Cell transport mechanisms and permeability

Transportation

Exercise 1: Cell Transport

Mechanisms and Permeability:

Activity 1: Simulating Dialysis (Simple Diffusion) Lab Report Pre-lab Quiz

Results You scored 75% by answering 3 out of 4 questions correctly.

1. The driving force for diffusion is Your answer : c. the membrane transport protein.

Correct answer: b. the kinetic energy of the molecules in motion.

2. In diffusion, molecules move

You correctly answered: a. from high concentration to low concentration.

3. Which of the following dialysis membranes has the largest pore size? You correctly answered: d. 200 MWCO

4. Avogadro's number is a constant for the number of

You correctly answered: b. molecules.

Experiment Results Predict Question: Predict

Question 1: The molecular weight of urea is 60.

7. Do you think urea will diffuse through the 20 MWCO membrane? Your answer : a. Yes, but very slowly. Predict

Question 2: Recall that glucose is a monosaccharide, albumin is a protein with 607 amino acids, and the average molecular weight of a single amino

acid is 135 g/mole. Which of the following will be able to diffuse through the 200 MWCO membrane? Your answer : b. oth glucose and albumin

Stop & Think

Questions: The reason sodium chloride didn't diffuse left to right is that

You correctly answered: c. the membrane pore size was too small. Glucose is a six-carbon sugar. Albumin is a protein with 607 amino acids. The average molecular weight of a single amino acid is 135 g/mole. There is no reason to run these solutes at the 20 MWCO because

Your answer : b. glucose is a protein and therefore too large to pass. Correct answer: d. glucose and albumin are both too large to pass.

The rate of diffusion for urea

Your answer : c. s faster than that for sodium because urea is a smaller molecule.

Correct answer: b. is slower than that for sodium because urea is a larger molecule.

Post-lab Quiz Results

You have not completed the Post-lab Quiz.

Review Sheet Results

1. Describe two variables that affect the rate of diffusion. Your answer: the solute and the MWCO

2. Why do you think the urea was not able to diffuse through the 20 MWCO membrane? How well did the results compare with your prediction? Your answer: I was wrong. The urea was too large to diffuse through the 20 MWCO
3. Describe the results of the attempts to diffuse glucose and albumin through the 200 MWCO membrane. How well did the results compare with your prediction? Your answer: I was wrong here as well. Only the glucose was able to diffuse.
4. Put the following in order from smallest to largest molecular weight: glucose, sodium chloride, albumin, and urea. Your answer: sodium chloride, urea, glucose and albumin.