

Lab for today

Charged dyes in salty solutions

- The goal today is to investigate the influence of salt on the motion of charged molecules (bromophenol blue and bioRad Fast-blast dye)
- These will be placed in a 1% agarose gel in 50 mM salt solution. TAE buffer solution, and in deionized water. The pH of the water is 9.1

Before getting started

- Examine the gel box
 - Locate the leads, the platinum wire, and the two wells on each side of the gel.
 - redraw it as a series network of three resistors. Assume for now that the gel block has the same resistivity as the solution. What is the relative size of each resistor?
- If 20 V is placed across the electrodes, calculate how much current will flow in the DI solution? In the 50 mM NaCl solution?
- Set pairs of boxes on two tables, pair one DI and one other on each power supply.
- Now hook up the box with the NaCl solution, set the voltage to 20V and measure the current. Does it match your prediction?
- Keeping the voltage at 20 V measure the voltage drop across the agarose block
- Each group should load 20 μ l of the two dyes one of the DI boxes and pick one of the either the TAE or NaCl box, load your two dyes into those boxes.
- Carefully draw the wells and note where your dyes are (and which one (Bpb or fastblast)
- Cover the boxes after all groups have loaded their wells and let me take a look.
- Start the power supply at 100 V. Note the current. In which box is the current the greatest?
- At 5 minute intervals, take pictures of the gels and write down the current. Be sure to carefully record your procedures.
- For homework tonight, each group should send a list of 6 questions for the data analysis section of the lab.