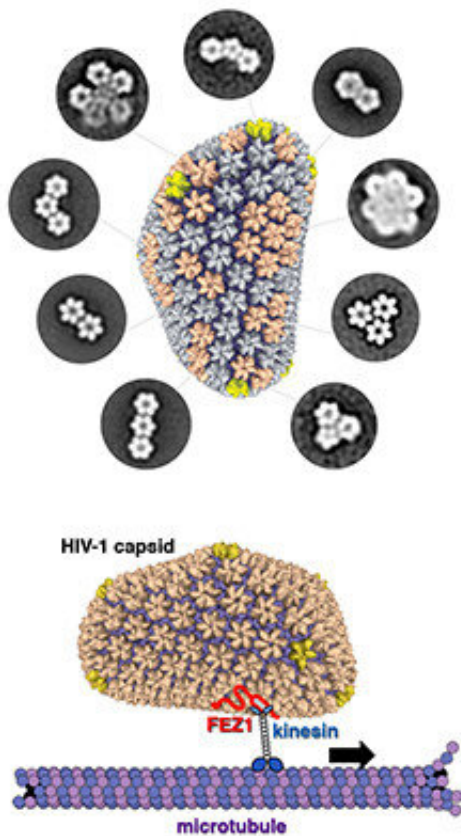


Researchers describe building blocks of HIV's protective shell

August 15 2019, by Bill Hathaway



The protective envelope of the HIV virus is comprised of many protein building blocks, with a different shapes and functions. Credit: Yale University

The genome of the HIV-1 virus is protected by a conical-shaped protein shell called a capsid, which performs many functions crucial to viral infection—shielding the virus from the immune system, attaching to

cell's transport network, and hijacking cellular machinery to reproduce. The capsids are comprised of hundreds of copies of a viral protein that form specific patterns, some of which provoke defenses of the host cell and others which recruit help in spreading viral infection.

Yale researchers led by Brady Summers, a [graduate student](#) in the lab of Yong Xiong, professor of molecular biophysics and biochemistry, have devised a method to capture individual patterns and uncover their effects during infection. "These [protein fragments](#) are like Legos, the basic building blocks of the capsid, and each has a different function," Xiong said. For instance, one such fragment studied enabled the capsid to attach to the cytoskeleton to move inside the cell. Understanding the function of each pattern may help researchers to either enhance effects of the interactions that elicit host defenses or obstruct those that promote infection, he said.

The research is described in two papers published Aug. 14 in *Cell Host & Microbe* and in *Cell Reports*. Related research was published Aug. 6 in the journal *Structure*.

More information: Pei-Tzu Huang et al. FEZ1 Is Recruited to a Conserved Cofactor Site on Capsid to Promote HIV-1 Trafficking, *Cell Reports* (2019). [DOI: 10.1016/j.celrep.2019.07.079](https://doi.org/10.1016/j.celrep.2019.07.079)

Provided by Yale University

Citation: Researchers describe building blocks of HIV's protective shell (2019, August 15) retrieved 26 April 2024 from <https://medicalxpress.com/news/2019-08-blocks-hiv-shell.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is

provided for information purposes only.