

# 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:

- 1** 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.
- 3** **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.
- 4** **Spread the cells over the surface 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.
- 5** **Store plates upside down at room temperature.**

