

# LAB: CELL MEMBRANES

*The purpose of this lab is to determine which substances are capable of moving across a cell membrane.*

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## MATERIALS

- DIALYSIS TUBING
- WATER
- MOLASSES
- IODINE SOLUTION
- STARCH SOLUTION (CORN STARCH)
- GLUCOSE SOLUTION (CORN SYRUP)
- BEAKERS
- GLOVES

## BE CAREFUL...

- \*Dialysis tubing is fragile and needs to be handled gently!
- \* Iodine will stain your clothes and skin – make sure to wear gloves!

## PROCEDURE

- Test #1: Cut a piece of dialysis tubing of approximately 20 cm in length. Tie one end of the tubing and fill it with a mixture of **water and molasses**. Tie the other end of the tubing and place it into a beaker of **water**.
- Test #2: Cut another piece of dialysis tubing and tie one end. This time, pour **water** into the tubing. Tie the other end of the tubing and place it into a beaker containing a mixture of **water and molasses**.
- Test #3: Place a **diluted iodine solution** into a piece of dialysis tubing. Tie the other end of the tubing and place it into a beaker containing a **starch and water** mixture.
- Test #4: Pour a **starch and water** mixture into a piece of dialysis tubing. Place the tubing into a beaker containing a **dilute iodine solution**.
- Test #5: Pour a **glucose (corn syrup)** solution into a piece of dialysis tubing. Place the dialysis tubing in a beaker of water. Test this beaker at the end of the day and the next day.

## HYPOTHESIS

[5 PTS]

**RESULTS**

Describe the appearance of each solution or mixture before the procedure. Record detailed observations at the end of the class as well as the following day.

	<b>TEST #1</b> MOLASSES INSIDE WATER OUTSIDE	<b>TEST# 2</b> WATER INSIDE MOLASSES OUTSIDE	<b>TEST #3</b> IODINE INSIDE STARCH OUTSIDE	<b>TEST #4</b> STARCH INSIDE IODINE OUTSIDE	<b>TEST #5</b> GLUCOSE INSIDE WATER OUTSIDE
<b>INITIAL</b>					
<b>END OF THE CLASS</b>					
<b>NEXT DAY</b>					

**ANALYSIS**

For each of the procedures, indicate which molecules cross the membranes and which molecules do not. Explain how you came to this conclusion. Use the following terms to explain why each type of molecule is capable or incapable of crossing the membrane and how the movement takes place: *semi-permeable membrane, concentration, hypertonic, isotonic*.

<b>TEST #1</b>	
<b>TEST #2</b>	
<b>TEST #3</b>	
<b>TEST #4</b>	
<b>TEST #5</b>	