Medical researchers discover new ways to target, develop and design drugs to prevent and treat viral infection

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Researchers at the University of Alberta have discovered a new drug target, developed a new drug and identified a new way to design drugs—all of which could be a winning combination in the battle against viruses.

The findings by Che Colpitts, Luis Schang and their team in the U of A's Faculty of Medicine & Dentistry were recently published in the peer-reviewed *Journal of Virology*. Their findings are a continuation of research started by Mim St. Vincent of the Université de Saint-Boniface in Manitoba, whose findings were previously published in the *Proceedings of the National Academy of Sciences*.

For a virus to infect a cell, the virus has to change from a spherical shape to an hourglass shape. The new drug developed by Schang and his team prevented viruses from changing their shapes and infecting cells.

"The compounds or drugs we developed insert themselves inside a certain part of the virus and then the virus no longer has enough energy to change its shape and fuse to cells. When a virus fuses to a cell, this allows the virus to enter the cell and infect it," explains Schang. "So our discovery prevents the virus from infecting new cells, although it does not stop the virus from killing already infected cells."

The research team has conducted their work in Petri dishes in a lab.

They are now continuing their research by testing this new drug on lab models.

The discovery is protected by patent applications in multiple countries. Schang says his team is moving the discovery to pre-clinical development with Pro-Physis Inc., a startup biotechnology company being spun off from the University of Alberta in collaboration with TEC Edmonton.

"In terms of drug discovery, this new development is key," he says.

"No one had considered looking at this area, at lipids, as drug targets before. And no one had considered biophysics important for antiviral drug design and development. The target is new, and the way we designed the drug is totally different and new."

Provided by University of Alberta