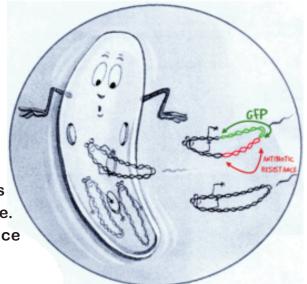


Making Glowing Bacteria

The Green Fluorescent Protein (GFP) gene is normally found in the Pacific jellyfish. When the jellyfish are excited, GFP causes them to give off fluorescent green light. In this experiment you will add the jellyfish gene to *E.coli* bacteria cells. Adding this new gene to *E.coli* gives them the ability to glow fluorescent green when exposed to ultra-violet light. When the *E.coli* are transformed they get the jellyfish gene, and express the jellyfish trait! This technique, used to move genes from one organism into another, is called genetic engineering.

Procedure:

- Combine 10uL of plasmid containing the GFP gene with 250μL of E. coli cells.
 - **Heat Shock** the cells:
 - a. Remove the tube from the beaker of ice and immediately place it in a 42°C° water bath for 90 seconds.
 - **b.** Immediately return the tube to ice for 1 additional minute, then place it in a rack at room temperature.
- Transfer 250μL of the newly transformed bacterial cells onto the agar surface of a petri plate. Be sure to clam shell the lid of the petri plate.
 - Spread the cells over the suface of the petri plate:
 - a. Clam shell the lid of the petri plate and gently pour the small glass beads onto the plate.
 - b. Use a gentle swirling motion to move the glass beads around the entire surface of the petri plate. This spreads the cells evenly over the agar surface where they will grow.



Heat Shock!



2

Store plates upside down at room temperature.