**CHEM525 Experiment 1 PreLab**

**Electrophoresis and Ligation**

1. Describe how electrophoresis works.
2. How are DNA lengths estimated by electrophoresis?
3. Using the concentrations described in your protocol for this week’s lab, determine how much of each reactant that you need to add to make a 10 L reaction.

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| --- | --- | --- |
|  | **Concentration** | **Volume to add (L)** |
| pET28a | 25 ng L-1 |  |
| LDH | 20 ng L-1 |  |
| Buffer | 10x |  |
| DNA ligase | 10x |  |
| Water |  |  |

1. Using ApE, or a similar program, prepare a plasmid map that shows the sequence below, which contains a NdeI and HindIII sites, ligated into pET28a (found on the resources link of the website).

CATATGAATAACATCGGCATTACTGTTTATGGATGTGAGCAGGATGAGGCAGATGCATTCCATGCTCTTTCGCCTCGCTTTGGCGTTATGGCAACGATAATTAACGCCAACGTGTCGGAATCCAACGCCAAATCCGCGCCTTTCAATCAATGTATCAGTGTGGGACATAAATCAGAGATTTCCGCCTCTATTCTTCTTGCGCTGAAGAGAGCCGGTGTGAAATATATTTCTACCCGAAGCATCGGCTGCAATCATATAGATACAACTGCTGCTAAGAGAATGGGCATCACTGTCGACAATGTGGCGTACTCGCCGGATAGCGTTGCCGATTATACTATGATGCTAATTCTTATGGCAGTACGCAACGTAAAATCGATTGTGCGCTCTGTGGAAAAACATGATTTCAGGTTGGACAGCGACCGTGGCAAGGTACTCAGCGACATGACAGTTGGTGTGGTGGGAACGGGCCAGATAGGCAAAGCGGTTATTGAGCGGCTGCGAGGATTTGGATGTAAAGTGTTGGCTTATAGTCGCAGCCGAAGTATAGAGGTAAACTATGTACCGTTTGATGAGTTGCTGCAAAATAGCGATATCGTTACGCTTCATGTGCCGCTCAATACGGATACGCACTATATTATCAGCCACGAACAAATACAGAGAATGAAGCAAGGAGCATTTCTTATCAATACTGGGCGCGGTCCACTTGTAGATACCTATGAGTTGGTTAAAGCATTAGAAAACGGGAAACTGGGCGGTGCCGCATTGGATGTATTGGAAGGAGAGGAAGAGTTTTTCTACTCTGATTGCACCCAAAAACCAATTGATAATCAATTTTTACTTAAACTTCAAAGAATGCCTAACGTGATAATCACACCGCATACGGCCTATTATACCGAGCAAGCGTTGCGTGATACCGTTGAAAAAACCATTAAAAACTGTTTGGATTTTGAAAGGAGACAGGAGCATGAATAGAAGCTT