

# Biotech Prep and Setup

Perishable items to purchase:

- None

## Materials

Item	Number	Notes
1% agarose gels	1/table + 4 extra	In tray
Practice gels	4/table	In plastic bag in tray
P200 micropipettes	24/class	In bin by trays
P10 micropipettes	12-24/class	In bin by trays
Yellow P200 tips	1 box/table	In tip boxes by micropipettes
Clear P10 tips	1 box/class	In tip boxes by micropipettes
Colored water	4 bottles / class	On counter by trays
1.5 ml tubes	16/tray (4/student)	In a 1.5 ml tube rack in tray
0.2% sodium bicarbonate	3L/class	In bottles labeled Electrophoresis Buffer
Samples and controls for gel electrophoresis	1 set / tray	In a 1.5 ml tube rack in tray
PowerPac power supply	1/table	Have out at the table
Electrophoresis chambers	1/table	Have out at the table
Mini centrifuge	All three	Put in the middle of the class

## Notes:

- The colored water can be made by adding 15 drops of food coloring to 500 ml of water. This should be enough for one day of four classes.
- To make 0.2% sodium bicarbonate, dissolve 2 g of sodium bicarbonate (baking soda) in 1,000 ml DI water. This is used both for making the gels and for running the gels.
- To make the 1% agarose gels, weigh out 0.5 g of agarose and mix it with 50 ml of 0.2% sodium bicarbonate in a 250 ml Erlenmeyer flask. Microwave for about 1.5 minutes or until it just starts to boil. Cool, pour into assembled gel mold. Keep the comb in the mold when setting the molds out for students. Place molds (with comb) in a resealable bag in the tray.
- Extra gels should be stored in the refrigerator for instructors to access.
- Each new batch of food coloring should be tested. In the current batch (March 2023), the blue contains both a blue and a red pigment, but it needs twice as much on a gel. The green in the March 2023 batch contains only blue and yellow, no green. To account for this, the following procedure can be followed for making the control and samples for gel electrophoresis.

- Normal rice control: 900  $\mu$ l, water 100  $\mu$ l yellow
- Golden rice genes control: 800  $\mu$ l water, 200  $\mu$ l blue
- Sample 1: 700  $\mu$ l water, 100  $\mu$ l yellow, 200  $\mu$ l blue
- Sample 2: 900  $\mu$ l water, 100  $\mu$ l yellow
- Sample 3: 700  $\mu$ l water, 100  $\mu$ l yellow, 200  $\mu$ l blue
- Sample 4: 900  $\mu$ l water, 100  $\mu$ l green
- The GFP plates should be placed in the incubator overnight between classes or for an hour or two the morning of the class. (This might not be necessary.)