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# HIV elite controllers: Mechanisms of virologic control and the potential for functional cure

**Jason F Okulicz**
USA

Elite controllers are a subset of HIV-infected persons who have the ability to spontaneously control plasma viral load in the absence of antiretroviral therapy (ART). Although defined by virologic criteria, elite controllers are also associated with elevated CD4 cell counts and reduced risk of AIDS and death. Elite controllers are uncommon, with most HIV cohorts reporting a prevalence of <1%. Despite the rarity of this phenotype, elite controllers are being studied to determine the mechanisms responsible for spontaneous virologic control with the hope of developing novel treatment strategies and perhaps even a therapeutic vaccine to treat patients infected with HIV. The term "functional cure" is typically defined as the ability to achieve persistent control of HIV infection without the need for treatment such as ART. Elite controllers often have desirable characteristics that warrant consideration as potential models for functional cure. The mechanisms leading to spontaneous virologic control have not been fully described, but may include the presence of certain MHC class I alleles (HLA B57 and B27), low T cell regulatory responses, strong responses mediated by CD8+ T cells and NK cells, and low levels of inflammatory markers such as albumin, neopterin, IL-10, and MCP-1. Although the presence of defective HIV virus was considered a possible contributor to elite controller status, several studies have shown recovery of replication-competent virus. Elite controllers will continue to be aggressively studied since achieving undetectable viral load by means other than ART is an important goal for the development of vaccines and novel therapeutic agents.

## Biography

Jason F. Okulicz graduated from Rutgers University College of Pharmacy and received his MD degree from UMDNJ-New Jersey Medical School. He completed both Internal Medicine residency and Infectious Disease fellowship training at the San Antonio Military Medical Center. He currently serves as Director of the HIV Medical Evaluation Unit and supervises HIV care for the U.S. Air Force. He is actively involved in HIV research and is site Principal Investigator for the U.S Military HIV Natural History Study. He is also on the editorial board of the Journal of AIDS and Clinical Research and has over 50 publications.

jason.f.okulicz.mil@mail.mil