

The prospects and challenges in functional cure for HIV-1 infection

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The HIV-1 infection has been regarded as a life-threatening disease since last century. However, the development of modern antiretroviral therapy makes it real to let patients take one pill a day to achieve excellent control for HIV-1 infection. The next step for human to fight against HIV-1 infection is “cure therapy”, the Holy Grail of HIV-1 research. Using the modern biotechnology, now we have at least three potential policies to achieve the aim of HIV-1 cure, including broadly neutralizing monoclonal antibodies (targeting critical sites of virus-cell interaction), “kick and kill” policy to activate the latent HIV-1 in resting CD4 cells by latency-reversing agents and kill HIV-1 by potent antiretroviral therapy and kill cell reservoirs by immunity, and “block and lock” policy to keep the latent HIV-1 as “super latent state” by delivering siRNA. In this lecture, the prospects and challenges of these potential cure policies will be discussed.