

## Lab Report 3

# Experiments 10 and 11

This lab report will be informal. There should be no Abstract, Introduction, or Methods and Materials. The Results should include only the relevant figures and tables. No written narrative is necessary. The Discussion will be only a brief analysis of the data. The reports will be graded at 40 points: 20 points for data and 20 points for analysis.

This report covers experiments 10 (Transformation of Plasmids pRIT4501 and pRIT4502 into *Bacillus subtilis*) and 11 (Heterologous Gene Expression in *Escherichia coli* and *Bacillus subtilis*). In experiment 10 you transformed your plasmids into *B. subtilis* to create a set of strains in which both plasmids are present in both species. In experiment 11 you tested to see whether or not *E. coli* could express the *B. subtilis* genes for kanamycin and chloramphenicol resistance and whether *B. subtilis* could express the *E. coli* gene for ampicillin resistance.

*E. coli* is known for being liberal in which upstream expression signals it recognizes, while *B. subtilis* is known to be somewhat rigid. An additional problem with *B. subtilis* is that it tends to reduce the size of plasmids that are longer than a critical length. This could cause the cells to lose parts of plasmids that are not subjected to selection.

In this lab report you must marshal the data at hand to explain the pattern of antibiotic resistances in both species. Required data include:

- *B. subtilis* growth curve
- transformation data
- gel of miniprep plasmid extractions
- table of antibiotic resistances