European Researchers Patent Promising New HIV Compound

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A team of French, Italian and Spanish researchers announced March 19 that they've developed a promising new type of antiviral compound that may work well as a microbicide to help prevent HIV transmission. The new agent, which is in the process of being patented by the academic scientists, targets an immune cell receptor on dendritic cells (DCs) called DC-SIGN.

DCs normally trap disease-causing microorganisms that manage to penetrate protective tissues, including mucosal tissues of the genital tract. Normally, DCs engulf and destroy the invading pathogen and present fragments of the microorganism to CD4 cells to jump-start a much larger immune response.

HIV, which DCs can pick up during unprotected sexual activity, circumvents this process. Instead of being broken down by DCs, HIV attaches itself to the DCs' receptors and is shuttled to CD4 cells in nearby lymph nodes. Once the virus is passed on to the CD4 cells by the DCs, infection is officially established.

France's Centre National de la Recherche Scientifique (CNRS), working in collaboration with other European researchers, has been searching for a compound that would bind effectively with DC-SIGN and prevent HIV from using DCs as a springboard to establish infection. In an article published March 19 in *ACS Chemical Biology*, researchers describe the nature of one such compound.

In test tube studies, the new compound effectively prevented HIV infection of CD4 cells. Furthermore, the researchers suggest, the new compound is unlikely to be toxic to cells in the body and should be cheap to produce, given its simple structure. Even more promising, the drug could potentially work against other deadly infections such as hepatitis C virus (HCV), Macobacterium tuberculosis (TB), Ebola virus and others that use DCs.

Having patented the compound, CNRS is exploring potential partnerships to help develop the compound—notably as a microbicide—while simultaneously analyzing whether it has the capacity to develop the compound itself. In the meantime, researchers are refining the compound to make it more effective.