**Biotech II:  
 Separation of DNA fragments via Agarose Gel Electrophoresis**

1. Remove your digested DNA samples from Biotech Lab I from the refrigerator.

2. Add 2 µl of sample loading dye into each tube. Mix the contents by flicking the tube  
 with your finger. Collect the sample at the bottom of the tube by tapping it gently on  
 the table or by pulse-spinning in a centrifuge.  
  
3. Obtain the DNA marker (M) from me.

4. Remove the agarose gel from the refrigerator and remove the plastic wrap.  
 Fill the electrophoresis chamber and cover the gel with 275 ml of 1x TAE buffer

5. Check that the wells of the agarose gels are near the black (–) electrode and the  
 bottom edge of the gel is near the red (+) electrode.

6. Load 10 µl of each sample into separate wells in the gel chamber in the following  
 order:

Lane Sample   
 1 M, marker (clear tube)   
 2 L, uncut lambda DNA (yellow tube)  
 3 P, PstI lambda digest (violet tube)  
 4 E, EcoRI lambda digest (green tube)  
 5 H, HindIII lambda digest (orange tube)  
  
Gels are read from left to right. To keep things straight, the first sample is typically loaded in the well at the upper left-hand corner of the gel.

7. Carefully place the lid on the electrophoresis chamber. Connect the electrical leads   
 into the power supply, red to red and black to black.

8. Turn on the power and run the gel at 100 V for 30 minutes.

**Visualization of DNA Fragments**

1. When the electrophoresis run is complete, turn off the power and remove the top of  
 the chamber. Carefully remove the gel and tray from the gel box. Be careful — the gel  
 is very slippery. Slide the gel into the staining tray.  
  
2. To stain your gel:  
a. Add 120 ml of 100x Fast Blast stain into a staining tray (2 gels per tray).

b. Stain the gels for 2 minutes with gentle agitation.

c. Transfer the gels into a large washing container and rinse with warm (40–55°C) tap   
 water for approximately 10 seconds.

d. Destain by washing twice in warm tap water for 5 minutes each with gentle shaking   
 for best results.

e. Record results.

f. Trim away any unloaded lanes.

g. Air-dry the gel on support film.