Photos in Living Color

- Purdue University iGEM Team

Purdue University - iGEM

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Acknowledgements

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- Purdue Resources in Engineering
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- Purdue Laboratory of Renewable Resources in Engineering

Purdue University

- **History**
  Founded in 1869 and named after benefactor John Purdue, Purdue University began its journey with six instructors, 39 students and a mission to provide agriculture and mechanic arts education.

- **Student Body**
  West Lafayette enrollment of 38,712 students (fall 2005); students from 50 states and 130 countries.

- Purdue University enjoys global renown for its world-class instructional and research pursuits.

iGEM & Purdue

- As one of the largest universities in the nation, Purdue is acclaimed for the quality of its teaching and research in a wide range of fields.
- Participating for the first time in the iGEM competition.
- Formation of a student organization titled Biological Engineering in Genetics.

In the Beginning…

- BEG is a completely student run organization and an officially recognized Purdue club.
- To gain such status, a constitution was written to govern the club.
  - This included officer elections, lab safety, and other foreseeable issues.
  - Completed and submitted to Purdue for approval and status.
- Makes Purdue BEG unique and appealing to donors as it is student run and directed.

Did Somebody say Money?

- Fundraising conducted within school departments to pay for research, travel, and other associated costs.
- Packet of information developed and distributed during sales pitch.
  - Samples of used material will be available on the BEG website for future reference by other schools.
- Referencing student basis, students have control of funds but cannot create expenditures without approval of Advisor and Treasurer.

The Idea

- Fluorescent Biological Photo Paper

Use ink Jet printer to apply repressors/inducers to sheet of paper.

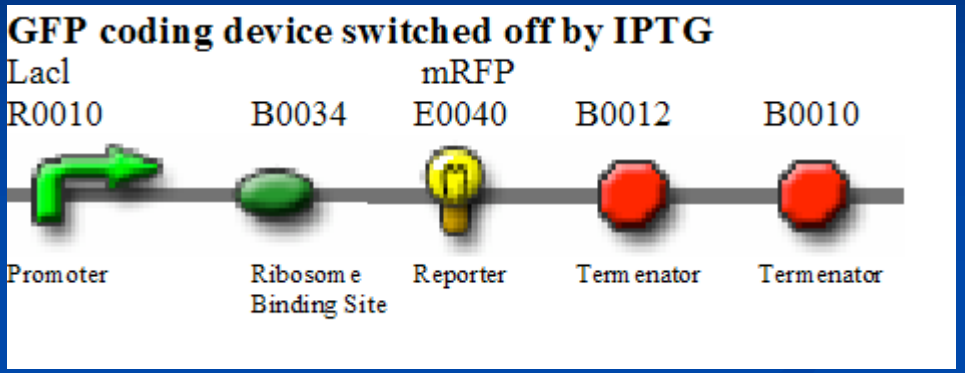
Incubate Paper with Genetically Modified e-coli that express fluorescent colors in presence of these repressors/inducers.

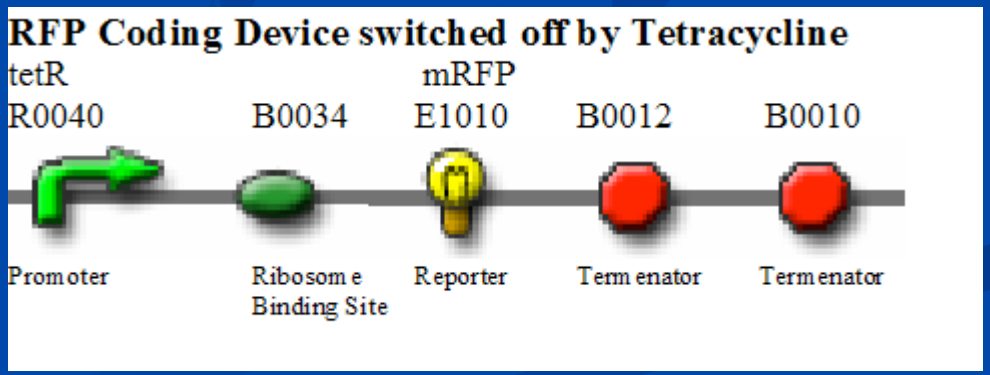
Part Priorities

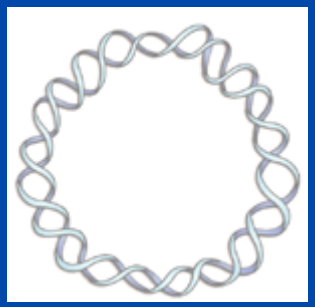
- Use water soluble molecules.
  - IPTG and tetR
- Use an antibiotic to kill e-coli in white space.
  - Kanamycin
- Signal for strong colored fluorescent proteins
  - GFP, mRFP

Part Selection

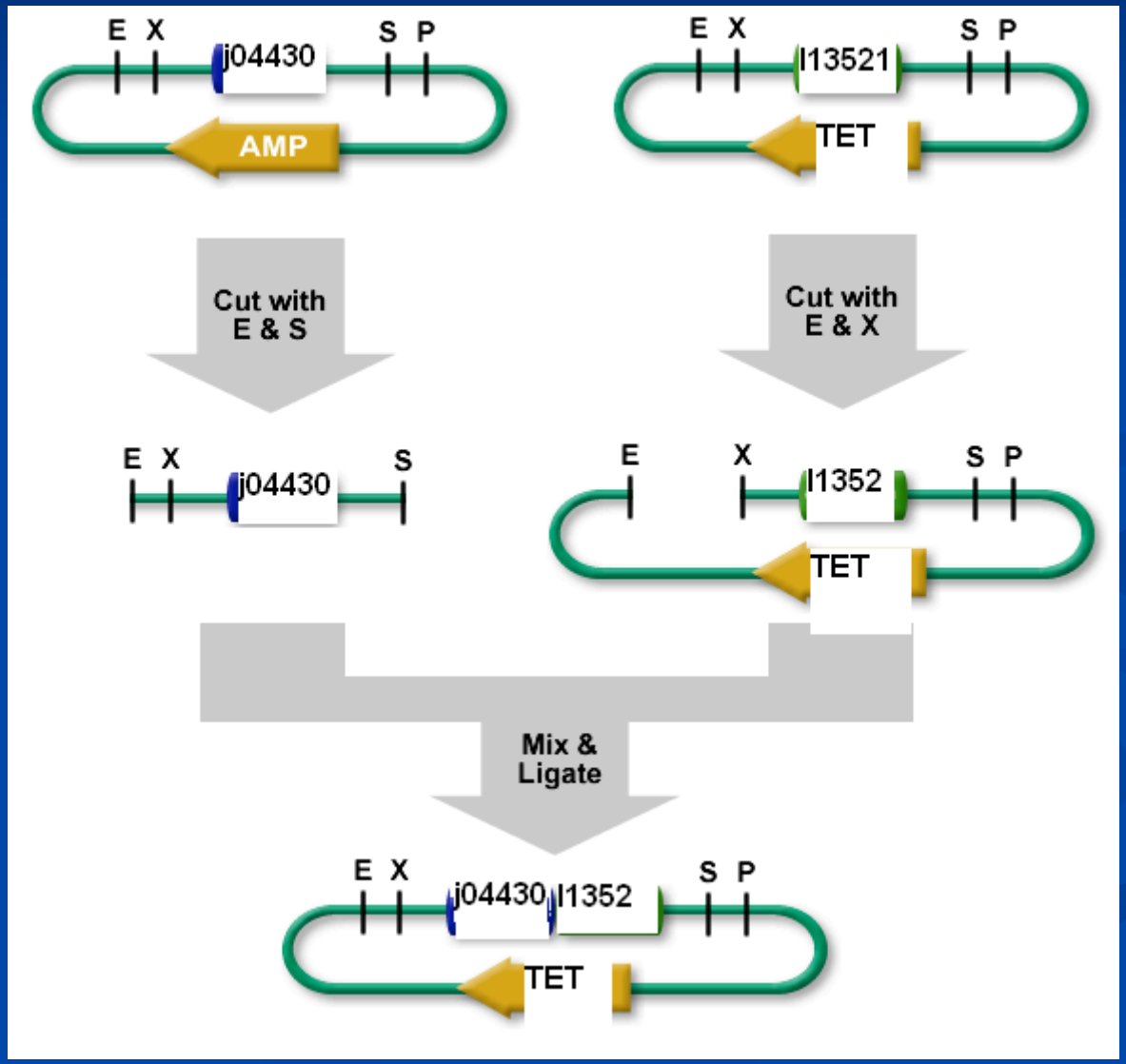
- Three Parts used
  - GFP BBa_l13521
  - RFP BBa_j04430
  - tetR Plasmid





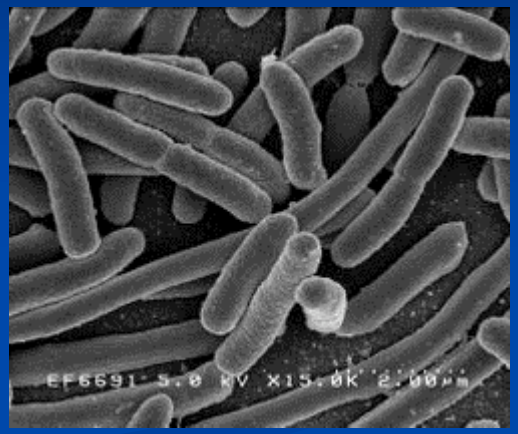


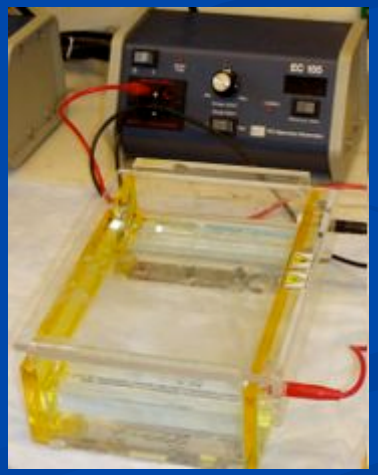
Part Creation- Standard Assembly



The Process

- Prepared Competent Cells
- Transformation of DNA
- Miniprep
- Enzyme Digest
- Gel Electrophoresis
- Gel Extraction
- Ligation
- Repeat





Printer Problems

- Loading Problems
- Ink/ Promoter Viscosity
- Diffusion throughout the paper

Printer Solutions

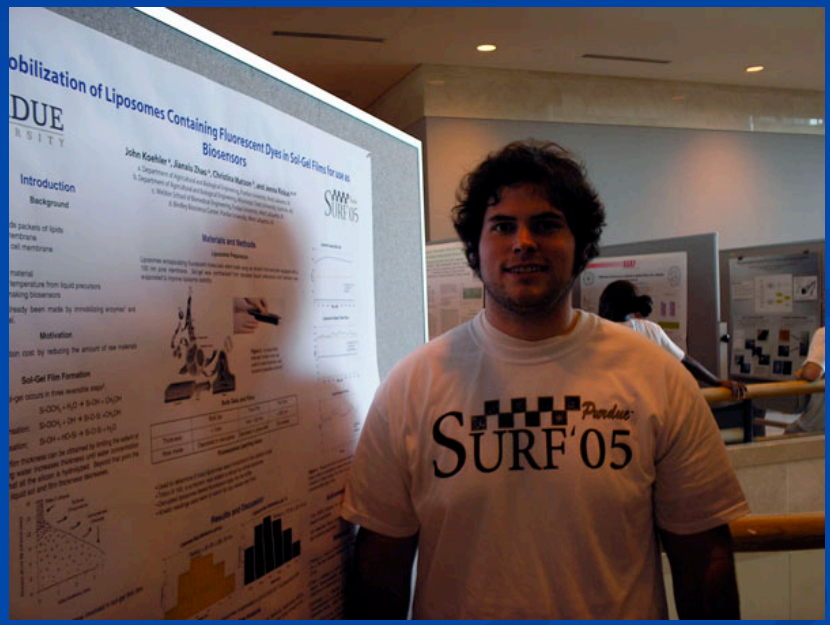
- Find an easily refillable printer
- Print trial with table sugar

Biological Problems

- Bacteria Growing on Paper
  - Will it stay in one place?
- Diffusion of Promoters in media
- Resolution of GFP mRFP

Future Plans

- Recruit full time student research over the summer
  - 3-5 Students
  - Use the Purdue SURF program
- Expand into other engineering disciplines



iGEM plans

- Keep the project student run
  - Allow the next generation of students to pick their project
  - Encourage members with little experience to join
- Obtain dedicated lab space and equipment

Funding

- Need a reliable source of annual funding
  - Lab equipment, trips, summer students
  - Goal is an endowment through Discovery Park

Questions