Carbohydrates and Cell Recognition (Pages 82-86)

1. What early research suggested that cells had the ability to recognize one another and respond accordingly?

2. What two organic compounds play a role as markers in cell recognition?

3. Which organic compound can carry more information per unit weight: Proteins, Nucleic Acids, or Carbohydrates?

4. Using the image at the bottom of page 83 as a reference, define what is different between a glycoprotein and a glycolipid.

5. The studies by Hakomori and Feizi with mouse embryos showed that adhesive carbohydrates are essential to what?

6. Using the diagram on page 84 as a reference, what are amino acids the building blocks of? What four elements make up the chemical compounds in the diagram?

7. In order to cause disease what must viruses, bacteria, or protozoa be able to do?

8. What is hemagglutination? What sugar can inhibit hemagglutination?

9. What does the K88 strain of *E. coli* bacteria cause in piglets? After learning about the K88 strain through research, what were farmers able to accomplish using selective breeding?

10. The K99 strain of E. coli bacteria can infect multiple species of young farm animals. Why can't it infect adult pigs and humans?

11. How could sugars be used for prevention and treatment of bacterial diseases in the future?