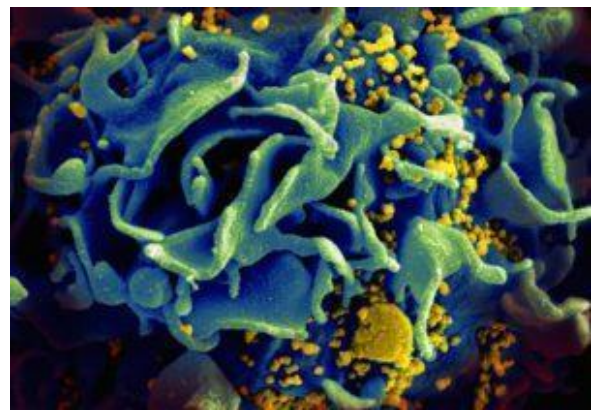
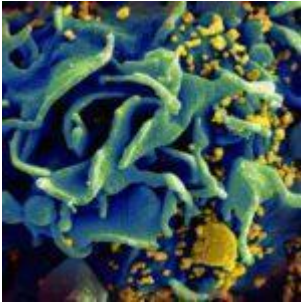


# Cell-to-cell HIV transmission evades antibody responses



HIV infected T cell (NIAID, Wikimedia Commons)

Most studies on broadly neutralizing antibodies (bnAbs) that target HIV look at neutralization of cell-free virus. However, the virus can also pass directly from one cell to the next through a process known as cell-to-cell transmission. This study shows that bnAb responses toward cell-to-cell transmitted virus may not be as potent or efficient.

Potent bnAbs that target different regions of the HIV Envelope have been identified to date. Proof of concept studies in non-human primates have found that these antibodies are able to prevent HIV acquisition and other studies have found that combinations of bnAbs have the ability to suppress viral replication.

However, previous studies have shown that large quantities of

bnAbs are needed to prevent cell-to-cell transmission. Some studies have found that neutralization of cell-to-cell transmitted virus is less effective than cell-free virus neutralization whilst others have shown that the neutralization capabilities are the same regardless of transmission mode. Therefore, researchers, led by Benjamin Chen, investigated this further, focusing on transmitter/founder (T/F) viruses.

The researchers tested the neutralization of two T/F viruses and two other HIV strains that are well studied. They tested neutralization of these viruses by bnAbs in both cell-free and cell-to-cell transmission environments and compared the results.

The team found that the potency of antibodies was greatly reduced in neutralizing cell-to-cell transmitted virus as compared to cell-free virus. They also saw a decrease in the maximum neutralization capacity of the bnAbs they tested in the context of cell-to-cell transmission.

This study is important as it shows that cell-to-cell transmitted viruses may easily escape from bnAb neutralization. This may result in incomplete protection from bnAb-based vaccines or therapies.

Journal Article: [Li et al., 2017. Reduced Potency and Incomplete Neutralization of Broadly Neutralizing Antibodies against Cell-to-Cell Transmission of HIV-1 with Transmitted Founder Envs. \*Journal of Virology\*](#)

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