



For immediate release — Friday, December 22, 2017

U of L student joins iGEM delegation to present at Biological Weapons Convention

The University of Lethbridge's iGEM (International Genetically Engineered Machine) team made quite a splash at November's annual jamboree, providing the springboard for one U of L student to participate on the world stage.



The iGEM team's project focused on ways to make synthetic biology safe and available for everyone, says Chris Isaac (BSc' 17), a biochemistry master's student who has participated in iGEM since he was a Grade 11 student at Chinook High School.

"We presented these results in Boston and we drew the attention of iGEM itself, the FBI and the Dutch Institute for Public Health," he says. "Our team was trying to develop a cell-free synthetic biology system to bring this

technology to as many people as possible and make sure that it's democratically spread out. Then we realized that this tool, as useful as it is, also opens up unforeseen biosecurity risks."

The iGEM ambassador to Latin America approached Isaac and suggested he apply to the iGEM delegate program. He did and was chosen to be part of the iGEM Foundation's delegation to the Meeting of States Parties to the Biological Weapons Convention (BWC) in Geneva from Dec. 4 to 8. Isaac was one of five students in the delegation. They attended the plenary sessions and presented to delegates from around the world at a side event.

"We spoke to delegates over lunch and talked about our experiences in iGEM and how they relate to biosecurity and provided our thoughts about how to make biosecurity practices better," says Isaac. "The reception was very warm. Those who attended the meeting were excited to hear our perspectives, they asked thoughtful questions and the discussion was very productive."

As it stands now, the risks that would come with making genetically recoded cell-free systems exist only in theory, but Isaac says the tools are on the horizon given advancing technology. While cell-free synthetic biology has the possibility of doing great good, there is also the potential for great harm if proper controls are not in place.

“The issue that we’ve identified with this technology is that it might allow individuals to bypass current screening procedures in terms of DNA synthesis, which is a service that researchers around the world rely on extensively,” he says.

When researchers request a certain DNA sequence from a bioscience company, the company’s software analyzes the request and will deny it if the requested sequence is too close of a match to a toxin, such as anthrax or botulinum toxin (botox). Using a novel genetic code to interpret a sequence would allow a request to bypass the current screening protocols in place at synthesis companies.

“We, as academics and synthetic biologists on the frontline of technological development, need to be better connected with the people who are talking about policy and regulations. We need more science policy advocates with the ability to influence policy from the top down and also guide cultural changes from the bottom up,” says Isaac.

This news release can be found online – [Isaac joins iGEM delegation](#).

—30—

Contact:

Caroline Zentner, public affairs advisor
403-394-3975 or 403-795-5403 (cell)
caroline.zentner@uleth.ca