Activation of HIV transcription in latently infected cells

The long term persistence of latently infected resting memory T-cells in HIV-infected patients is an important barrier to cure. Therefore finding a way to overcome and eliminate latently infected cells is important in the strategies for HIV treatment. One such method is to activate HIV production from latently infected cells with the aim of killing latently infected cells via virus induced cell death or stimulation of an HIV-specific immune response. Histone deacetylases (HDACs) are important in maintaining HIV latency. Vorinostat, an inhibitor of HDACs (HDACi) licensed for the treatment of some malignancies, has been shown in laboratory studies to disrupt HIV latency. This study went on to examine the ability of standard dose vorinostat given daily for 14 days to activate latent HIV infection in HIV-infected individuals on antiretroviral therapy (ART). Following administration of the treatment the study outcomes showed evidence of activation of latent HIV infection in almost all of the participants. It was also found to be safe and generally well tolerated. Overall there were significant early changes in host gene expression, which persisted during and after the period of treatment, indicating that vorinostat was able to activate latent HIV infection in most individuals. Thereby providing another means to work on a cure for HIV.

Elliott, J. et al. 2014. Activation of HIV Transcription with Short-Course Vorinostat in HIV-Infected Patients on Suppressive Antiretroviral Therapy. *PLOS*.