



University of  
Lethbridge

**NEWS RELEASE**

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## **U of L scientists find certain cannabis extracts may help prevent acute respiratory distress in COVID-19 patients**

In some COVID-19 patients, the immune system goes into overdrive and starts attacking the body itself in what's called a cytokine storm. When lung tissue is attacked, it can lead to acute respiratory distress syndrome (ARDS) and the need for a patient to be placed on a ventilator.

Drs. Olga and Igor Kovalchuk, professors in University of Lethbridge's Department of Biological Sciences, along with researchers from Pathway RX (a research company focused on developing custom cannabis therapies), have found that certain cannabis strains show the potential to tamp down an immune system that's gone into overdrive, thus preventing ARDS from developing. The study is currently undergoing peer review but is available as a preprint on [Research Square](#). The study is a followup to recent research the Kovalchuks conducted that showed certain Cannabis sativa extracts may reduce COVID-19's ability to enter human cells.

ARDS is not new and has been reported in SARS (severe acute respiratory syndrome) and MERS (Middle East respiratory syndrome), which are also coronaviruses, and has been known to occur in severe influenza. A further potential complication of ARDS is lung fibrosis, which occurs when lung tissue becomes like scar tissue and for which there is no treatment, except potentially a lung transplant.

The next step for the study is a clinical trial and the Kovalchuks are seeking partnerships and support to conduct a proper randomized control trial to see whether the addition of these extracts diminishes the severity of COVID pneumonia and the cytokine storm. This could result in less fibrotic changes and lead to fewer hospital admissions.

"In this study, we identified three extracts that are very, very good strains; some strains identified in previous studies were also pretty good," says Olga. "All together, we have five strains we could formulate a clinical trial on right now. We need a chance to bring it to the evidence-based medicine realm."

In previous research, the Kovalchuks generated more than 1,500 different strains of cannabis and started testing them for their biological anti-cancer and anti-inflammatory activity. For the current study, they narrowed the strains to seven and tested them using a well-established artificial 3D human skin tissue model.

“When we started reading up in the literature on what drives ARDS, it’s very clear that it’s driven by the same molecules that are implicated in a lot of autoinflammatory and autoimmune diseases. One of them is interleukin-6 (IL-6) and the other is called tumour necrosis factor alpha (TNF $\alpha$ ),” says Olga. “We found that three of those strains were the most effective in causing significant down-regulation of TNF $\alpha$  and IL-6. On top of that, they also inhibit a whole array of other inflammatory molecules that are involved in auto-inflammatory diseases, as well as cytokine storms. We noted that some of the extracts we identified also target molecular pathways implicated in fibrosis.”

These specific strains seem to modulate the immune response and work to prevent the cytokine storm while still maintaining some of the molecules needed to fight the virus. She surmises the extracts work through the endocannabinoid system, which regulates many responses in the body and has receptors that cannabinoids bind to.

She says cannabis extracts are not a substitute to any treatment, but an additional treatment that could be provided along with current best therapies. The results of this latest study also don’t mean that smoking cannabis or using a high-CBD (cannabidiol) product will produce the same effect. Of critical importance is researching cannabis strains to identify the most effective. Cannabis is not generic like some drugs — one strain of cannabis may work for one ailment but not another. Medical cannabis, especially cannabis high in CBD, is in the GRAS (Generally Recognized as Safe) category.

This news release can be found online at [cannabis and ARDS](#).

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