



## Ethics

With the emergence of synthetic biology comes many new ethical questions:

- If a man made genome can sustain a living cell, is that creating life? Should that be permitted?
- How much redesign of an organism should be permitted?
- How can engineered organisms be contained? Should we try?
- Could a dangerous organism be built with our assembly kits?
- Who should be allowed to 'build their own bug' with our assembly kit?
- Should we regulate who uses streamlined genome assembly technology? How can we regulate it?
- Should the genetic parts in the assembly kits be free, or can the inventor own and charge money for them?
- Should we be allowed to own an organism whose genome we've design?



## Important Terms:

**What is Synthetic Biology?** Is an interface between biology and engineering. Synthetic biologists develop and use well-characterized molecular parts that can be reliably assembled to perform useful tasks.

**Did you know:** An example of synthetic biology is the transplantation of the metabolic pathway for an antimalarial drug into a simple unicellular organism. This dropped production costs by over 100-fold, making it affordable for developing countries.

### What is iGEM?

iGEM is an international competition for undergraduate student teams that design and assemble biological machines in living cells. iGEM has become a way for future scientists to explore the limits of synthetic biology. Over 1200 students on 84 teams from 21 countries participated in iGEM 2008. Each team is given a kit of standard biological parts, assembles their project between May and November, and then presents at MIT.

### What is E. coli?

E.coli is a well studied bacteria naturally found in the mammalian large intestine. Some natural E.coli strains are disease causing, but common lab strain have been made non infectious.

### What do you think?

We want to learn about your perspective about synthetic biology and our project. Society's needs, values and perceptions are key determinants of the usefulness of new research. Help us understand more about how our project will be received by society by responding to the survey at [http://www.surveymonkey.com/s.aspx?sm=q\\_2fM\\_RDIftvbWJa00QIWYb7g\\_3d\\_3d](http://www.surveymonkey.com/s.aspx?sm=q_2fM_RDIftvbWJa00QIWYb7g_3d_3d)



## Reduced to Essentials *Escherichia coli*

### Its Life RE-designed

If you like to discover new and interesting things in the fields of biology, genetics and engineering, then this is for you!