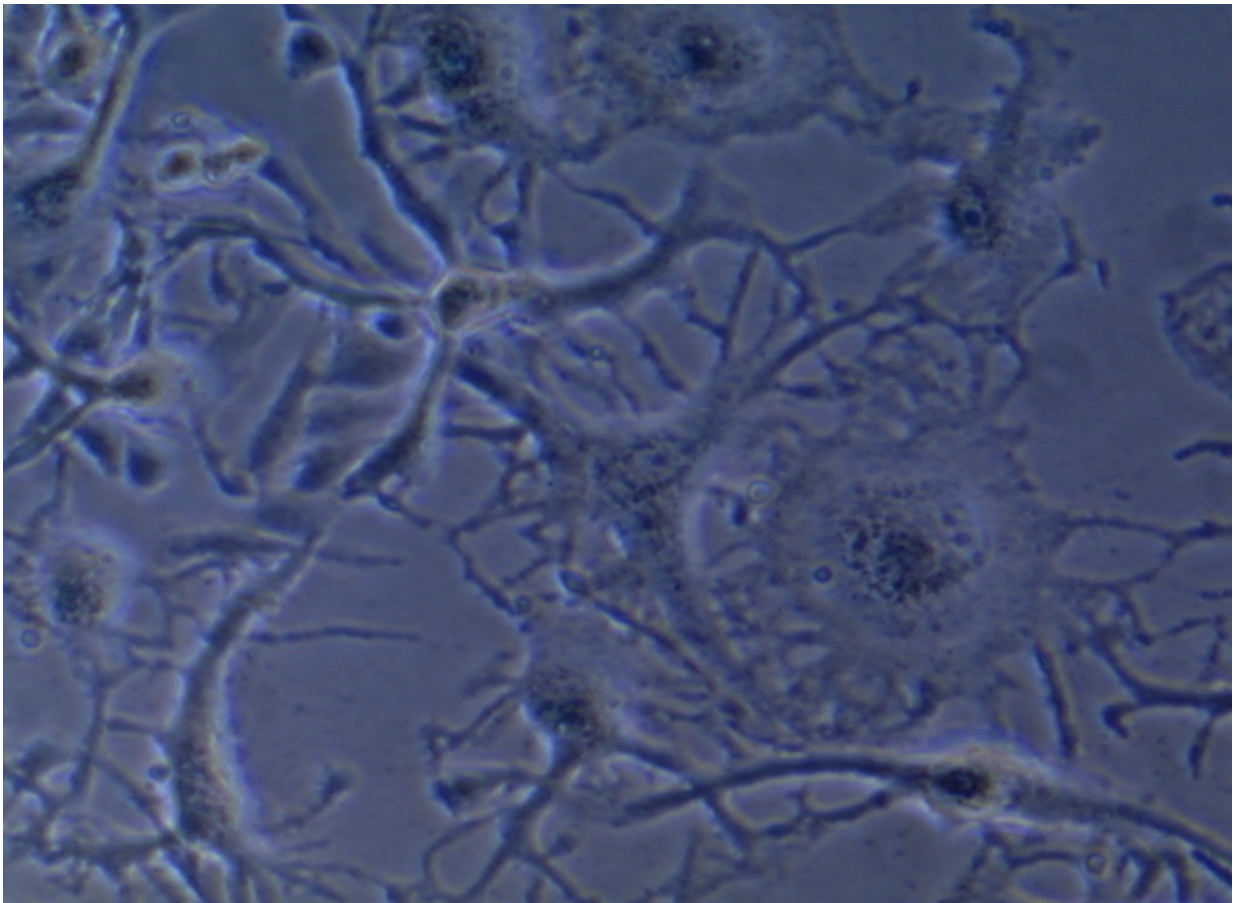


Researchers identify receptor that may allow HIV to infect kidney cells

November 3 2016



Podocytes were cultured from the urine of children with HIV-1 associated nephropathy. Credit: Patricio Ray

HIV-1 associated nephropathy (HIVAN) is a kidney condition that can

arise in HIV-positive patients of African ancestry who are not treated appropriately with antiretroviral therapy. Despite many years of extensive research, it remains unclear how patients' kidney epithelial cells, which do not express the major HIV-1 CD4 receptor, become infected. Now, however, a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology (JASN)* describes a new mechanism to explain how HIV-1 may infect these cells.

A team led by Patricio Ray, MD and Jinliang Li, PhD (Children's National Health System and The George Washington University Medical School) set out to investigate the mechanisms underlying the infection by HIV-1 of kidney cells—specifically podocytes and renal tubular [epithelial cells](#)—cultured from the urine of children with HIVAN. Various treatments and analyses revealed a key player: transmembrane TNF-alpha, the precursor of soluble TNF alpha that is involved in many inflammatory diseases.

"We found that transmembrane TNF-alpha facilitates the low level productive infection of podocytes cultured from HIV-positive children and renal tubular epithelial cells that do not express CD4, a finding that may have wider clinical implications in understanding how children develop HIVAN," said Dr. Ray. The novel mechanism may also help explain how other CD4-negative epithelial cells, including those within the cervix or placenta, may become infected, thus facilitating the transmission of HIV-1 from mother to fetus. "More studies are needed to confirm this notion, however," Dr. Ray noted.

More information: "Transmembrane TNF- α Facilitates HIV-1 Infection of Podocytes Cultured from Children with HIV-Associated Nephropathy," *JASN*, [DOI: 10.1681/ASN.2016050564](https://doi.org/10.1681/ASN.2016050564).

Provided by American Society of Nephrology

Citation: Researchers identify receptor that may allow HIV to infect kidney cells (2016, November 3) retrieved 24 April 2024 from <https://medicalxpress.com/news/2016-11-receptor-hiv-infect-kidney-cells.html>

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