This protocol is written after a protocol by Marcus Lehr.
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∅∅∅∅∅ OD600 Optimization Protocol

Some experiments require a specific cell density. Measuring cell density can be done by measuring the solution's absorption at 600nm wavelength with E.coli, as the culture solutions are roughly the same color.

Note that if the solution is too concentrated, math will be required to figure out how much distilled water to add. You probably won't survive.

Solutions
Your favorite culture
dH2O

Materials (sterile)
Pipetman P20
Pipetman P1000
Spectrophotometery cuvettes

You will also need access to a:
Spectrophotometer

Procedure

1. Swirl the **culture solution** flask gently to mix it and ensure uniform density.
2. Add **800µL culture** solution to a **cuvette** with a fresh, sterile **Pipeteman P20 tip.**
3. Measure the OD600 of the cuvette with the **spectrophotometer.**
4. If the OD600 is too low, **incubate** the culture at **37° C** for **30 minutes** and take another reading. If the OD600 is too high, dilute with ***X*mL dH2O**, where:

$$X = \mathrm{CurrentVolume} * \left(\frac{\mathrm{CurrentOD600}}{\mathrm{DesiredOD600}} - 1\right)$$

Use a **P1000** to do this unless the volume required is smaller than the minimum on the pipette.

Repeat this protocol until the OD600 is where you want it, making sure to mix the culture by swirling each time. Chill the cells on ice when the ideal optimization point is reached, as this will stymie their growth.