



Cure: Viral Reservoir

HIV inserts its genetic blueprints into human cells and establishes a long-lasting reservoir that the drugs can't reach

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Metformin, a medication used to treat type 2 diabetes, may help the immune system recognize HIV and reduce the viral reservoir. Antiretrovirals can keep HIV replication suppressed, but the virus inserts its genetic blueprints into human cells and establishes a long-lasting reservoir that the drugs can't reach. Metformin, an mTOR inhibitor, promotes insulin activity, decreases glucose production in the liver and helps control blood sugar. Researchers in Montreal previously showed that metformin reduced HIV transcription in CD4 cells and decreased inflammation in nondiabetic people with HIV. In the new study, they used a viral outgrowth assay to analyze CD4 cells from 13 HIV-positive people on antiretroviral therapy. When the cells were exposed to HIV in the laboratory, metformin increased the number of productively infected CD4 cells, but it also inhibited the release of new viral particles from these cells and led to improved recognition by broadly neutralizing antibodies. This suggests that metformin might be used as part of a “shock and kill” strategy for a functional cure.

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