

System Engineering M2D3

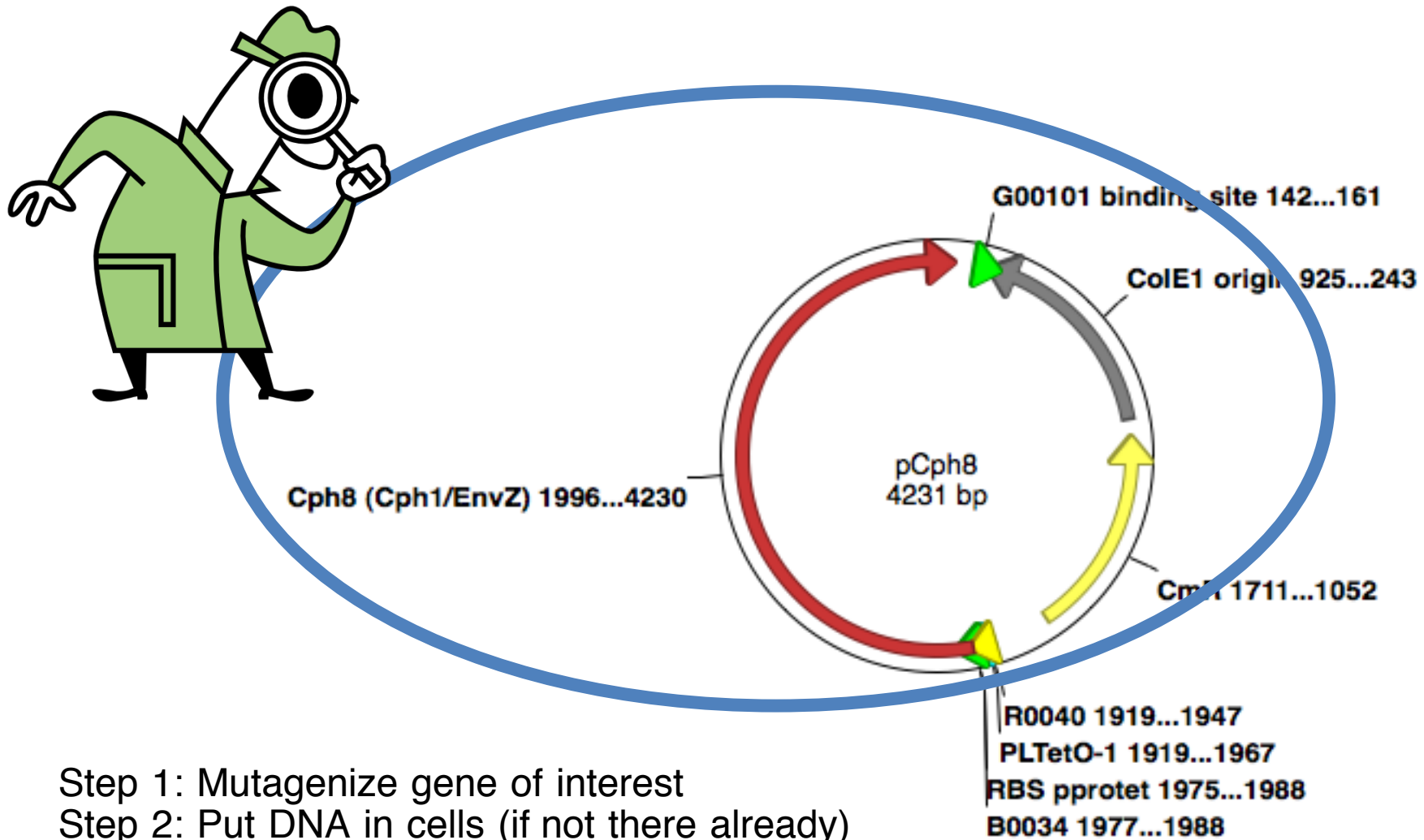
10.20.11

Measuring LacZ

$$1 \text{ Miller Unit} = 1000 * \frac{(Abs_{420} - (1.75 * Abs_{550}))}{(t * v * Abs_{600})}$$

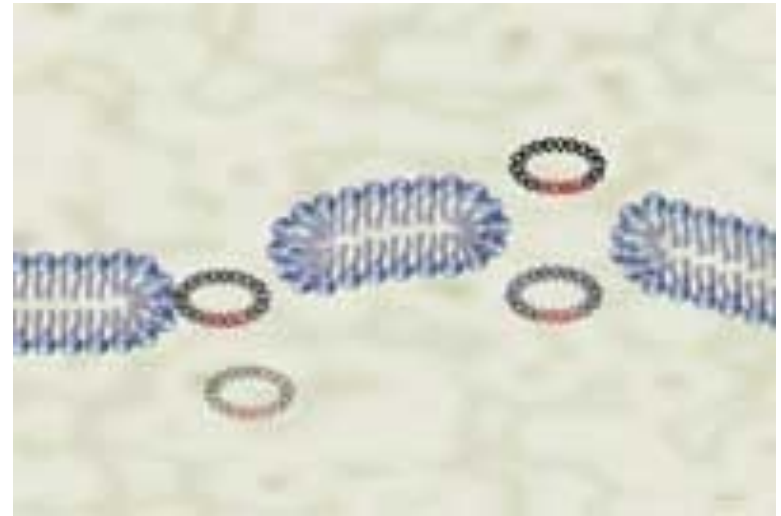
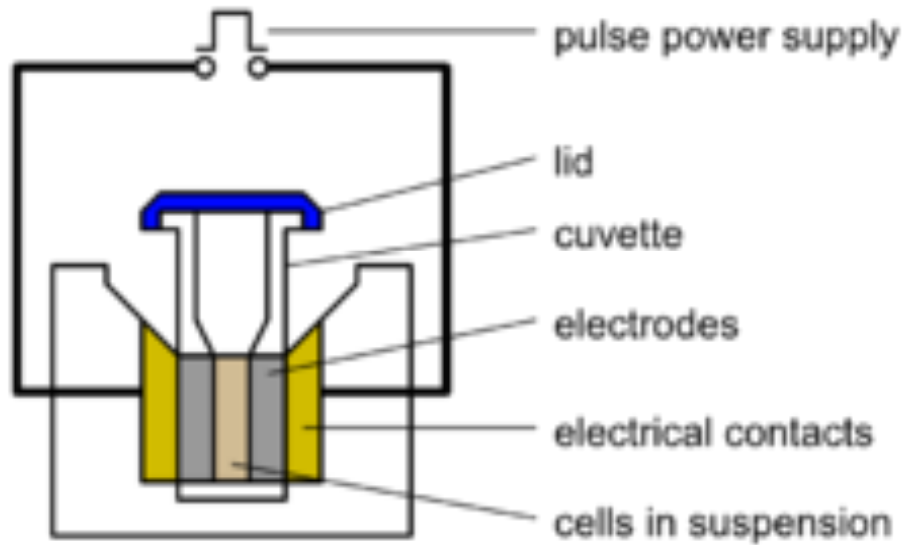
| Team Color | B-gal units (dark) | B-gal units (light) |
|------------|--------------------|---------------------|
| Red | 1044 | 137 |
| Orange | 1297 | 360 |
| Yellow | 1236 | 228 |
| Green | 1274 | 420 |
| Blue | 1177 | 272 |
| Pink | 1292.5 | 457.5 |
| Purple | 611 | 299 |

Looking for parts: genetic screening



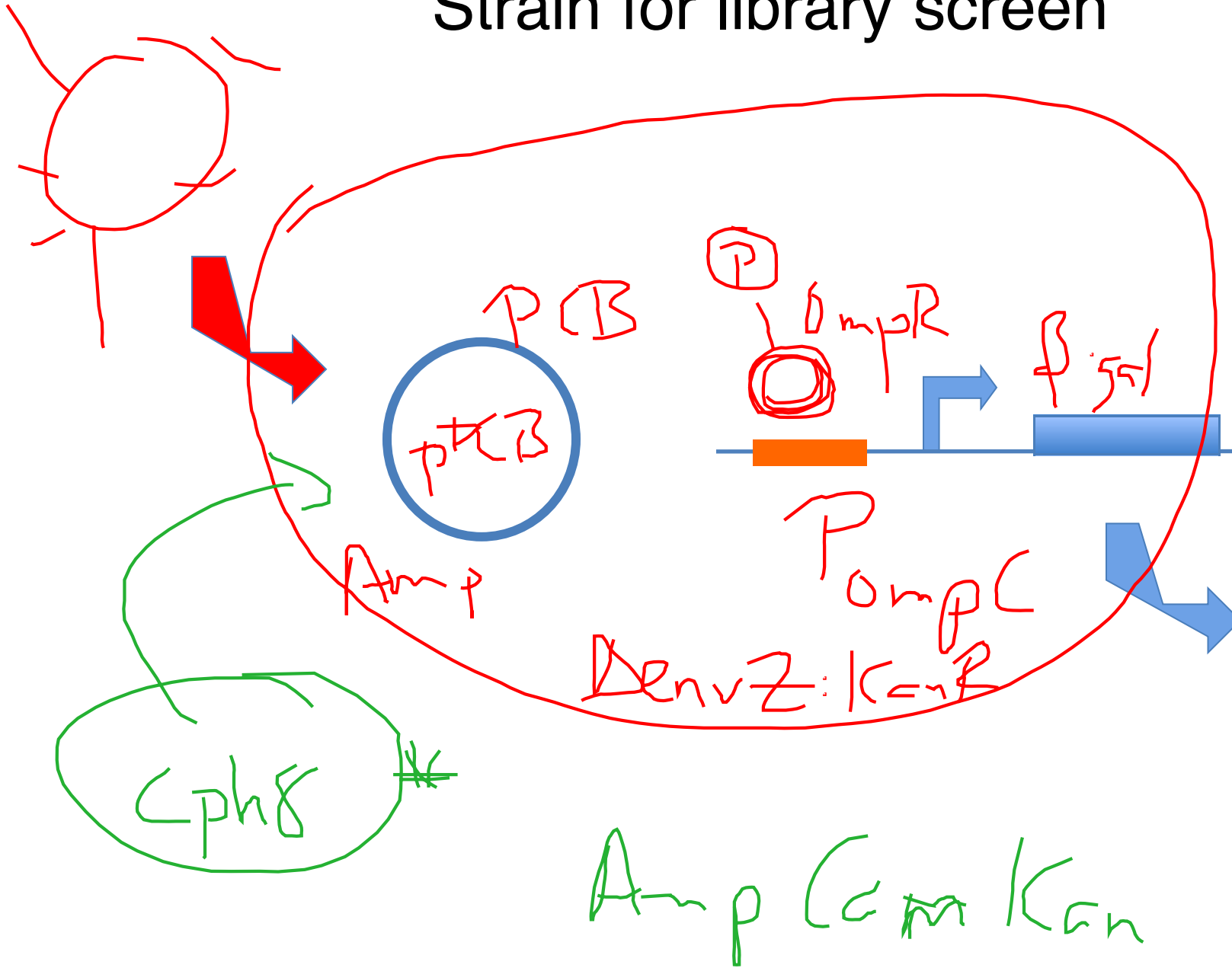
- Step 1: Mutagenize gene of interest
- Step 2: Put DNA in cells (if not there already)
- Step 3: Look for mutant phenotype

Electroporation



An artistic
representation
davidson.edu

Strain for library screen



TTC Media: variations in color from variations in b-gal activity

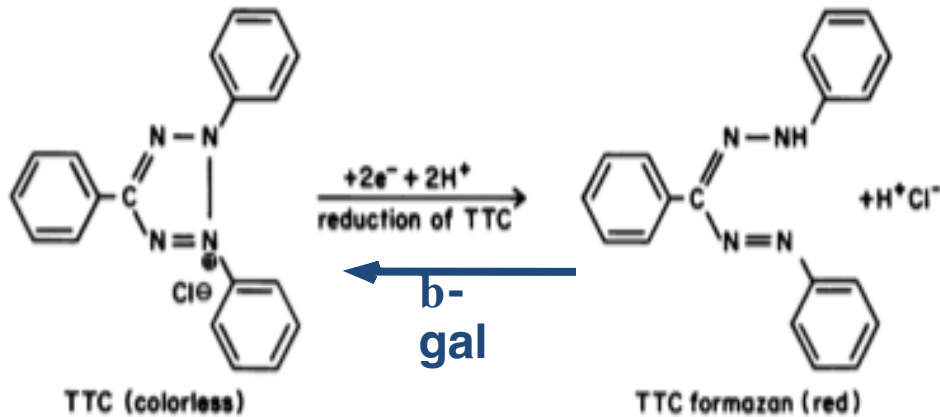
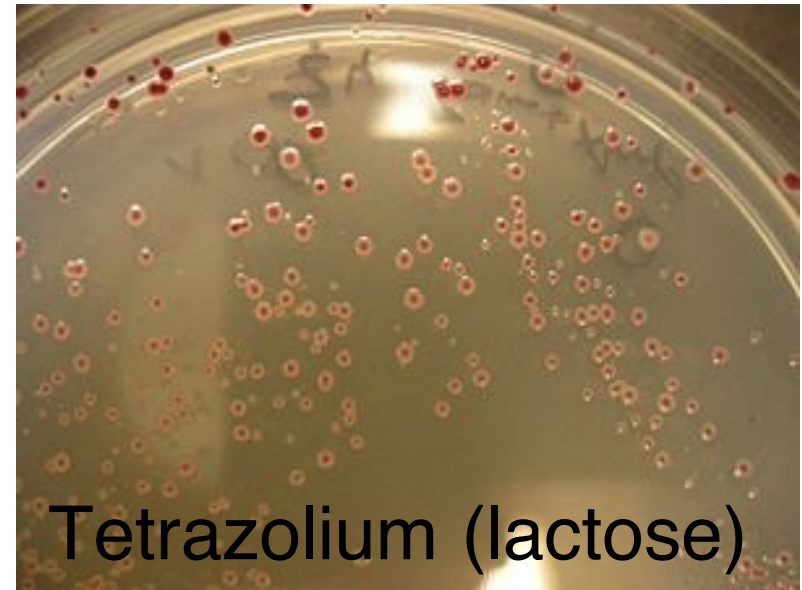


FIG. 1. Structure and reduction of TTC.



APPLIED AND ENVIRONMENTAL MICROBIOLOGY, Feb. 1977, p. 434-444
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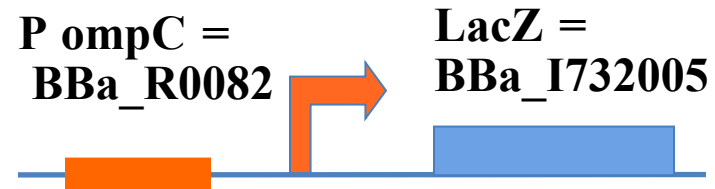
Vol. 33, No. 2
Printed in U.S.A.

Generalized Indicator Plate for Genetic, Metabolic, and Taxonomic Studies with Microorganisms

BARRY R. BOCHNER^{1*} AND MICHAEL A. SAVAGEAU

Part 2: Registry of Std Biological Parts

Design a protein generator

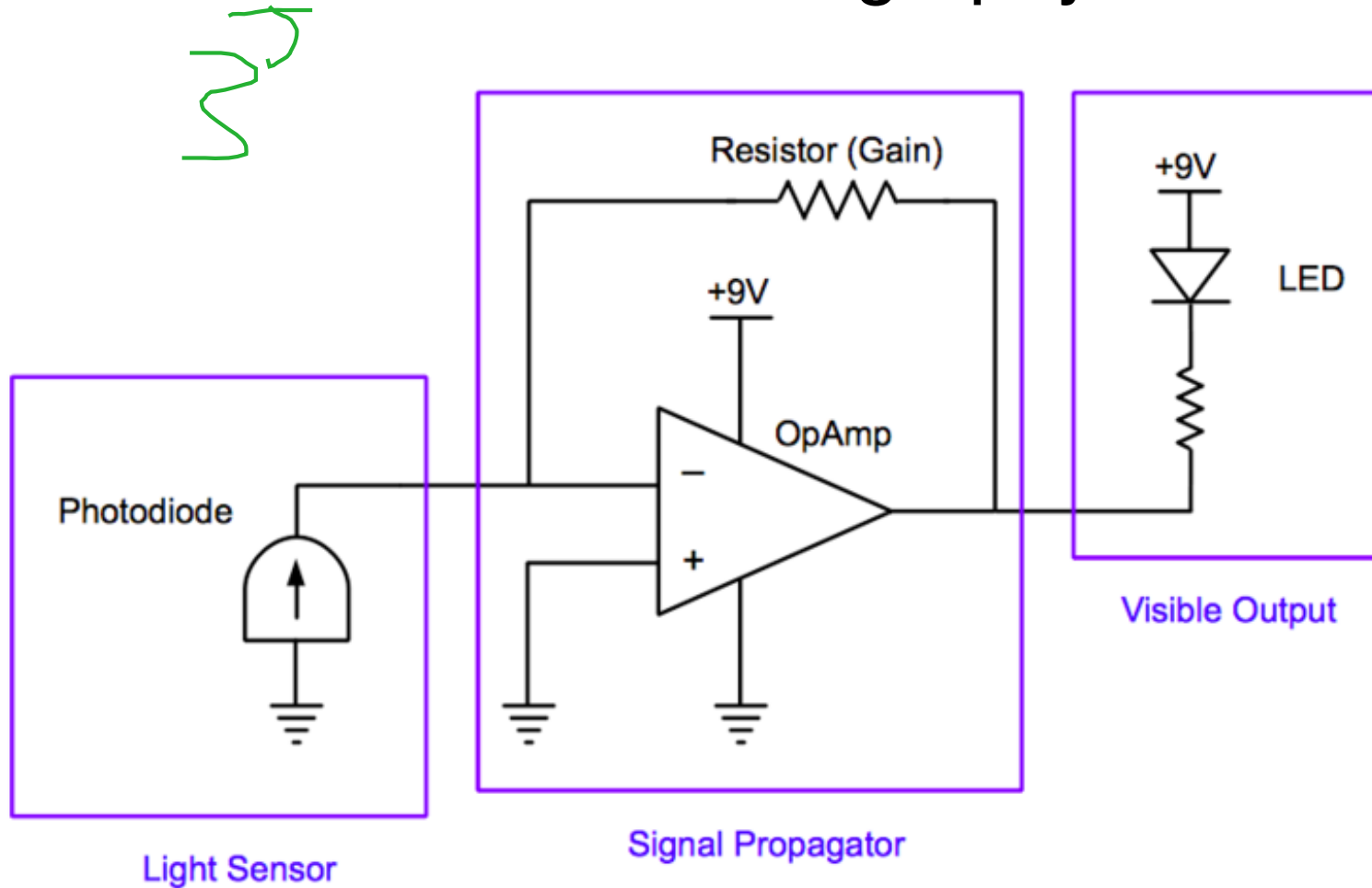


What about using BBa_E0040 (= GFP) instead?
What about using BBa_I760005 (= Cu⁺ promoter)?

Don't forget the RBS!

...AUAA**AGGAGG**UAAAUAA**AUG**→
RBS start codon

Part 4: Bacterial Photography Circuit



Voltage difference across devices causes them to turn on



Part 4: Tinkercell

Journal of Biological Engineering

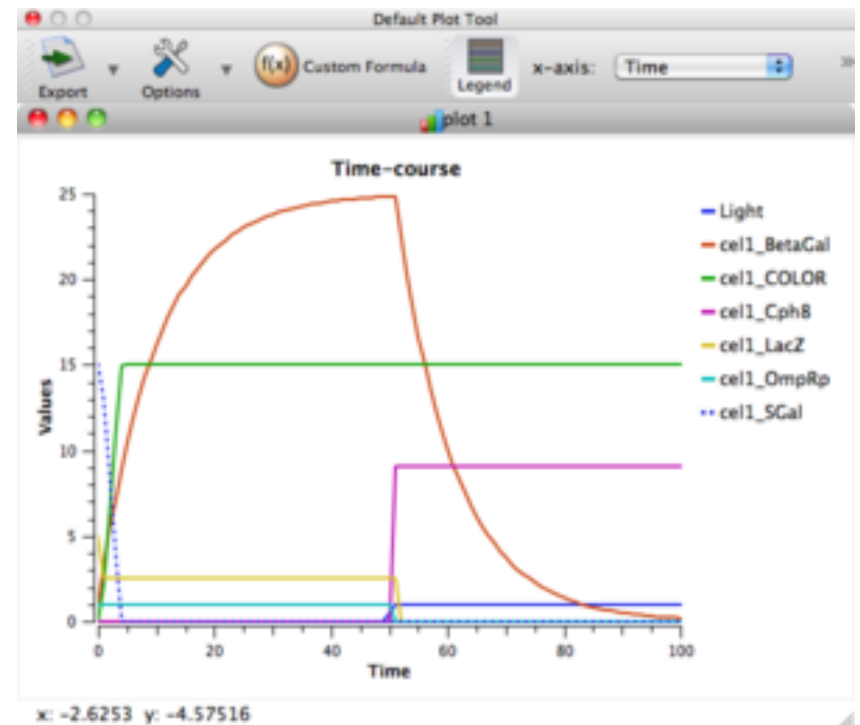
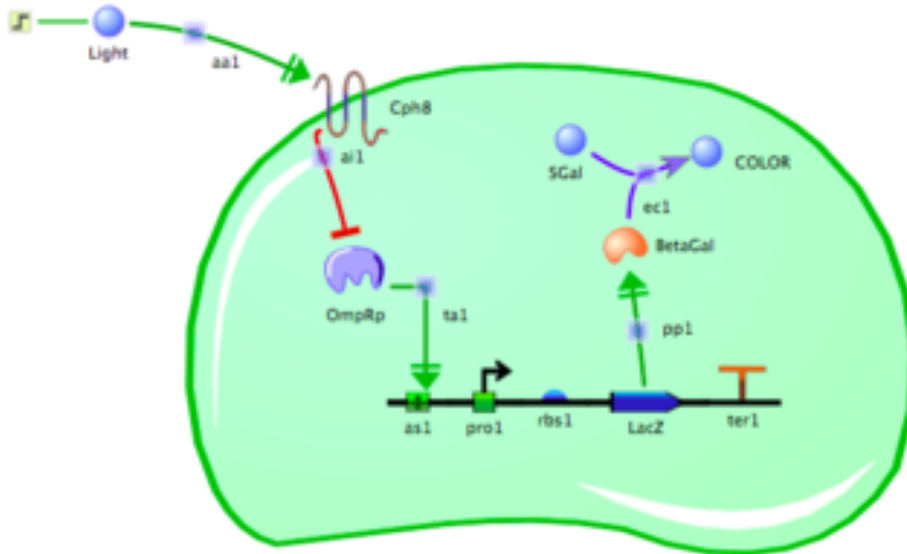


Research

Open Access

TinkerCell: modular CAD tool for synthetic biology

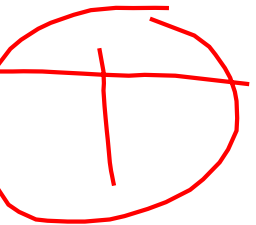
Deepak Chandran*¹, Frank T Bergmann^{1,2} and Herbert M Sauro¹



Today/next week in lab....



Electroporate
Registry / Electronics, Tinker
cell



J.L.

meet in lab