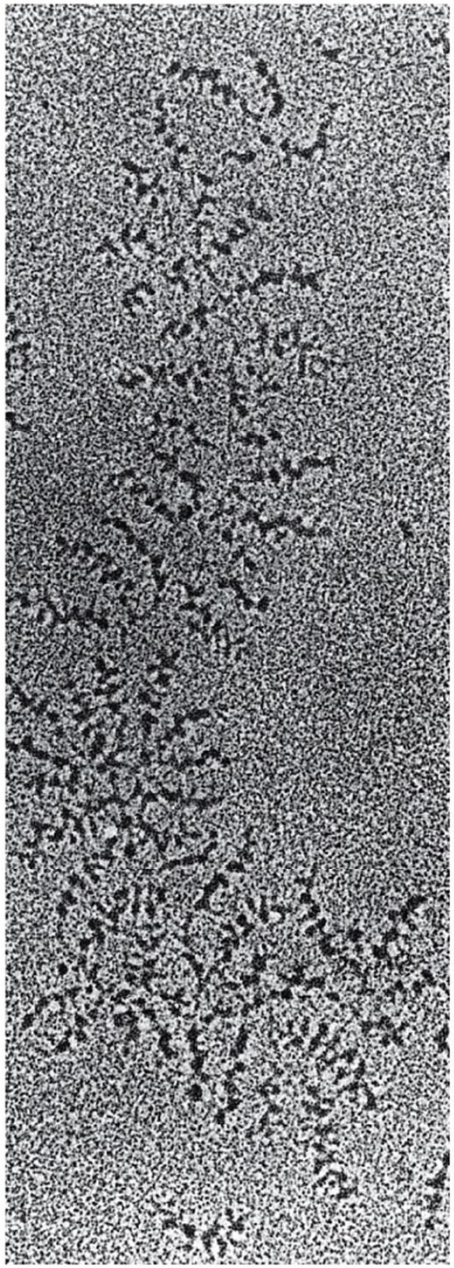
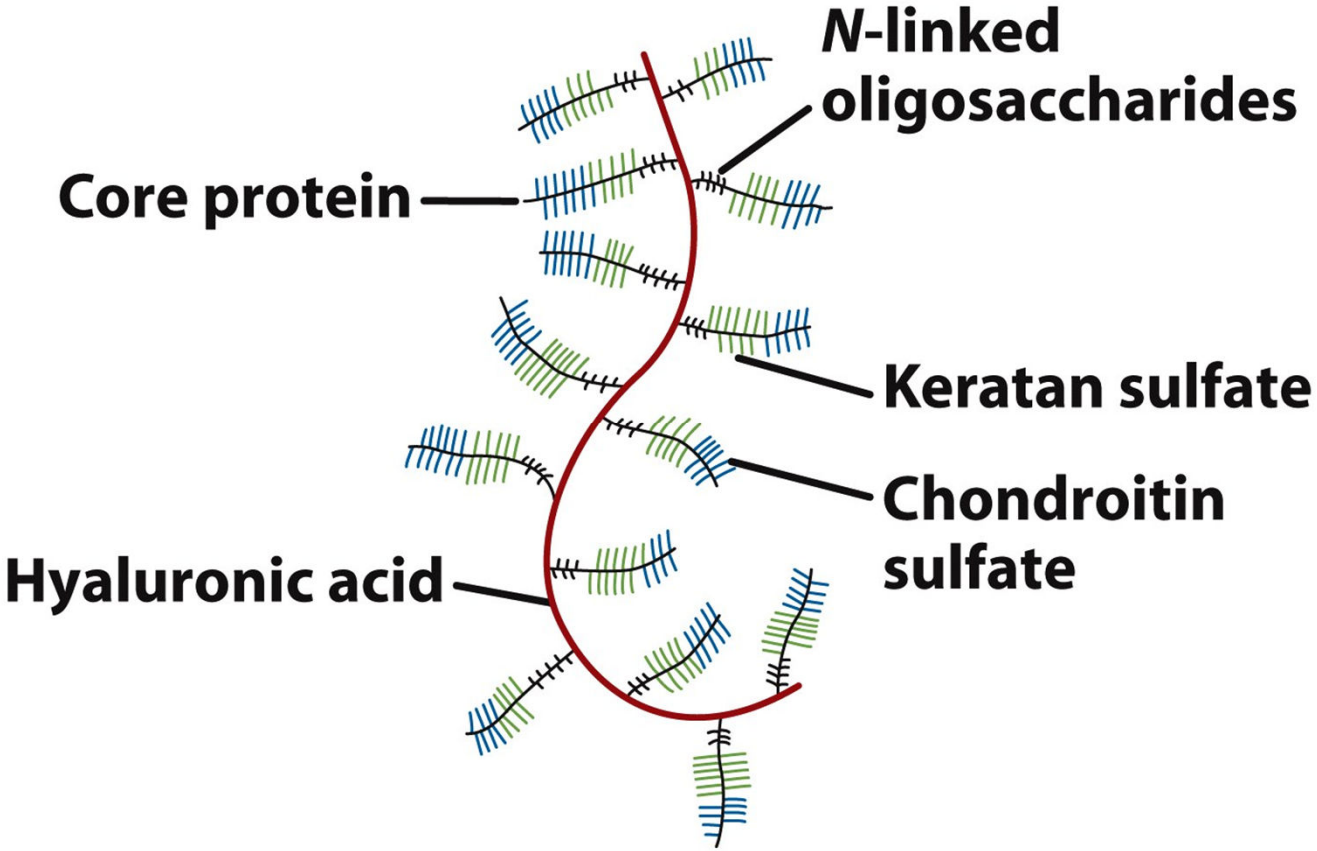


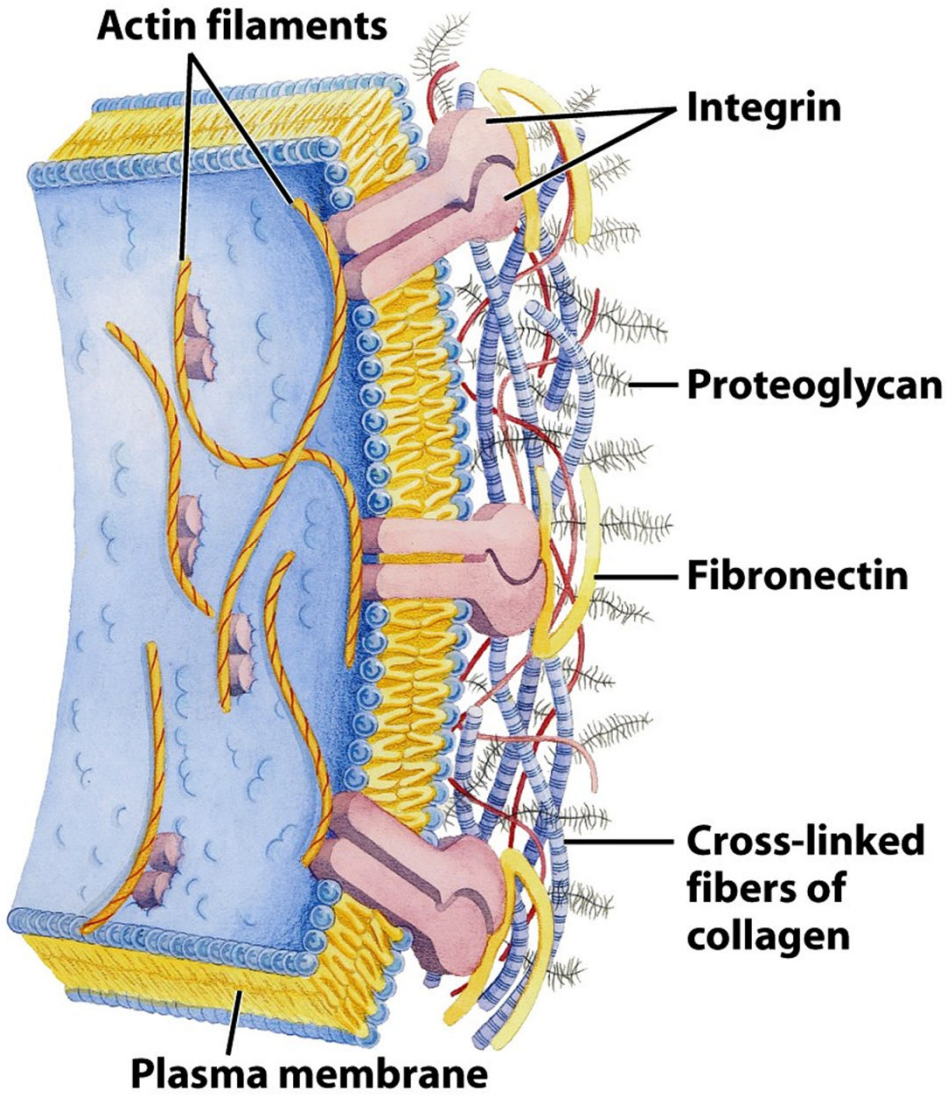
From Caplan, A.I., *Sci. Am.* 251(4), 87 (1984).

Proteoglycans are conjugates of proteins and glycosaminoglycans

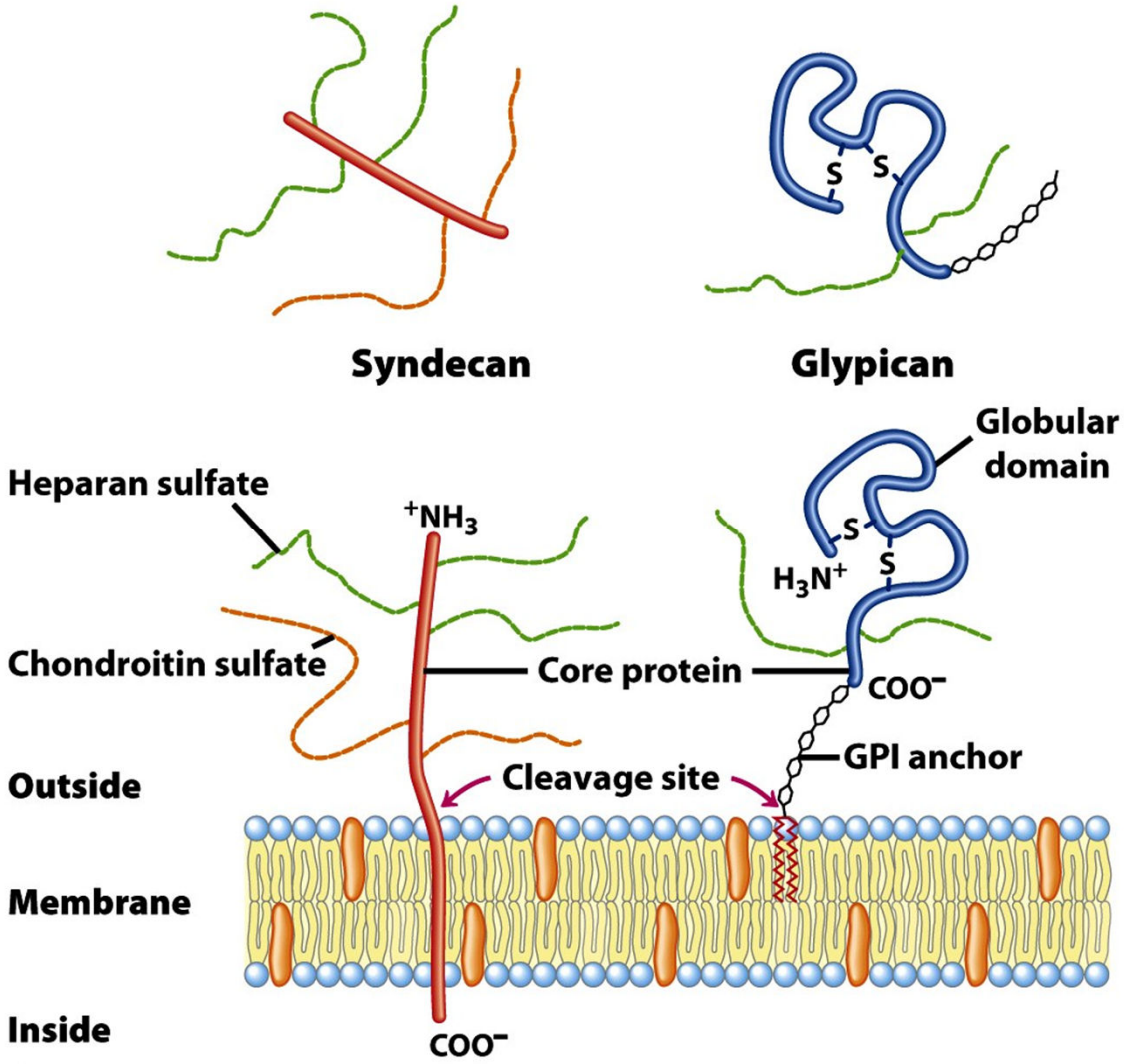
Proteoglycans are major components of connective tissue



Networks of protein and carbohydrate interactions fix a cell to the extracellular matrix

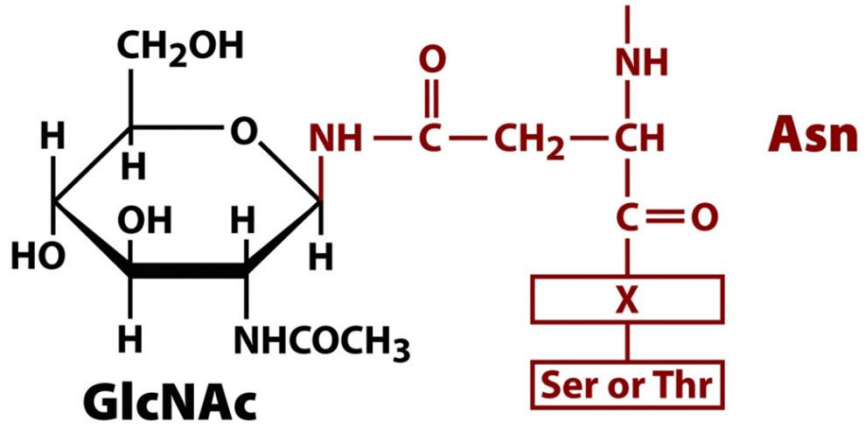


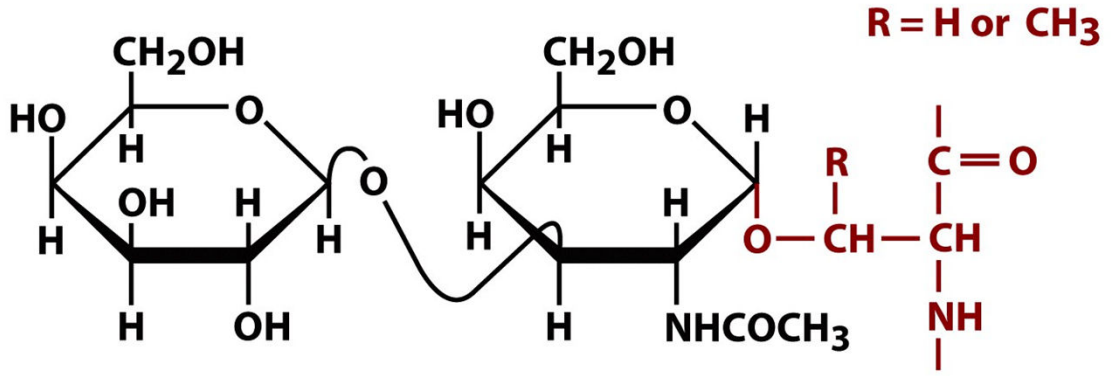
Some proteoglycans are components of cell membranes & influence surface interactions



Glycoproteins (glycosylated proteins) are proteins with oligosaccharides attached

N-linked to Asn
(attached during synthesis)
O-linked to Ser or Thr
(attached after folding)

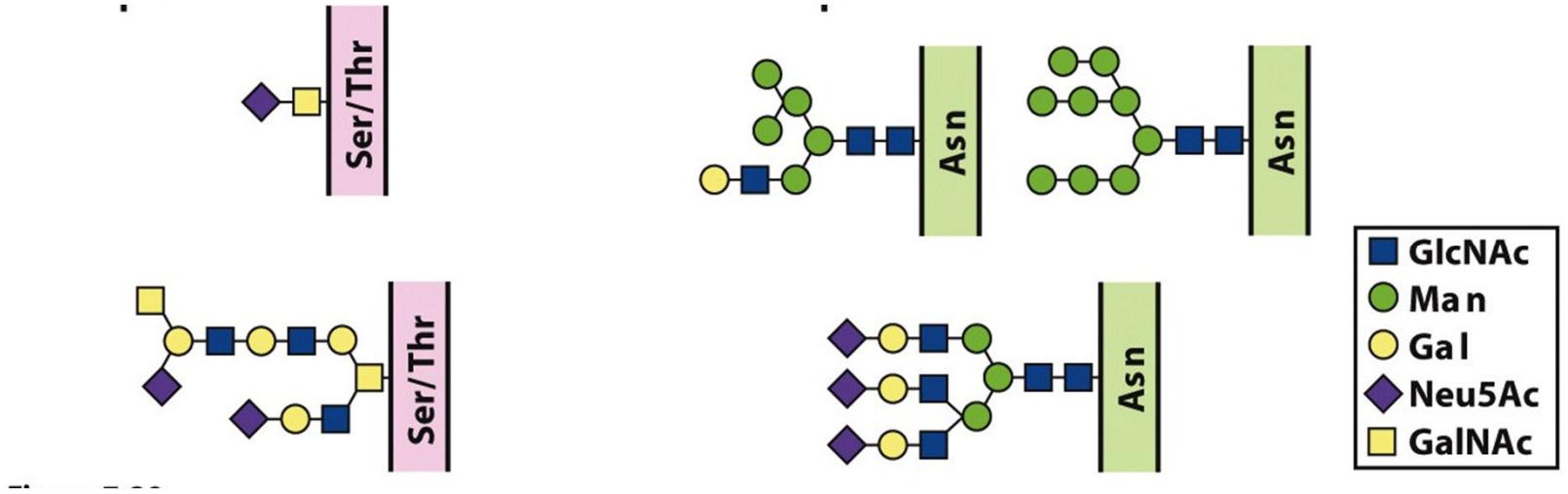




β-Galactosyl-(1 → 3)-α-*N*-acetylgalactosaminyl-Ser/Thr

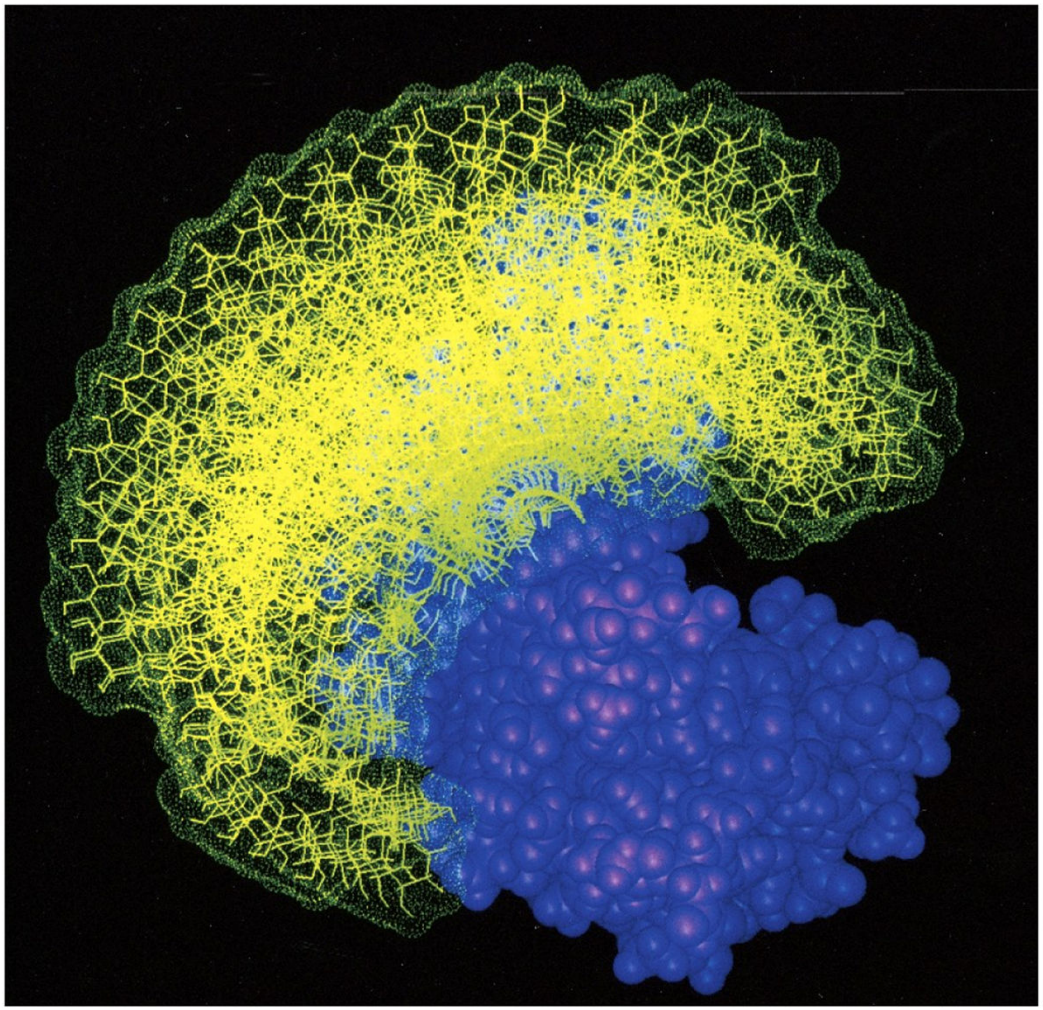
Glycosylation adds great diversity to proteins

Diversity in the sequence of the attached sugar (microheterogeneity)



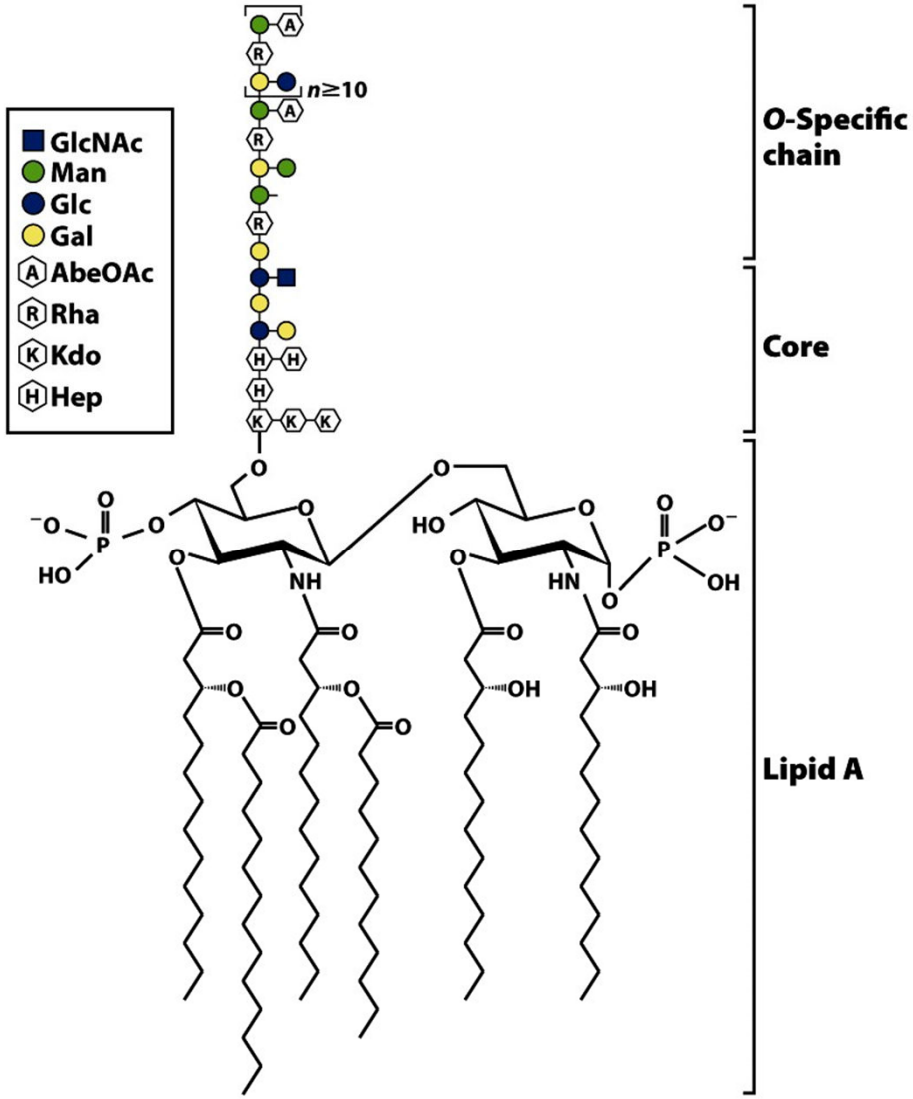
and in patterns of attachment to proteins (glycoforms)

Glycosylations can influence protein structure

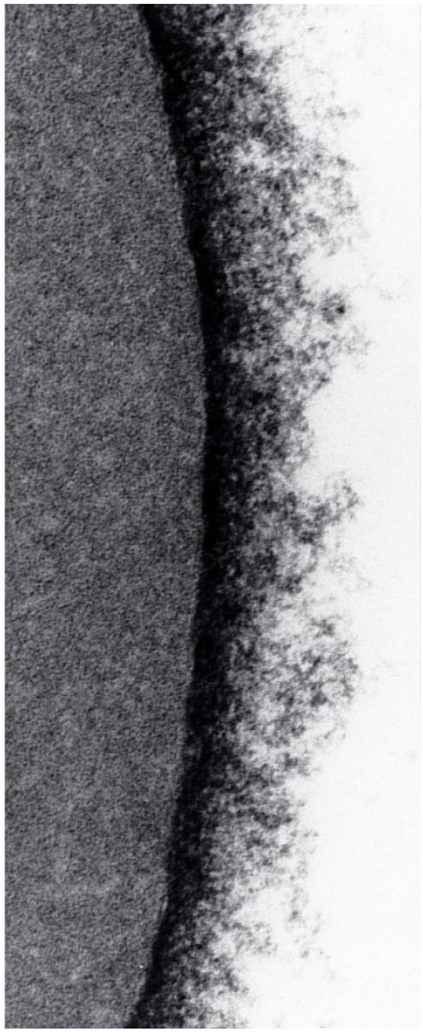


Courtesy of Raymond Dwek, Oxford University, U.K.

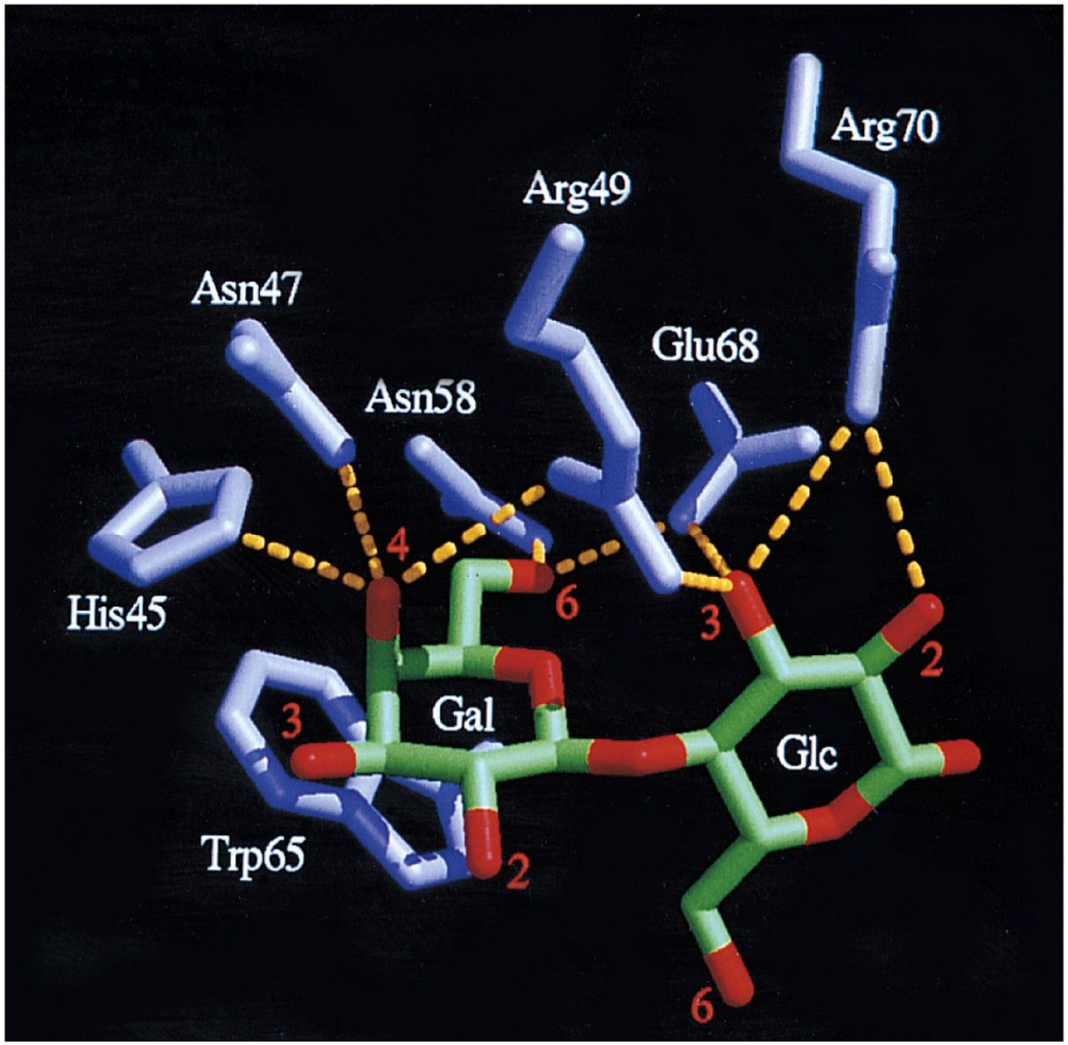
Glycolipids are usually found on the cell surface and are important in recognition



Glycoproteins and glycolipids are recognized and bound by lectins



Courtesy of Harrison Latta, UCLA



Courtesy of Hakon Leffler, University of California at San Francisco

Table 8-1 Structures of the A, B, and H Antigenic Determinants in Erythrocytes

Type	Antigen[a]
H	Gal β(1→4)GlcN Ac ··· ↑1,2 L-Fucα
A	GalN Ac α(1→3)Gal β(1→4)GlcN Ac ··· ↑1,2 L-Fucα
B	Gal α(1→3)Gal β(1→4)GlcN Ac ··· ↑1,2 L-Fucα

[a]Gal, Galactose; GalNAc, *N*-acetylgalactosamine; GlcNAc, *N*-acetylglucosamine; L-Fuc, L-fucose.