



Table of Contents

What is iGEM?	1
Project Design	1
Armour Synthesis	1
Armour Attachment.....	1
The Battle	2
Why Sponsor Us?	2
Sponsorship Benefits	3
Gifts in Kind.....	3
Monetary Support.....	4
Donation Form	5

WHAT IS iGEM?

The International Genetically Engineered Machine (iGEM) competition is the world's largest annual synthetic biology conference, where over 200 student-led teams representing academic institutes from across the world will gather to present their research projects. The goal of iGEM is to have competing multidisciplinary teams design and engineer innovative biological systems. An integral part of the project is to incorporate ethics, sustainability and education into the designed system. The iGEM conference will be held this October in Boston and will host the participating competitors and a panel of judges, making up an audience of thousands of aspiring scientists.

PROJECT DESIGN

This year, Concordia University's iGEM team aims to adapt the popular television series Robot Wars, in which teams design and battle robots, for the synthetic biology community. Using nanotechnology and microfluidics, we will equip cells with nanoparticles and engage them into combat, with the intention of creating a broadcasted web series. Through this series, which we call "Combat Cells", we intend to entertain, educate, and inspire the public to develop an interest in bioengineering.

This project consists of three phases:

1- ARMOUR SYNTHESIS

Sunscreens, self-cleaning windows, and stain-repellant fabrics are all products made effective due to emerging scientific breakthroughs in nanotechnology. The functional parts in these products, which are termed nanoparticles, are particles ranging from 1 to 100 nm in size, varying in shape and can be composed of plastics or a variety of metals.

Our project will use metallic nanoparticles as cell armour or "battle shields". To generate nanoparticles, we are using plants such as garlic, aloe vera and cabbage. Plants possess a variety of biomolecules that are capable of reducing and stabilizing metal ions to their nanoparticle form. We can manipulate the sizes and shapes of nanoparticles by varying the amounts of plant extract and metallic solutions used. Then, using an AFM or TEM, we will characterize the nanoparticles synthesized. Here we aim to develop optimized methods for controlling the shapes and sizes of the nanoparticles using plant-mediated synthesis.

Furthermore, incorporating this eco-friendly and cost-effective approach to synthesizing nanoparticles has allowed our project to reduce the amount of waste we produce, as well as reduce the amount of chemicals we expose to the environment.

2- ARMOUR ATTACHMENT

In order to prepare the cells for battle, we must coat them with their "battle shields" i.e. nanoparticles. We will begin by functionalizing the metallic nanoparticles and then proceed to attach them to a specific cell surface protein. We want to develop an effective linkage method between the nanoparticles and the cell's surface, for both bacterial and eukaryotic model systems. Additionally, we intend to study the relationship between nanoparticle abundance and localization on the protective qualities offered to the cell.

3- THE BATTLE

After equipping the cells with nanoparticles, cellular opponents will be guided through an obstacle course leading to the battledome. The obstacle course will essentially test the protective abilities of the nanoparticles against varying environmental conditions. Once the opposing species have reached the battledome, they will come into physical contact with each other. Here we will test the protective abilities of nanoparticles against other equipped species. Our aim here is to enhance nanoparticle-coated cell survival in different chemical conditions, and to examine the interactions occurring between coated cells.

All of this will occur within the controlled environment of a microfluidics chip, which we will design. Using microfluidics will allow us to dictate the mobility of the cells. Furthermore, experiments run through microfluidics require a small quantity of solutions, permitting us to further reduce the amount of waste we produce throughout our project.

After the cell battle is finished, we will test the survival of the cells using pigments. The process and results of the obstacle course and cell battle will be visualized through the animated web-series we want to produce.

WHY SPONSOR US?

Raise Your Local and International Profile

The iGEM competition provides a multitude of exposure and networking opportunities for various companies across the world as it includes conferences, workshops, and exhibitions engaging thousands of participants. Furthermore, our team will partner with schools and community organizations to connect with students, teachers, and the general public in the interest of educating them about synthetic biology and showing them the fun side of science.

Be a Part of the Production of an Educational Web Series

Ultimately we envision a multi-team league where each team develops unique nanoparticle synthesis and attachment strategies. We believe that our project will have broad appeal and great entertainment value. In addition to publicizing your contribution to our project, your involvement could potentially lead to the inception of a web series production that could become monetarily successful.

Help Advance Interdisciplinary Research

iGEM offers enthusiastic undergraduate and graduate students the opportunity to benefit from a hands-on experience in research within the emerging field of synthetic biology. This year's iGEM Concordia team strives to extend this opportunity to the general public with the goal of expanding interest in synthetic biology.

Support a Winning Team

In the past, Concordia's team has won both bronze and silver medals and this year we are determined to win gold. With your help, we can achieve our project's goals and we can communicate our project to a wider, diverse audience.

SPONSORSHIP BENEFITS

We kindly thank you for your consideration and we hope to form a partnership with you. Please refer to the following table for possible sponsorship options.

GIFTS IN KIND

As a synthetic 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:

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

MONETARY SUPPORT

Sponsorship Level and Contribution Amount	Bronze ≤\$250	Silver ≤\$500	Gold >\$500
Your organization's name on our list of sponsors on our team's poster, websites and blogs	✓	✓	✓
Your organization's logo included on our team's poster, websites and blogs	✓	✓	✓
Your organization mentioned in our presentation at community outreach events in Canada		✓	✓
A small logo on our team's T-shirt		✓	✓
A large logo on our team's T-shirt			✓
Distribution of your brand's merchandise and misc. at the 2016 Giant Jamboree competition*			✓
We will promote your organization in our presentation at the 2016 Giant Jamboree competition			✓
In-Kind Contributions	Classified in accordance to the retail value of the materials		

*The donor must provide brand merchandise to be distributed

Kind regards,

Concordia University's iGEM team.



DONATION FORM

iGEM Concordia provides exceptional undergraduate students, from various academic backgrounds, the opportunity to pursue their own research project in a motivational environment surrounded by brilliant professor and graduate mentors, promoting academic success and advancement of practical knowledge.

Although Concordia does provide our team with the necessary work space and access to some of its remarkable facilities, funding for competition fees and travel in addition to funding for components of the project itself must come from generous contributors.

The continued success of the iGEM Competition, Concordia University, and the iGEM Concordia Team will be due to the generous support of our sponsors.

Please refer to the previous pages for the specific benefits of our sponsorship levels.

Mailing Address:

iGEM Concordia
Attn: Dr. Malcolm Whiteway
7141 Rue Sherbrooke O.
Montréal, Québec
Canada, H4B 1R6

Contact Information:

iGEM Concordia
Attn: Alexandra Teggin
514-463-4666
igem.concordia@gmail.com

General Information

Name of Organization: _____

Mailing Address: _____

City: _____ State/Province: _____ Zip Code/Postal 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: _____