Latent HIV - Targets and Tools

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Despite the obvious success of current anti-HIV drugs, which reduce levels of virus in a patient to undetectable levels, the drugs do not cure people of HIV. As a result, HIV levels rapidly rebound if a patient stops taking the drugs, so that life-long adherence to an expensive and sometimes toxic drug regimen is required to manage this disease. The underlying reason for this is that low levels of latent or 'sleeping' HIV remain in cells, safe from attack by the drugs, but able to wake up at any point and restart an infection. In this grant we propose to develop new ways to seek out and destroy these latent viruses. To do this we will use new tools from gene therapy, that allow both destruction of the HIV virus, as well as tools to deliver these reagents to the types of blood cells that are more likely to harbor these sleeping viruses. If successful, such an approach could be used in combination with conventional anti-HIV drug treatments, to eventually cure people of their HIV infection.