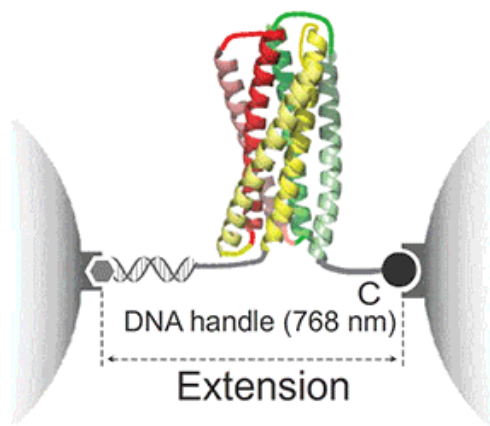


# Optical tweezers manipulate key protein involved in HIV infection

May 19 2015, by Bill Hathaway

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Using an instrument so sensitive it can fold and unfold a single protein, Yale School of Medicine researchers have manipulated a protein essential for HIV to invade cells. The "optical tweezers" allowed researchers to apply tiny forces to a single protein that mediates entrance of HIV into host cells.

Yongli Zhang and third-year graduate student Junyi Jiao were able to manipulate folds of gp41 protein, which is the target of AIDs drug enfuvirtide. Patients treated with enfuvirtide gradually develop drug resistance, due to gene mutation of gp41.

The researchers found that the drug inhibits the folding of the protein but that ability is lost in patients already treated with enfuvirtide. Their research is described the week of May 18 in the journal *Proceedings of the National Academy of Sciences*.

**More information:** "Kinetically coupled folding of a single HIV-1 glycoprotein 41 complex in viral membrane fusion and inhibition." *PNAS* 2015 ; published ahead of print May 18, 2015, [DOI: 10.1073/pnas.1424995112](https://doi.org/10.1073/pnas.1424995112)

Provided by Yale University

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