

## عنوان مقاله:

Pyroptosis block to prevent CD4 cell death in Acquired immune deficiency syndrome: a systematic review

## محل انتشار:

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## خلاصه مقاله:

Background and objectives: Acquired immune deficiency syndrome (AIDS) is a severe loss of the body's cellular immunity. Aids is a potentially life-threatening condition caused by the human immunodeficiency virus (HIV). AIDS is a global pandemic. As of 2016, approximately 36.7 million people have HIV. There is currently no cure or effective HIV vaccine. Treatment consists of highly active antiretroviral therapy (HAART) which slows progression of the disease. Studying the relation of new antiretroviral drug (caspase-1 inhibitor) and aids treatment is a main goal. Methods and materials: This essay was a systematic review of English articles published in PubMed, Nature and Science since 2010. Being up to date, matching with keywords and accessing the full text were incoming metrics. Results: The papers address a mystery: why immune cells die in people with HIV. A 2010 study showed that HIV does not directly kill most of these cells, called CD4 cells. Instead, the cells often self-destruct. They found that most of the cellular suicide occurs via a process called pyroptosis. A key protein involved in pyroptosis is caspase 1, and an experimental caspase-1 inhibitor made by Vertex Pharmaceuticals (VX-765) had already been tested in humans as a potential treatment for epilepsy. The drug, failed to help epileptics, but studies suggested that it was safe. Scientists tested VX-765 in HIV-infected cells cultured from human tonsils and spleens, and found that it blocked pyroptosis and prevented CD4 cell death. Conclusions: The approach could one day provide an alternative to the antiretroviral drugs currently used by 9.7 million people worldwide to manage HIV infection. HIV infection causes a mass suicide of immune cells a process that can be halted by an experimental drug such as VX-765 that blocks cellular self-destruction.

## کلمات کلیدی:

(AIDS/HIV treatment, pyroptosis, caspase-1 inhibitor, Vertex Pharmaceuticals (VX-765)

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