

## **Media release**

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### **Anti-cancer drug kicks HIV out of hiding**

*Danish researchers take another small step in the fight against HIV*

A pilot study by HIV researchers from Aarhus University and Aarhus University Hospital in Denmark has shown that an anti-cancer drug can activate hidden HIV. The researchers found that the anti-cancer drug romidepsin increased the virus production in HIV-infected cells between 2.1 and 3.9 times above normal and that the viral load in the blood increased to measurable levels in five out of six patients with HIV infection.

### **A pilot study**

The results were presented today as breaking news at the annual international AIDS conference in Melbourne, Australia. The pilot study is part of a larger study investigating the possibilities of combining activation of HIV and a vaccine to strengthen the ability of the immune system to fight HIV.

The group of researchers from Aarhus University and Aarhus University Hospital has previously shown that the drug panobinostat can activate hidden HIV in the cells but for the first time the researchers have been demonstrated that it is possible to activate hidden virus to levels readably detectable in the blood by standard methods.

### **Activated HIV leaves traces**

HIV can hide in a "state of hibernation" in the so-called CD4 cells. These cells are a part of the body's immune system, but the CD4 cells cannot fight the virus themselves; killer T-cells can. However, killer T-cells cannot tell if a CD4 cell contains "hibernating" HIV virus. That is why HIV continues to be a chronic disease. HIV infection can be kept down by medicine but there is still no cure which can eradicate HIV from the body.

The results presented by the researchers at Aarhus University Hospital and Aarhus University are interesting; when the virus is activated and moves towards the bloodstream it leaves a trace on the outside of the infected CD4 cells. In principle this means that the killer T cell can now trace and destroy the HIV-infected CD4 cells.

### **Immune system is not strong enough**

In addition to measuring the increased viral load in six HIV-infected test persons, the researchers have tested the side effects of the medicine. The test persons experienced transient fatigue and nausea, which are known side effects of romidepsin. And so, the pilot study does not cause immediate concern for special side effects in HIV-infected persons.

Moreover, the researchers have investigated if the total HIV reservoir in the body is lowered when the killer T-cells are now able to trace and destroy the HIV-infected CD4 cells. However, the researchers have not been able to demonstrate that the immune

system's reaction to the exposed HIV-infected cells may not itself be strong enough to clear the cells from the body. But the mechanism to activate and expose the HIV virus may potentially one day be part of a combination of drugs which together can eradicate HIV infection, says senior researcher and medical doctor Ole Schmeltz Sogaard.

### **Still a long way to go**

The next step is a bigger trial where the researchers will combine romidepsin activation of hidden HIV with a vaccine (vacc-4x) to strengthen the ability of killer T-cells to fight hiv virus.

We have now shown that we can activate a hibernating virus with romidepsin and that the activated virus moves into the bloodstream in large amounts. This is a step in the right direction; but there is still a long way to go and many obstacles to overcome before we can start talking about a cure against HIV, says Ole Schmeltz Sogaard.

### **Further information**

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