

The Interlab Study was an initiative started by iGEM in 2014. This initiative examines the replicability of fluorescence measurements and identifies likely sources of error. This year, the Interlab Study focused on how close can these measurements be when measuring fluorescence around the world. In order to compare measurements around the world a standardized protocol was put in place to limit variances between measurements in different laboratories.

The FSU iGEM team participated in this measurement study using the Plate Reader Protocol. Here you can find the devices that were tested, a summary of the protocol, and graphs showing raw plate reader measurements of the OD600 and fluorescence of our samples over time.

Tested Devices

Competent *E. coli* DH5 α cells were transformed with the following plasmids:

- Positive Control (**BBa_I20270**) – J2311.B0032.E0040.B0010.B0012 in pSB1C3
- Negative Control (**BBa_R0040**) – R0040 in pSB1C3
- Test Device 1 (**BBa_J364000**) – J23101.B0034.E0040.B0010.B0012 in pSB1C3
- Test Device 2 (**BBa_J364001**) – J23106.B0034.E0040.B0010.B0012 in pSB1C3
- Test Device 3 (**BBa_J364002**) – J23117.B0034.E0040.B0010.B0012 in pSB1C3
- Test Device 4 (**BBa_J364003**) – J23101.J364100.E0040.B0010.B0012 in pSB1C3
- Test Device 5 (**BBa_J364004**) – J23106.J364100.E0040.B0010.B0012 in pSB1C3
- Test Device 6 (**BBa_J364005**) – J23117.J364100.E0040.B0010.B0012 in pSB1C3

Protocol

- 2 colonies from each plate were inoculated in 5 mL LB + Chloramphenicol. Cells were grown overnight at 37°C and 220 rpm.
- Measured OD600 of overnight cultures
- Diluted the cultured to an OD600 of 0.01 in 12 mL LB + Chloramphenicol and placed in thermo shaker at 37°C and 220 rpm with a tray shielding thermo shaker from light.
- Samples of 500 μ L taken at 0, 2, 4, and 6 hours of incubation.
- OD and fluorescence measured of each sample.

Results

- Most samples grew exponentially other than the positive control and Test Device 1
- Test Devices 2 and 5 had the greatest increase in fluorescence over time
- The negative control did not express fluorescence, Test Devices 3, 4, and 6 also had little to no expression of fluorescence

