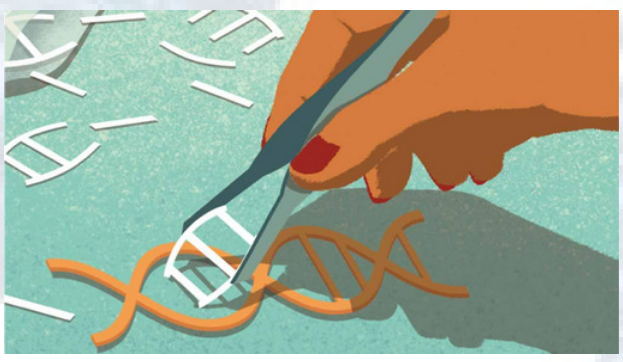
香港科技大學
THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

International Genetically Engineered Machine

Synthetic Biology



Biology + Engineering principles

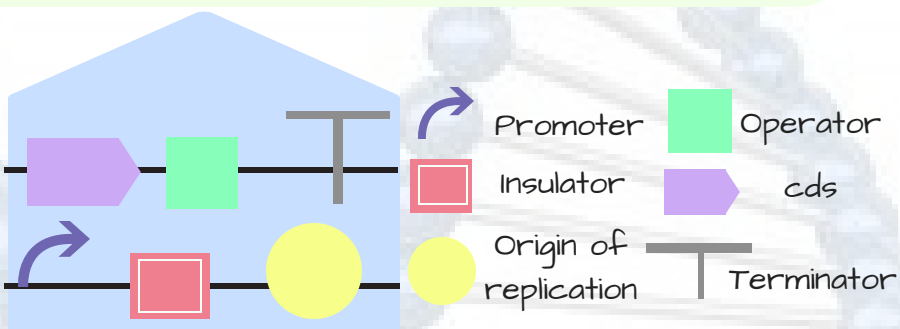
To design or update biological systems

Synthetic biology manipulates DNA , the origin of life

Improve their biological functions to address current and future issues

BIOBRICKS

Useful DNA parts that can serve certain functions when they are combined together



Imagine: Normal bricks build cozy houses, while Biobricks build awesome life functions!

APPLICATIONS

Biofuel
Biodiesel in E.coli

Vaccine Production
Vaccine that prevents gastritis

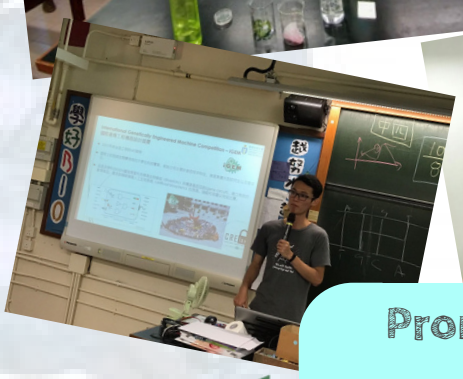
Industrial Enzymes
Laccase enzymes from Bacillus pumilus

Bio-based Chemicals
Fumarate produced by cyanobacteria

ALL ABOUT iGEM

iGEM = International Genetic Engineering Machine

Education



4 Main Goals

Accelerate the development of Synthetic Biology

Enhance Competition

Promote an open community of synthetic biology by collaboration

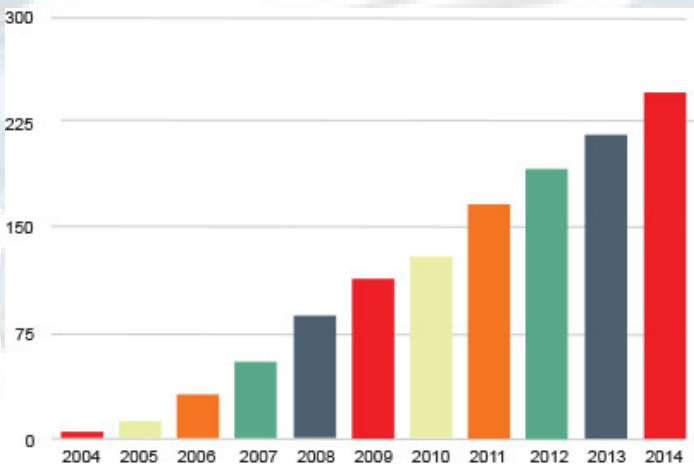
Found in 2003 as an independent study course at MIT, but grown a lot in complexity afterwards.

iGEM Competition

Targeting undergraduate students

An international competition that encourages participants to solve everyday challenges by synthetic biology annually

Design, Test & Present their construct



Growth of teams from 2004 to 2014

Standard Tracks

- Diagnostics
- Energy
- Environment
- Food & Nutrition
- Therapeutics
- Foundational Advance
- High School
- Information Processing
- Manufacturing
- New Application

*Special Tracks:

- Art and Design
- Hardware
- Measurement
- Software

What will you gain from joining iGEM

Project planning and Administration

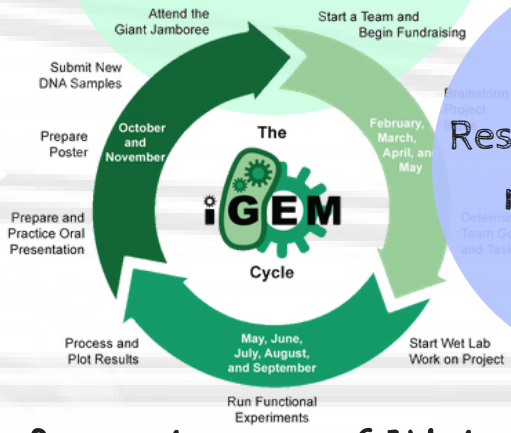
Team work

Collaboration

Resource and team management

Presentation skills

Problem based knowledge



Other Aspects iGEM Also Focuses on:

Ethics

Safety

Sustainability

Social Justice

Can you spot all incorrect practices from the picture above?

HKUST Team

Domi lox
Super-Safe Safety Switch

Our team wants to create the "Domi-lox", a technology that can remove a specific gene inserted .

Our Domi-lox is like a pair of scissors that cut out the gene of interest by detecting a specific sensor molecule called AHL.

Before our gene of interest is completely switched off , we allocate a time gap to let our genes produce enough desired proteins.

HKUST iGEM 2017