### RESULTS: JEDI VICTORIES

**Device 2 testing: SoxR/SoxS system regulating GFP production**

In order to test the ability of "Jedi Bacteria" in sensing NO levels and activating genes linked to SoxR promoter, we built a testing Device with GFP linked to SoxR promoter, as it is shown in the following schema (Figure 4). We induced oxidative stress by adding increasing concentrations of Paracut.

![Fluorescence (A) vs. Time (hours)](image)

**Figure 4: Testing Device 2 through replacement of 6.10 to GFP.**

**Figure 5: SoxS/SoxR fluorescence data (511 nm) for concentrations 0, 5, 10, 20, 30 and 40 μM of inducer.**

**Results:**

Achieved results indicate that the designed sensor/effector device system was capable of inducing the production of GFP (or another generic protein controlled by the sensor). In addition, protein induction can be modulated through varying inducer concentration (Figure 5). Higher concentrations of Paracut exhibited higher fluorescence levels, which indicates increased GFP concentrations. No plateau was achieved using the highest tested concentrations. The experimental concentrations of Paracut did not show significant differences in cell growth as shown by OD levels and calculations of its specific growth rates (Data not shown).

### HUMAN PRACTICES: JEDI PRACTICES

The first portion of our Human Practice began with the selection of the team, as some students had little or no previous experience in molecular or synthetic biology. In this sense, the training process, conducted by the advisors, was very profitable. Additionally, we decided to innovate, creating a didactical method to teach genetic engineering in schools, to a public that has never heard about this scientific field. We were very happy with our results, specially with the high school students feedback. They were very enthusiastic about the Video class and DNA workshop we prepared to them. Also, they became very interested in learning about genes, promoters, devices and important issues related to Genetic Engineering. The other human practices were talk presentations at Unicamp and EMSE, were we able to disseminate and create interesting discussions about the theme.