

# Texas Biomed files patent for a novel HIV vaccine strategy

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The Texas Biomedical Research Institute in San Antonio has applied for a patent for a genetically-engineered vaccine strategy to prevent HIV infection that targets the outer layers of body structures that are the first sites of contact with the virus.

Designed to be a single dose and last a lifetime, the vaccine will lead to the continual production of disease-fighting cells without being eliminated by the immune system. Another feature of the vaccine system is that it could be adapted for use against other infections.

More than 90 percent of new HIV infections worldwide are transmitted by [sexual intercourse](#) through outer layers of cells called epithelial cells which line the surfaces of structures throughout the body. The new vaccine is directed to what are known as the mucosal layers of the epithelium in the genital and rectal areas where the virus enters the body.

"The development of an effective [AIDS vaccine](#) that restricts [viral replication](#) at the mucosal level of entry may be our best hope for controlling the HIV pandemic," said Marie-Claire Gauduin, Ph.D., of Texas Biomed's Department of Virology and Immunology, who is a co-inventor on the patent with Philippe Blancou, Ph.D., a visiting scientist from the University of Nice-Sophia Antipolis, France. "Only life-long stimulation of the immune system by the vaccine will be sufficient to achieve long-term protection," she added.

One of the main reasons for the failure of HIV vaccines thus far is their

inability to deliver antibody-producing cells for prolonged periods of time, thus only achieving weak and transient protection at best.

The primary target for [viral transmission](#) through different mucosal sites varies depending on the tissue. However, soon after crossing the mucosal layer, HIV rapidly spreads to lymph nodes and other organs where it replicates.

The [vaccine](#) will have a molecule and stem cell gene tagged to target epithelial cells, that combined, will promote the production of antibody-producing cells. Thus, the epithelial layer will continuously release new antibody-producing cells and not be eliminated by the body's immune response.

Provided by Texas Biomedical Research Institute

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