How to fortify the immunity of HIV patients

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New findings from a Université de Montréal and the Vaccine and Gene Therapy Institute of Florida (VGTI) study, in collaboration with scientists from the NIH and the McGill University Health Center, may soon lead to an expansion of the drug arsenal used to fight HIV.

The Canada-U.S. study published today in the journal *Nature Medicine* characterizes the pivotal role of two molecules, PD-1 and IL-10, in influencing the function of CD4/T-helper cells and altering their ability to fight HIV.

"Our findings show that the membrane protein PD-1 is up-regulated during HIV infection by the release of bacterial products from the gut and this subsequently increases the production of a cell derived factor, IL-10 that paralyses the immune system ," says senior author Dr. Rafick-Pierre Sékaly, a professor at the Université de Montréal, researcher at the Centre de Recherche du CHUM and scientific director of the Vaccine and Gene Therapy Institute of Florida. "We are the first to show that these two molecules work together to shut down the function of CD4 T-cells in HIV patients. This in turn, may lead to paralysis of the immune system and an accelerated disease progression ."

"Our results suggest that it is important to block both IL-10 and PD-1 interactions to restore the immune response during HIV infection," says Dr. Sékaly. "We believe that immunotherapies that target PD-1 and IL-10 should be part of the arsenal used to restore immune function in HIV-infected subjects."

More information: "PD-1 Induced IL-10 Production by Monocytes Impairs CD4 T-Cell Activation during HIV Infection," Nature Medicine: www.nature.com/nm

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