

Researchers identify potential new weapon in battle against HIV infection

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Researchers have discovered a potentially important new resistance factor in the battle against HIV: blood types. An international team of researchers from Canadian Blood Services, The Hospital for Sick Children (SickKids) and Lund University in Sweden have discovered that certain blood types are more predisposed to contracting HIV, while others are more effective at fending it off.

A carbohydrate-containing antigen, termed Pk blood group which is distinct from the well-known ABO and Rh blood grouping systems, is present at variable levels on the surface of white and red blood cells in the general population. A study published today in *Blood*, which is currently available online, shows that cells from rare individuals (≈ 1 in a million) who produce excess of this blood group antigen have dramatically reduced sensitivity to HIV infection. Conversely, another slightly more common subgroup of people who do not produce any Pk (≈ 5 in a million) was found to be much more susceptible to the virus.

"This study is not suggesting that your blood type alone determines if you will get HIV," says lead author Dr. Don Branch of Canadian Blood Services. "However, it does suggest that individuals who are exposed to the virus, may be helped or hindered by their blood status in fighting the infection."

Increasing the level of the Pk antigen in cells in the laboratory also resulted in heightened resistance to HIV, while lowering it increased susceptibility. The Pk molecule has been previously studied extensively

by The Research Institute at the Hospital for Sick Children Senior Scientist Dr. Cliff Lingwood; Lund University's Dr. Martin Olsson has identified underlying genetic reasons for Pk blood group variation.

"This discovery implicates the Pk level as a new risk factor for HIV infection and demonstrates the importance of blood-group-related science," says Dr. Olsson.

"The conclusions of this study pave the way for novel therapeutic approaches to induce HIV resistance and promote further understanding of the pandemic as a whole," says Dr. Lingwood.

Paper: The study is published online today in the journal *Blood*, bloodjournal.hematologylibrary.org/papbyrecent.dtl

Source: Canadian Blood Services

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