Biology 3210 – Restriction Mapping Assignment

Value: 5% (of course grade)
Due: At the *beginning* of the next laboratory session (i.e., Oct. 10/11, 2018)
Format: Typed (double-spaced) hard copy using a standard 12 pt font

1. Using the picture of the gel provided (Figure 1), generate and submit an appropriate standard curve to determine the sizes of the bands present in lanes 1, 3, and 4. (5 pts)

2. For each of the three samples (Figure 1; lanes 1, 3, and 4), what is the size of the brightest band? Show your work. (2 pts)

3. Would you consider the determined sizes, from question #2, to be reliable for each of the DNA fragments? Explain (2 pts)

4. The larger bands within the marker lane (Figure 1) are difficult to distinguish from one another and this would be problematic if the DNA samples had unknown bands in this same size range. Provide a *practical* change to any aspect of the agarose gel electrophoresis conditions that would allow this region of the marker lane to be accurately utilized for size determination. (1 pt)

5. Submit the restriction site map of *p?*, as a proper scientific figure, setting the restriction site of *Eco*RI as 0 as shown during the first lab period. (12 pts)

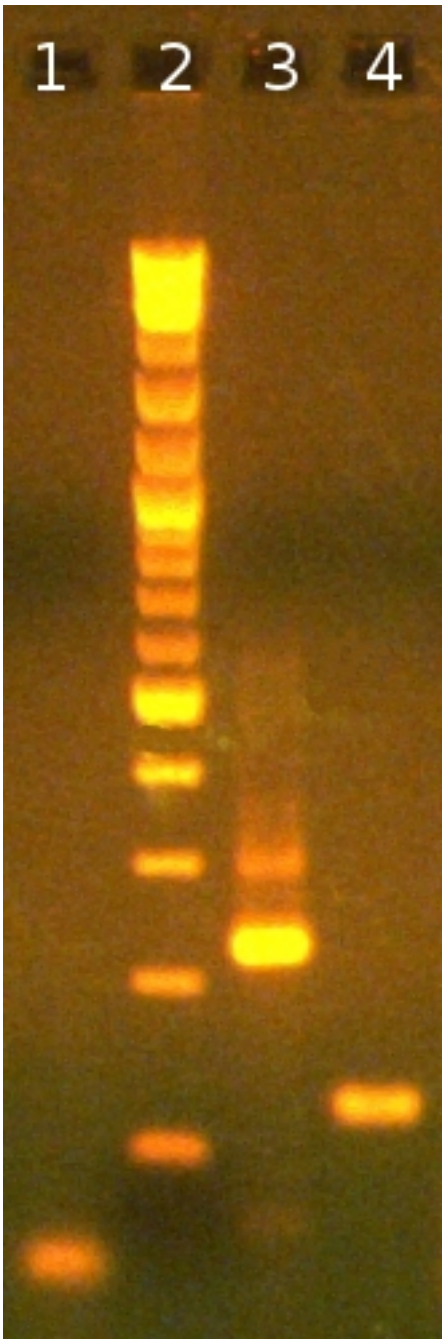

Figure 1. *Digital photograph of an agarose gel following electrophoresis and ethidium bromide staining of three DNA samples (Lanes 1, 3 & 4). The marker (Lane 2) used was the 2-Log DNA Ladder (New England Biolabs).*

Resources:

The New England Biolabs (NEB) website can be found at www.neb.ca (or www.neb.com) and the catalog number for the 1 kb Plus DNA Ladder (aka 2-log DNA ladder) is N3200S.

A review of Appendix C and of the sections on DNA replication and plasmids from Biology 2000 may be worthwhile to re-familarize yourself with some of the terminology.