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University of Lethbridge iGEM team golden, now focused on next steps with Lethbridge Fire and EMS

Their project is once again golden and now the University of Lethbridge iGEM team is excited to embark on the next phase – determining if and how their plan to improve the cleanliness of emergency medical vehicles is feasible.

“Our presentation went really well, we had a lot of positive feedback and a lot of interest around how feasible it would be for EMS to actually implement the system,” says first-year PhD student Taylor Sheahan after her team returned from the International Genetically Engineered Machines (iGEM) World Jamboree in Boston, Mass. with a gold medal in tow.



The team was tasked with characterizing the microbial community within ambulances and then developing an intuitive antibody-based strip test for real-time monitoring of the vehicles’ cleanliness.

“We are not only thinking of providing clean orderly EMS units for best practice clinical care for people we meet and transport; we are also thinking of our staff, their families and the potential transport of infection to other patients and health-care facilities we serve,” says Ward Eggli, EMS Resource Officer with Lethbridge Fire and Emergency Services.

While the system the iGEM team created has proven to be effective, Sheahan says that more work needs to be done before it can actually be used in the field.

“We’re still in such an early stage of our work that there is a lot to be done to get to that point where we can actually see if they are cleaning effectively or whether we could compare two different cleaning products,” she says.

Sheahan is a Catholic Central High School product who earned bachelor and master degrees at Queen's and Western University respectively before joining Dr. Hans-Joachim Wieden's lab.

"What we know today that we did not know before is that we have many types of pathogens in the back of our units," adds Egli. "We can now focus on best practice cleaning techniques, frequency and using products that affect these pathogens."

The fact the project was community-driven and seeks to solve a real problem garnered praise from the judges in Boston. This aspect has been a focus of iGEM in recent years and something the U of L has excelled at, winning gold at each of the last four competitions. In particular, the Federal Bureau of Investigation and the Public Health Agency of Canada expressed interest in following the project as it continues.

"It's key at the beginning of projects like this to actually identify a real problem that needs to be solved to benefit the community," says Sheahan, whose group was approached by Lethbridge Fire and Emergency Medical Services in May to look at the cleanliness of their vehicles and to assist with their methods of cleaning. "I think it's important for an iGEM project to be focused on a real problem, so you're not just using cool science, but producing a tangible benefit."

The two groups will continue to work together in the coming months.

"We plan on testing products and practices to see how we can best affect the pathogens we now know are in the back of our units," says Egli. "We have identified a few products that can kill pathogens long after they first have been applied and we want to know how long they're effective after application and what might affect that product if left without reapplication. We can only complete this through a continued relationship with the U of L and their researchers."

Wieden, the iGEM supervisor and director of the Alberta RNA Research and Training Institute, says the U of L continues to impress on the world stage, despite competing against teams from established engineering schools.

"In the 10 years we have been competing at iGEM, we have managed to win nine gold medals, which really is remarkable and speaks to the quality of our students, how they work with one another and how they pass that along from year to year," says Wieden. "It also says that we are solving some real challenges and making a difference in society."

The full U of L iGEM team consists of Sheahan, Rhys Hakstol, Sydnee Calhoun, Keith Aiken, Suneet Kharey, Courtney McDermott and Karin Otero. Wieden is the supervisor and principal investigator, while Drs. Andy Hudson and Cesar Rodriguez (Florida State University) are team advisors.

In addition to the U of L iGEM team, the Lethbridge High School iGEM team was awarded a bronze medal for their work on a rapid wound treatment system.

To view online: <http://www.uleth.ca/unews/article/u-l-igem-team-golden-now-focussed-furthering-project-lethbridge-fire-and-ems>

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