iGEM advisors meeting

Present: Cara, Adi, Uros, Bob, Asha, Amanda, Will, Isaiah, Angela
Advisors: Dr. Jim, Todd, Courtney Evans (Lab manager), Brad Evans (post-doc), Dr. Bhalerao

Agenda:

- Team formed in 2007, first competition in 2008 (four competitions)
- Discussion: do we want to create a computational team? Involve open recruitment or connections. One of the teams at the finals had a computational team that created an evolutionary model of gene dynamics. (Prof. Bhalerao involved heavily in the computational side)
    - Bhalerao – it shouldn't be done if it's not 110%
- The pep talk: Don't lose commitment, you are chosen to represent Illinois. Don't quit and do your job.
    - Bring it on!
    - Watch past presentations to realize the level of competition that we're facing. They're mind blowing.
- 2 aspects to this experience: the synthetic biology (the idea, the research, the quality of the physical project), marketing (broad vision, best presentation, a sense of a dynamic vision is important, the judges like videos!)
- Understanding synthetic biology: this is the big idea, understand it before anything else. Cut through the jargon. Take advantage of its flexibility.
    - When presenting to the judges, need to let them know that we're doing synthetic biology, not nanobiology.
- Meet with the advisors regularly to keep on track.

Summary of Advisor's labs:

- **Dr. Jin:** Doing yeast and e. coli metabolic engineering. Engineer a pathway to create a phenotype of interest. All projects are about genetic manipulation and perturbation (also some environmental perturbation) in order to produce a phenotype faster, easier, cheaper. Will learn genetic manipulation, how to culture the cell in large scale and small scale (fermentation/bioreactors), mass spect to analyze the metabolic product. Also some computation in order to analyze results (but not a good idea to focus on in this time frame of 2-3 months).
- **Dr. Bhalerao**: Pathogenic research. What happens to the stress response of the cell and the cell's evolution in response to a metabolic engineering/gene circuit that you have put in the cell? Well it's hard, so you look at evolution on the population scale. Can we control the evolution of the bug? If we so we can build better vaccines or harness these bugs for more work. (Example: can we control the evolution of pesticide resistant bugs?) Project: bacteriophage system. How does system change under different stresses? It's complex to measure, so can we genetically modify these bacteria to visually tell us things? Will learn genetic manipulation, mathematical modeling, evolutionary genomics.

- **MMG (Brad Evans, Todd, Courtney)**: help contruct a series of vectors that will put tags onto the e.coli genome that will tease out their functions. How can we figure out what this protein does and how it does it? VERY iGem applicable.
- **Dr. Rao:** similar to Dr. Jin, chemotaxis, as well.