

For immediate release — Tuesday, November 30, 2021

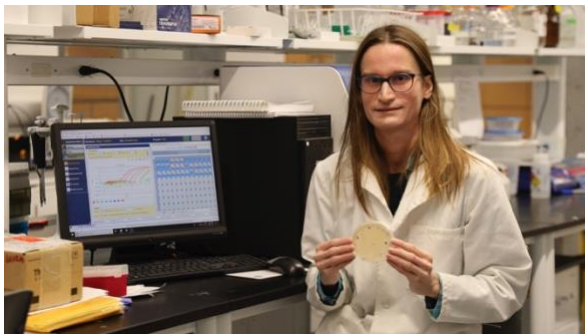
## U of L's Synbridge helps launch Paramoria Agri-Science

Biotech startup companies face a number of hurdles getting their businesses off the ground, not the least of which is the cost of specialized tools and equipment.

That was the case for Brent Puchalski, a molecular plant pathologist and founder of Paramoria Agri-Science, when he looked to launch a company to help grain and oilseed farmers better fight fungal infections in their fields. Luckily, he was able to connect with Synbridge, a synthetic biology makerspace at the University of Lethbridge. Paramoria was able to gain access to Synbridge's specialty lab and biotechnology equipment on a fee-for-use basis.

"It's been great working with Paramoria," says Dr. Laura Keffer-Wilkes (MSc '12, PhD '16), manager of Synbridge. "It's exciting to have them on campus and work in our space. Synbridge gives businesses a chance to fulfil the biotechnology side of their business plan by offering them lab space and use of our equipment at a reasonable cost."

### Reducing fungicide use



"In a nutshell, what we are doing is developing a microbial radar system which allows farmers to measure the amount of disease-causing agents or spores in their fields in real time," says Puchalski. "We're developing tools and technologies to try to mitigate the reliance of Canadian agriculture on fungicide application. We believe, based on the data and based on our protocol, we can significantly reduce the amount

of fungicides that are applied across the Prairies and potentially around the world."

Puchalski and his father, Byron, a retired plant pathologist, estimate up to 75 per cent of all fungicide applications may be unnecessary, as farmers spray out of an abundance of caution, not because they know they have a fungal problem. That caution is well-placed as fungal infections can result in significant yield loss. The Puchalskis have developed an inexpensive spore trap that harvests spores from the air, which are then taken back to the lab for analysis using Synbridge's molecular tools.

“We want to give farmers tools to better manage their fields by telling them exactly what they do and don’t have, rather than guessing and worrying,” says Brent. “Right now, farmers rely on models and predictions and their own skill and gut feeling. We aim to limit this practice by giving them a weekly measurement of what’s in their field at any one time.”

### **Testing the tools**

Since gaining access to the lab in April, Paramoria has been busy prototyping and testing its technology with four farmers across a dozen fields during the past growing season. Their testing focused on detecting the presence of stripe rust, which affects cereal grains like wheat, and sclerotinia, which can attack all major crops in southern Alberta. The samples and analyses done over the summer showed them the system worked and will give their clients actionable data to use when deciding to apply fungicide.

“We are very confident in our results, and that this system will do what it’s supposed to do,” says Brent. “We believe we can cut down farmers’ fungicide applications.”

Not only will farmers save money by spraying only when and where needed, reducing fungicide use is also beneficial for the environment and helps reduce the likelihood of resistant strains developing.

Now that the prototyping and testing phases have been completed, the Puchalskis want to expand their operations in more fields next year. Anyone interested is welcome to contact them through their [website](#), by calling 587-282-1285, or by sending an email to [puchalsk@ualberta.ca](mailto:puchalsk@ualberta.ca).

### **About Synbridge**

Synbridge was formed in 2016 with the assistance of a \$1.5-million grant from Western Economic Diversification. The grant enabled the purchase of specialized equipment like a fluorescence activated cell sorter, protein purification systems, centrifuges and more.

Located in Science Commons, Synbridge’s lab and services are open for anyone to use from small startups to multinational companies. Synbridge provides space for different research groups on campus, gives students training opportunities and hosts both the high school and U of L iGEM teams. Synbridge is also involved in two R & D challenges with industry as part of the U of L’s Natural Sciences and Engineering Research Council (NSERC) [Collaborative Research and Training Experience](#) (CREATE) program.

Anyone interested in working in the Synbridge facility can contact Keffer-Wilkes at [synbridge@uleth.ca](mailto:synbridge@uleth.ca).

This news release can be found online at [Paramoria Agri-Science](#).

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