

Study Questions

1. Propose a function for the allelic variation observed in the ABO blood group system. If nonprimates do not express the ABO locus as a result of evolutionary loss of the gene, how would this affect your answer?
2. Hyperacute (graft) rejection (HAR) occurs after transplantation of organs from non-human donors into humans and results from an immediate reaction of circulating antiGal α 1–3Gal antibodies with the transplanted tissue. Suggest ways to modify the donor or acceptor to prevent HAR.
3. Compare and contrast “LacNAc” and “LacdiNAc” units. How does the presence of these terminal disaccharides affect the addition of sialic acid and fucose?
4. Based on what you know about terminal structures on follicle-stimulating hormone and lutropin, propose several glycan-based mechanisms that could account for infertility in humans.
5. Certain strains of *Escherichia coli* bind to P blood group antigens and cause urinary tract infections. What evolutionary advantage might exist for retaining the transferases for a deleterious glycan?