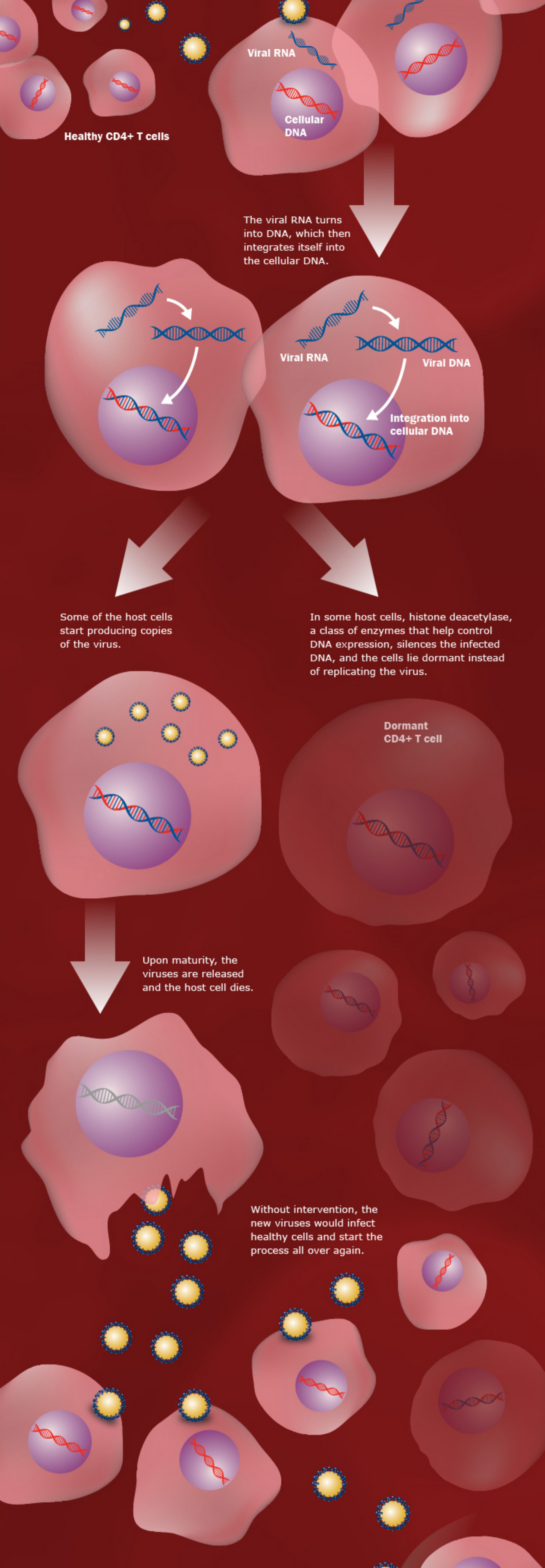


# Rooting Out Dormant HIV

Researchers believe that the existence of dormant viruses in the immune system is a major obstacle to finding a cure for AIDS. A team of researchers led by scientists at the University of North Carolina at Chapel Hill has shown that the drug vorinostat can be used to unmask hidden HIV virus. Here's a look at the science behind their approach.

## HIV Infection

An HIV infection starts when the viruses attach to specialized white blood cells called CD4+ T cells. The viruses inject their RNA and various enzymes into the cells.

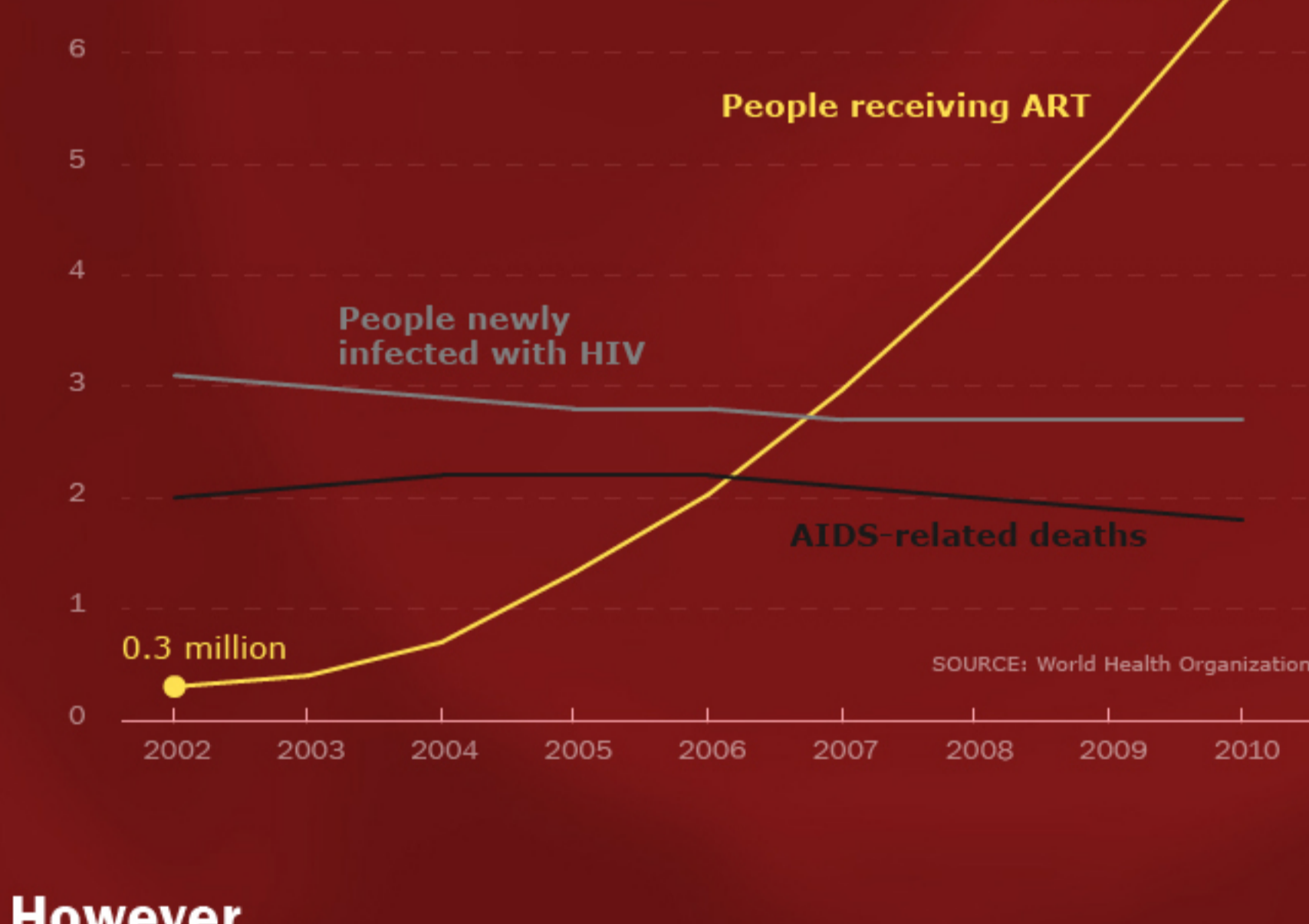


## Antiretroviral Therapy (ART)

Antiretroviral therapy fights HIV by protecting the healthy cells. There are more than 20 approved ARTs, targeting different stages of the virus's replication cycle, such as

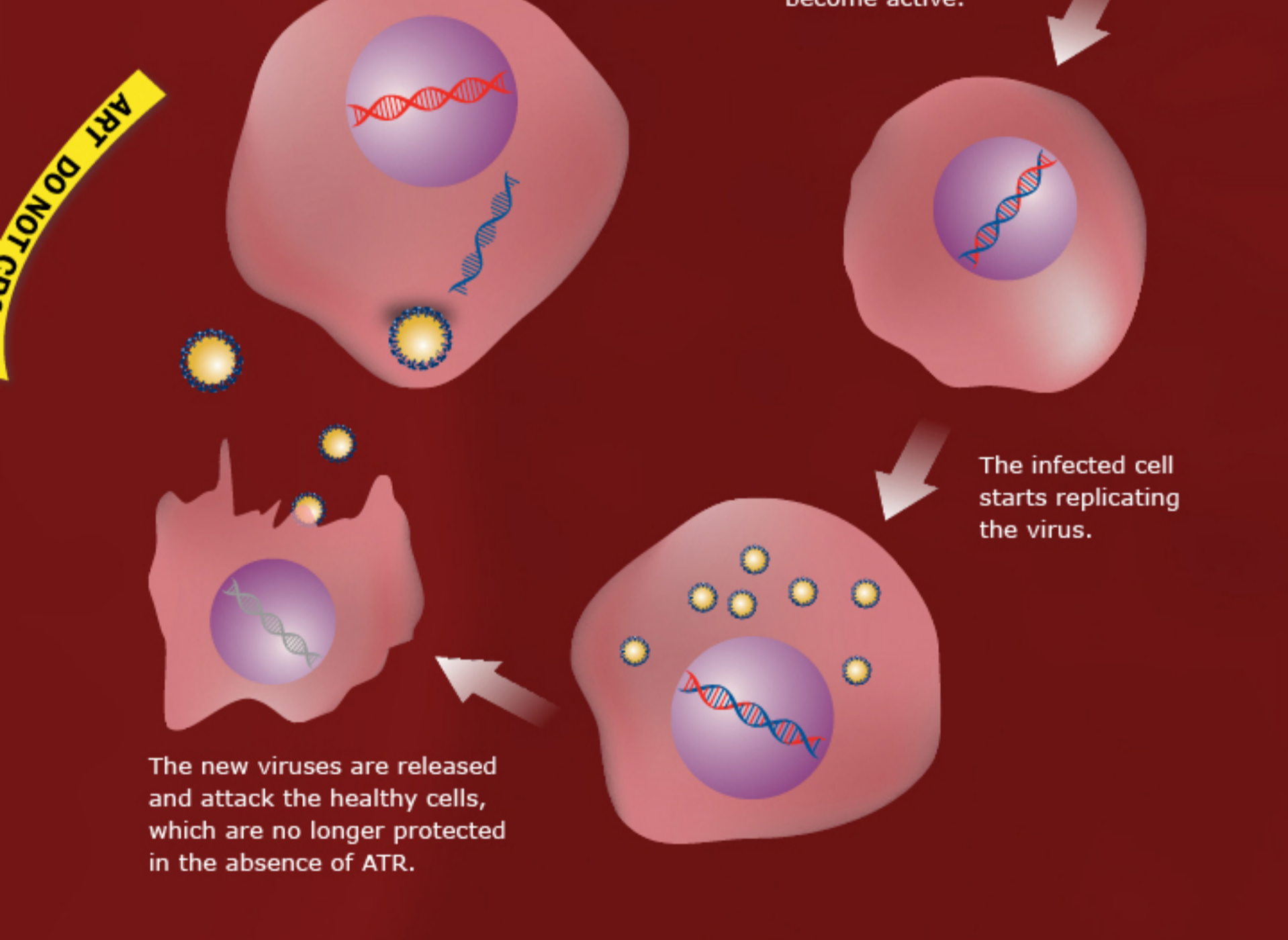
- keeping the virus from attaching to healthy cells,
- preventing the injected viral RNA from turning into DNA,
- preventing viral DNA from integrating itself into the cellular DNA, and
- keeping the replicated virus in infected cells from reaching maturity.

The use of ART has increased dramatically in recent years and has contributed to a decrease in HIV-related deaths.



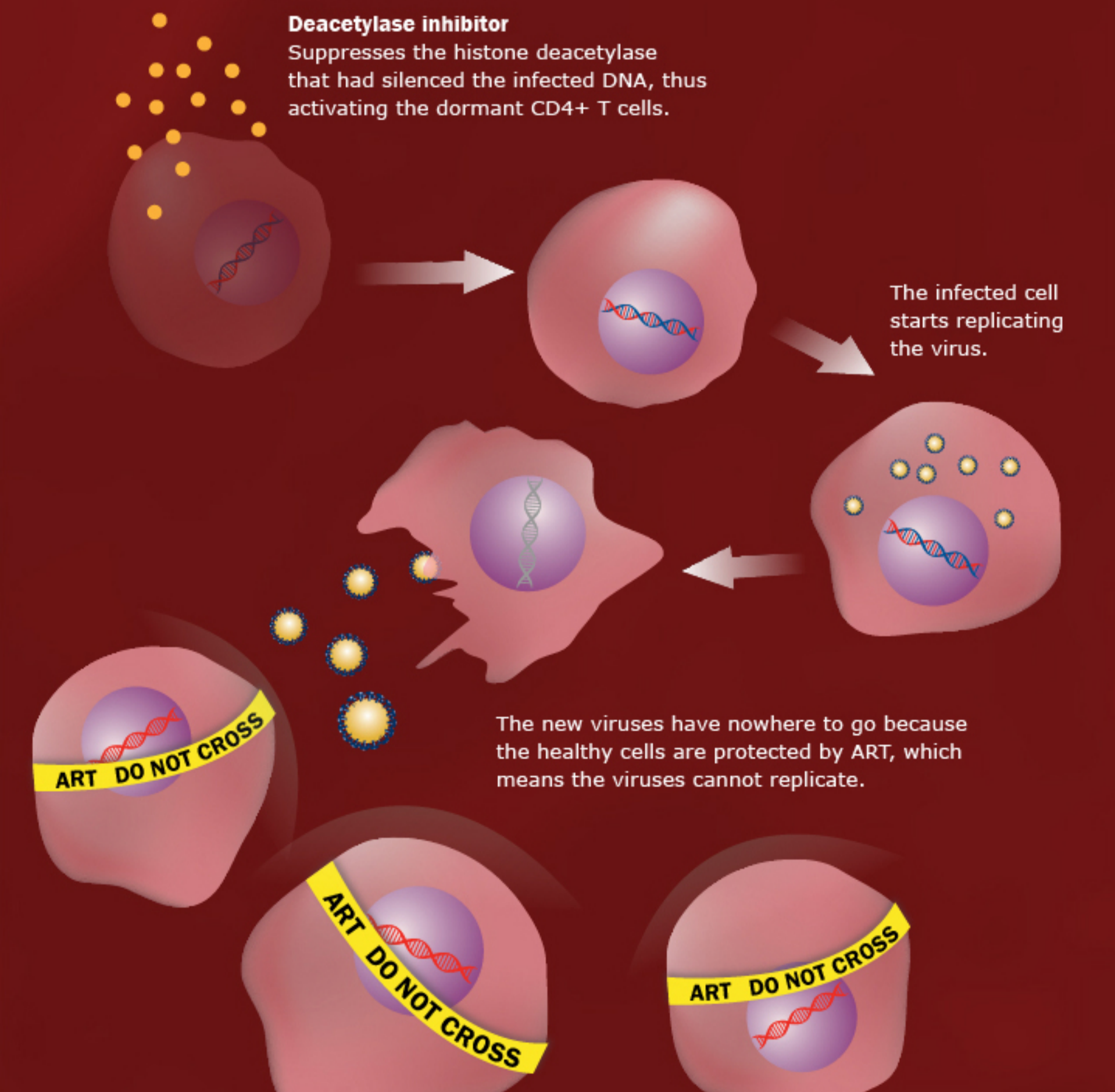
## However ...

If HIV-infected patients stop receiving ART, the dormant infected cells become active and start producing viruses again. This means patients must remain on ART their entire lives, which could lead to side effects, high financial costs, and the development of resistance.



## Possible Solution

UNC researchers and their collaborators showed that by administering vorinostat, a deacetylase inhibitor used to treat some types of lymphoma, to HIV-infected patients who are receiving ART, they were able to activate the dormant cells and make them start replicating viruses.



## What's Next?

The study with vorinostat provided a proof-of-concept to show that the approach is viable. However, vorinostat is associated with a number of serious side effects, so it is likely not an ideal drug for chronic use in HIV patients. Instead, researchers will look for other deacetylase inhibitors that work in a similar manner but are safer and more effective than vorinostat.



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To learn more about the study, whose findings were published in the July 25, 2012, issue of *Nature*, visit [bit.ly/Mml6Rb](http://bit.ly/Mml6Rb)