CORNELL iGEM 2015
SPONSORSHIP PACKET


CORNELL iGEM

TABLE OF CONTENTS

TEAM LETTER

Thank you for your interest in sponsoring the 2015 Cornell Genetically Engineered Machines Team. Cornell iGEM is an international award-winning synthetic biology-inspired team composed of twenty-five students drawn from various disciplines and levels of expertise across the university. The team's mission is to design and develop a novel genetically modified platform to compete at the world's premier synthetic biology competition - international Genetically Engineered Machines (iGEM). The iGEM competition brings together high school, collegiate, and entrepreneurial teams, each of which designs and implements novel genetic circuits to help solve the many needs of industry, economy, or environment. It is with the generosity and support of our sponsors that Cornell iGEM can continue to contribute to the scientific community and remain on the forefront of synthetic biology research.

In past seasons, the team has been very successful at the iGEM competition. With the help of our sponsors, we have achieved Gold Medal status at the international competition for four consecutive years. In addition to receiving multiple awards including Best Wiki and Best Human Practices within the iGEM community, the team has been featured in various publications including *Popular Science* and *Elsevier.*

Each year, our sponsors reach an ever-increasing diverse audience of teams, researchers, and industries both in and around the scientific community. With over 280 teams participating in the upcoming iGEM competition in September, this year marks the biggest audience yet. The team's sponsors are featured prominently on our project presentations, competition posters, team apparel, and website. Our website offers a comprehensive overview of our past projects and can be found online at http://igem.engineering.cornell.edu. In addition, the following packet contains an extensive breakdown of our team, budget, and past accomplishments for the Cornell iGEM team.

Our sponsors are truly at the heart of Cornell iGEM's success each year. In addition to helping the team develop the next generation of engineers and researchers, our sponsors become part of a larger community that gives students the hand-on science experience not found in a typical classroom. Our 2015 project promises to be one of our most innovative ideas yet, and we hope to partner with you this year to further achieve our goals.

Sincerely,

Jonlin Chen
2015 Team Leader

WHAT IS iGEM?

THE COMPETITION

iGEM began in 2003 at Massachusetts Institute of Technology, and has since grown into the world's largest synthetic biology competition, now hosting over 280 teams from around the world in 2015. At the beginning of the season, each team receives a kit plate of synthetic DNA parts from the iGEM headquarters. Using these and parts of their own design, teams integrate synthetic DNA components to create novel, engineered organisms to solve various engineering problems. Teams participate each year at the international competition and are judged based on the quality of their biological work, the significance and applicability of their project, human practices and safety components, and the presentation of the work via their website, poster, and a formal oral presentation.



THE PARTS REGISTRY

One of the iGEM competition's greatest goals is the development and cultivation of the Standard Registry of Biological Parts. This parts registry contains thousands of synthetic DNA components designed to be modular: every part in the registry can be interchanged within common DNA backbones, allowing researchers to easily create novel genetic circuits for important engineering purposes. After every competition season, iGEM teams submit their genetic parts (called "BioBricks") to the parts registry for future teams and researchers to use. This collaboration is essential to the iGEM competition and research in synthetic biology in general, and it ensures that any research done by our team can be utilized by the scientific community as a whole.

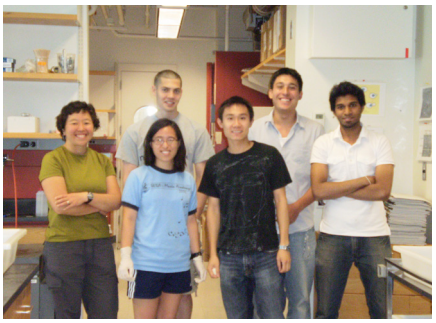
THE TEAM

Cornell iGEM is an undergraduate biology team and has solidified itself as a perennial contender at iGEM competitions. The team is still relatively new, but recent successes have helped the team gain prominence at both the university and the iGEM competition.

Our team is composed of 25 undergraduate students from four colleges across the university (Engineering, Arts & Sciences, Agriculture & Life Sciences, and Architecture). This diverse group of students uses their different expertise to complete a complex and novel project each year.

Cornell iGEM provides dedicated students with an interest in biological research and engineering an opportunity to gain experience in a professional work environment, hone their practical engineering skills, and pursue their own research goals. As evidenced by our recent human practices accomplishments, our team prides ourselves on sharing our research and promoting safety with regards to the controversial field of synthetic biology. In doing so, we are developing the next generation of responsible scientists with the potential to bring synthetic biology to the forefront of modern engineering solutions.

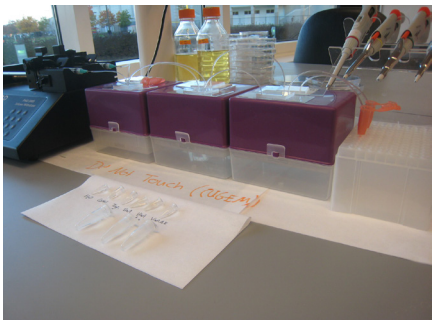
TEAM HISTORY & ACCOMPLISHMENTS



2009 + 2010

Cadmium Sensor/OMG OMVs

- Cornell undergraduates compete for first time
- Present projects on a cadmium biosensor and outer membrane vesicles



2011

Biofactory

- A cell-free method for synthesizing complex biomolecules
- Wins best manufacturing project at iGEM international competition

2012

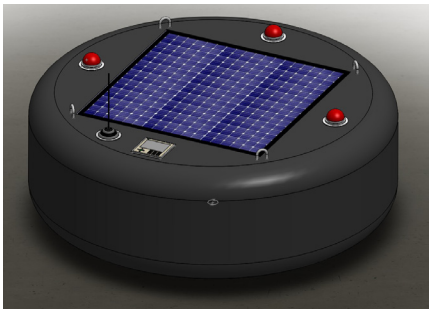
SAFE BET

- A real-time biosensor for arsenic detection
- Top 4 finalist regionally, wins Best Wiki and Best Human Practices Advance awards at regional competition
- Top 16 finalist worldwide, wins "Best Solution to an Oil Sands Problem" from the Oil Sands Leadership Initiative

2013

Organofoam

- A comprehensive toolkit of genetic parts to facilitate fungal engineering
- Wins Best Human Practices Advance at North American iGEM competition
- Wins Best Human Practices Advance at iGEM international competition



2014

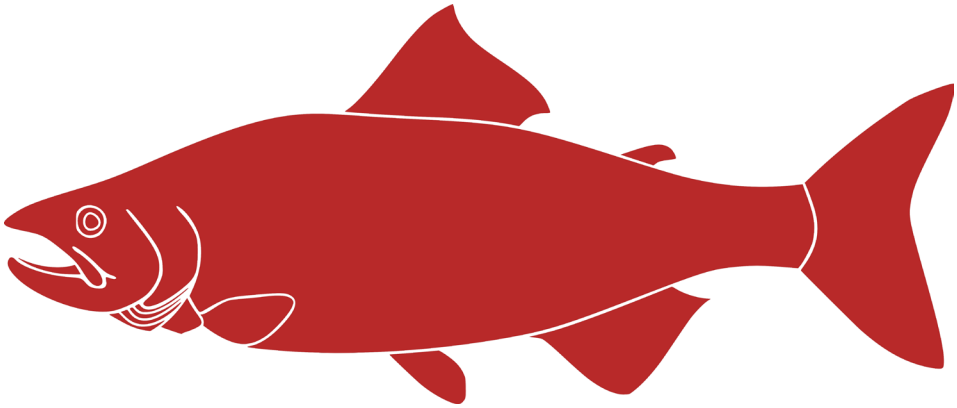
Lead it Go

- A continuous water filtration system to sequester heavy metals
- Team achieves gold medal classification for fourth consecutive year in iGEM

2015: COMBATTING COLD WATER DISEASE

In 2015, the Cornell iGEM team will use synthetic biology to combat bacterial cold water disease (BCWD). BCWD is lethal in many fish species, and it is prevalent on fish farms and hatcheries where many fish are raised in close quarters. When these fish farms are located in larger water bodies, the disease can escape boundaries and infect wild fish. This disease threatens to kill large quantities of economically important farm-raised salmon and, if not contained, critically endangered wild salmon populations. Farm-raised fish will become of ever-increasing importance with a growing global population, and prevention of BCWD will help alleviate some food security concerns for the future.

Common antibiotics are currently used to combat BCWD, but these antibiotics remain in the food we consume, leach into the ocean surrounding farms, and give bacteria the opportunity to develop resistance. Another option is to feed fish bacterial probiotics; recently, a certain peptide called ecnB has been implicated in providing resistance in one such probiotic. This year, Cornell iGEM will test similar peptides from the larger class of peptides called entericidins for efficacy against BCWD. Additionally, the team will develop a delivery system for these peptides that aligns with current feeding and tagging practices on fish farms. By testing entericidin peptides from many different species of bacteria, we hope to identify even more effective and safe treatments for BCWD.



POLICY AND PRACTICES

Policy and Practices is broadly defined as the incorporation of any economic, ethical, legal or social dimensions into an iGEM project. The team continues to create Policy and Practices components that contribute to and complement the work our team is doing, as well as foster a meaningful impact on our local and global communities. To this end, we complete the following: (1) engage in extensive outreach, (2) learn about the environmental, social, economic, and political issues that shaped the world of the biochemistry we are tackling, (3) develop a social media platform called Humans and SynBio in collaboration with teams from across the world, (4) put together surveys to understand the factors underlying opinions about synthetic biology, (5) facilitate collaborations within our university to put together a portfolio of possible applications of our genetically engineered technologies, and (6) consider the bioethical and safety implications of our work at large.

2014 PROJECT BUDGET

EXPENSES	AMOUNT	DESCRIPTION
OLIGONUCLEOTIDES AND GENE SYNTHESIS	$ 2000	PRIMERS WERE USED TO CREATE AND VERIFY OUR GENETIC CONSTRUCTS
SOFTWARE LICENSING	$ 5000	SOFTWARE TO HELP US BUILD AND VISUALIZE OUR GENETIC CONSTRUCTS.
DNA SEQUENCING	$ 350	SEQUENCING WAS USED TO VERIFY OUR GENETIC CONSTRUCTS.
MOLECULAR BIOLOGY CHEMICALS AND REAGENTS	$ 3500	SOME EXAMPLES ARE ANTIBIOTICS, MEDIA COMPONENTS, AND VARIOUS ENZYMES.
PLASTICWEAR AND OTHER MISCELLANEOUS LAB SUPPLIES	$ 3000	INCLUDES MATERIALS SUCH AS DESALTING MEMBRANES AND ELECTROPORATION CUVETTES.
DRYLAB SUPPLIES	$ 2000	INCLUDES MECHANICAL AND ELECTRICAL EQUIPMENT FOR DRYLAB TEAM
OUTREACH SUPPLIES AND PRINTING	$ 200	INCLUDES MECHANICAL AND ELECTRICAL EQUIPMENT FOR DRYLAB TEAM
TOTAL EXPENSES	$ 16,050	

2014 COMPETITION BUDGET

EXPENSES	AMOUNT	DESCRIPTION
iGEM TEAM REGISTRATION FEE	$ 3500	COST FOR DNA KIT PLATE AND TO REGISTER IN IGEM COMPETITION.
INDIVIDUAL REGISTRATION FEE	$ 6800	COST OF INDIVIDUAL ATTENDANCE AT THE INTERNATIONAL COMPETITION.
TRAVEL	$ 1300	COST TO CAR RENTAL AND GAS TO TRAVEL TO INTERNATIONAL COMPETITION IN BOSTON.
LODGING	$ 2200	COST OF 2 HOTEL ROOMS IN BOSTON FOR 4 NIGHTS.
TOTAL EXPENSES	$ 13,800	

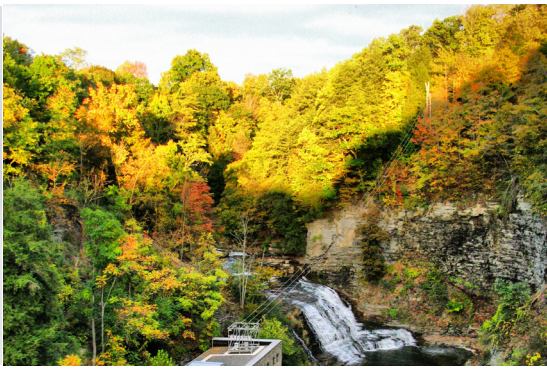
2014: LEAD IT GO

WE HAVE CREATED FUNCTIONAL METAL SEQUESTRATION SYSTEMS FOR NICKEL AND LEAD AND HAVE DEMONSTRATED EFFICACY USING WATER SAMPLES FROM ACROSS THE US.

WE HAVE BUILT A WORKING PROTOTYPE FOR DIRECT APPLICATION TO INDUSTRY: A HEAVY METAL WATER FILTRATION SYSTEM BUILT TO LAST SEVERAL WEEKS WITH MINIMUM MAINTENANCE.

IN ADDITION TO NUMEROUS OUTREACH ACTIVITIES FOR THE LOCAL COMMUNITY, WE HAVE LAUNCHED A NEW SOCIAL MEDIA PLATFORM CALLED HUMANS AND SYNBIO DESIGNED TO SPREAD AWARENESS OF SYNTHETIC BIOLOGY.

WE ACHIEVED GOLD MEDAL STATUS AT THE INTERNATIONAL COMPETITION AND WERE HIGHLIGHTED BY ELSEVIER JOURNAL FOR OUR EFFORTS.



SPONSORSHIP BENEFITS

COMPETITION VISIBILITY

Each year, Cornell iGEM competes at the largest international synthetic biology competition (over 280 teams in attendance with over 2300 participants). All of our sponsors are featured prominently on our competition poster, competition presentation, and project Wiki. Our team website and competition Wiki from this past competition season (on which all of our sponsors are featured) both receive around 500 hits per month. Due to our success the past couple seasons, our team has been featured in various publications including Elsevier, the Cornell Chronicle, the Cornell Daily Sun, IDT's Decoded, and Popular Science, as well as newsletters from our past and current sponsors.

UNIVERSITY NETWORKING

Cornell University is a highly respected and well-regarded research university. At the university, sponsors can gain publicity through interactions between the team with other students and research labs. As a relatively new team, we have a very young and active alumni network with which we share the names of our sponsors. Each year we have graduating members who are eager to pursue careers in biology and engineering — quite possibly with a sponsor.

GIFTS IN KIND

As a biological research team, we utilize many different supplies and graciously accept gifts in kind. Some of the most common items we use every year include:

- Centrifuge Tubes (2 mL, 15 mL, 50 mL) and micropipette tips
- PCR Reagents (DNA polymerase, dNTPs, etc.)
- Cloning Enzymes (EcoRI, SpeI, PstI, XbaI, NotI, DNA Ligase)
- Antibiotics (Chloramphenicol, Kanamycin, Ampicillin)
- Gel Electrophoresis Materials (Agarose, TAE Buffer, DNA Ladder, Ethidium Bromide)
- Molecular Biology Kits (Plasmid minipreparation, DNA clean and concentration)
- Electroporation Cuvettes
- Media Components (LB Broth, Yeast Extract, Tryptone, various salts)

MONETARY SUPPORT

In addition to gifts in kind, we also accept any monetary support. There are many items we cannot receive in kind, so monetary support is vital to the success of our team. In addition to purchasing those items listed above, contributions will be put towards custom primers, DNA sequencing, iGEM registration fees, travel and lodging for competition, and savings funds for future Cornell iGEM teams.

INTELLECTUAL PARTNERSHIP

In 2013, Cornell iGEM made great strides in bridging the gap between the iGEM competition and industry. Our collaboration with Ecovative proved to be the most meaningful and in-depth partnership between an iGEM team and a corporation to date. Such partnerships depend greatly upon our project each year, and as a team we are open to working with businesses to solve problems with synthetic biology.

DONATION FORM

Cornell iGEM provides promising undergraduate scientists and engineers the opportunity to pursue their own research interests in a supportive team environment. While Cornell does provide our team with laboratory space, access to some of its outstanding facilities, and funding for competition fees and travel, funding for individual components of our project must come from generous, outside sponsors.

If you are interested in supporting our efforts this year and becoming a part of an exciting and successful synthetic biology team, please fill out the following form and return it to the provided address. Checks can be made payable to "Cornell iGEM" and attached to this form. If you have any questions about our team or specific support we could use, please don't hesitate to contact us. We greatly appreciate support of any kind. Thank you for your time!

Mailing Address:
Cornell iGEM
Attn: Jonlin Chen
B07 Weill Hall
Ithaca, NY 14853

Contact Information:
Team Leader: Jonlin Chen
(724) - 799 - 6994
cornelligem@gmail.com
igem.engineering.cornell.edu

General Information:

Name of Organization:_____
Mailing Address:_____
City:_____State:_____Zip Code:_____
Contact Information:
Contact Name:_____Contact Title:_____
Phone Number:_____Email Address:_____

Donation Information:

Gift in Kind:
What is the gift in kind?_____
What is the market value of the gift in kind?_____
Monetary Donation:
What is the donation amount?_____

Donor Signature:_____Date:_____





THANKS TO OUR 2014 SPONSORS!