

Prokaryotic Operon Activity AP Biology

Purpose: To demonstrate the process of prokaryotic gene regulation.

Materials:

Pink clay: repressor protein

White pipe cleaner: DNA

Green clay: inducer

Color pipe cleaner: RNA

Yellow clay: RNA Polymerase

Beads (5): genes

Orange clay: Co repressor

Procedure:

1. Using the materials listed above and figures 15.3 & 15.4, demonstrate the repressible trp operon and the inducible lac operon.
2. Draw and label your models as you create them.

Questions

1. Describe the trp operon.
2. Describe the lac operon.
3. Compare and Contrast the lac repressor and the trp repressor.
4. Describe how the lac operon exhibits both positive and negative gene regulation.
5. How does this model do a good job of representing the operons? What are the limitations of this model?