



For Immediate Release — Tuesday, February 25, 2020

University of Lethbridge graduate students earn GreenSTEM funding in support of biotech start-up

The southern Alberta biotech industry will get a boost this spring thanks to some innovative work out of the University of Lethbridge and funding support from the Government of Alberta's GreenSTEM program.

Allos Bioscience, a start-up company that designs and produces protein-based biosensors, is led by PhD candidates Luc Roberts (BSc '12) and Harland Brandon (BSc '13). The two, with support from the University's Alberta RNA Research and Training Institute (ARRTI), its director Dr. H.J. Wieden, Dr. Wade Abbott of the Lethbridge Research and Development Centre and Synbridge (the synthetic biology makerspace on campus), are members of the first cohort of GreenSTEM fellows in the province.

"With the funding from GreenSTEM and the support of Synbridge and the Wieden lab, we now have the opportunity to leverage the rich infrastructure here at the University," says Roberts. "Without this funding, I doubt we ever would have attempted to do it. They partner you with business mentors, provide training opportunities and really help you create the foundation for your business. We actually came into the program after the first cohort was selected and the first thing we noticed was how supportive and collegial the other fellows are."

GreenSTEM is an entrepreneurial pilot program for recent graduates of science, technology, engineering and math (STEM) masters and PhD programs. It provides funding support over two years for entrepreneurially inclined, technically skilled participants who are working on hardware-based technologies with emissions reduction potential. The GreenSTEM fellows are hosted by Alberta's research universities, including the U of L, University of Alberta and University of Calgary.

Roberts and Brandon based their idea off work done by the U of L's Dr. Dylan Girodat (BSc '13, PHD '19, currently working at the Los Alamos National Laboratory) and PhD candidate Dustin Smith (BSc '13, MSc '17).

“The detection of specific biomolecules is an important part of many industrial and academic processes,” says Roberts. “However, sensors that detect and differentiate between similar molecules are not readily available for all types of molecules, or require significant time and technical infrastructure for detection.”

Their company proposes to develop custom biosensors for a variety of applications, including the biofuel industry and any number of ag biotech uses. Their biosensors are biodegradable detection systems that provide rapid, sensitive and selective measurements of a desired chemical in solution. They currently have three working prototypes (each detecting a unique biomolecule) and their main focus is on green technologies.

“Our first priority is to do some strong market research, and talk to as many biofuel people as we can to show them what we have and whether it might be helpful to their business,” says Brandon. “Some of the first advice we’ve been offered about building our business, is to ensure we’re satisfying a need with our product.”

Roberts says they are also looking at custom applications, finding people in either energy or research sectors who have a need to detect certain molecules, then partnering with them to build a custom biosensor for that need.

“Either you make it and sell it directly to them or you license what you’ve designed and sell it to a biotech company, and they build it on a large scale,” he says. “We think the value in our company is the technology and the development pipeline and less an actual, physical product.”

GreenSTEM provides annual fellowship stipends (essentially salaries) as well as seed funding to cover technology and business development expenses. Additionally, the program provides technology-focused entrepreneurship programming, technical and business mentorship and networking opportunities with investors, venture capital organizations, service providers and potential industry partners.

“There’s a lot of biotech going on in southern Alberta and it’s growing much faster than most people realize,” adds Brandon. “This rapid increase in biotech and green energy technologies is where GreenSTEM can make such a big impact, and afford us an opportunity to contribute to that sector.”

The intake for the latest round of GreenSTEM has just opened. Expressions of interest are being accepted from Feb. 24 through Mar. 23. For more information, visit alberta.ca/greenstem.

To view online: <https://www.uleth.ca/unews/article/u-l-graduate-students-earn-greenstem-funding-support-biotech-start>

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