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Allos Bioscience to develop better biosensors thanks to Mitacs grant

Thanks to a Mitacs Accelerate grant worth \$150,000, [Allos Bioscience](#) is set to work on developing better biosensors to detect specific carbohydrates in solutions.

Over the next two years, the grant will allow Allos Bioscience to hire two interns to work on the project using space and equipment in the SynBridge maker space at the University of Lethbridge. Allos Bioscience is a startup company based at ULethbridge that designs and produces biosensors to detect specific carbohydrates. These biosensors have wide applications, including in human health, biofuel production, food production and textile finishing.

“Our main goal is to improve the biosensors we already have and to make them more accessible to our end users,” says Luc Roberts (BSc ’12), a ULethbridge PhD candidate who founded Allos Bioscience with Dr. Harland Brandon (BSc ’13, PhD ’21). “In addition to improving the prototypes we have by making them more sensitive and efficient, we also hope to make them more available to end users who may not have the infrastructure available at the University.”

They’re also embarking on a pilot project to design biosensors for a cancer biomarker. Research has shown that specific carbohydrates can be used as biomarkers to detect cancer, so the team at Allos Bioscience hopes to develop a biosensor to detect those carbohydrates.

“Presently, the largest barrier to understanding the role carbohydrates play in human health is the lack of suitable tools to study them,” says Roberts.

A biosensor is a biological tool that detects a specific target. Roberts uses the example of a flashlight and batteries to illustrate. The flashlight can be considered the biosensor and the batteries as the target. The flashlight will light up when the batteries are present.

“In our case, the flashlight is a protein with a fluorescent dye on it and the batteries are the carbohydrates,” says Roberts. “When the protein binds to the carbohydrates, you get a change in the brightness of the dye, like a flashlight lighting up. And we can quantify how bright the light is.”

The team at Allos Bioscience will work with Dr. Trushar Patel, a Canada Research Chair in RNA and Protein Biophysics at ULethbridge.

“The work will lay the foundation to develop biosensors that can help detect diseases, such as cancer and infections,” says Patel. “This partnership is also an example of the unique opportunities ULethbridge offers to graduate students, promoting their entrepreneurial skills.”

Roberts and Brandon have based their work on previous research by ULethbridge alum, Dr. Dylan Girodat (BSc '13, PhD '19), PhD candidate Dustin Smith (BSc '13, MSc '17), former ULethbridge professor Dr. HJ Wieden, and ULethbridge adjunct professor Dr. Wade Abbott of Agriculture and Agri-Food Canada.

“Without them, this Mitacs grant wouldn't have been possible,” says Roberts.

Find online at [Allos Bioscience](#).

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