# Proteins That Help HIV Enter Cells Can Also Impede Its Release

August 28, 2014

A family of proteins that help viruses such as HIV and Ebola enter human cells can also block subsequent viral copies' release, according to research conducted at the University of Missouri. Publishing their findings in the Proceedings of the National Academy of Sciences, researchers observed the interactions between HIV, lipids known as "phosphatidylserine" (PS), and a cellular protein known as "T-cell immunoglobulin and mucin domain" (TIM-1).

"This study shows that TIM proteins keep viral particles from being released by the infected cell and instead keep them tethered to the cell surface," Gordon Freeman, PhD, an associate professor of medicine with Harvard Medical School's Dana-Farber Cancer Institute, who was not affiliated with the study, said in a release. "This is true for several important enveloped viruses including HIV and Ebola. We may be able to use this insight to slow the production of these viruses." Ordinarily, PS exists on the inside of the immune cell, but a viral infection can lead it to the outside of the cell. And when viral particles attempt to leave a human immune cell, the researchers observed, TIM-family proteins can attach to PS lipids on the cellular surface, which together can cause the emerging viral particles to get stuck together in a network that fails to leave the cell. Consequently, those viral copies cannot go on to infect other cells.

"[T]his discovery furthers our ultimate goal of understanding the biology of TIM-family proteins and potentially developing applications for future antivirus therapies," Shan-Lu Liu, MD, PhD, associate professor in the MU School of Medicine's department of molecular microbiology and immunology, said in a release.

To read the press release, click here.

To read the study abstract, click here.

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