The Matrix

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Picture a traffic light that directs HIV into and out of the cells where the virus does its dirty work. It's called the matrix protein, and a new understanding of how it regulates this viral transit may open a road to drugs that block HIV replication in completely new ways. University of Massachusetts researchers have found that the protein first regulates the flow of HIV genetic material into an infected cell's nucleus. Once inside, the virus commandeers the cell's genetic machinery to churn out copies of that material, called viral RNA, and this becomes the blueprint from which new HIV proteins are built. Now the matrix protein reverses the flow of traffic, sending the HIV proteins back out into the outer compartment of the cell, the cytoplasm, where new viruses are put together. This recent discovery raises two new anti-HIV hopes: drugs that turn off either the "Enter" or the "Exit" signs of the matrix protein. Either one could be a permanent red light for the virus.

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