Blood Type Discovery May Lead to New Tools in HIV Fight

January 14, 2009

Scientists have discovered that certain rare blood types can make individuals more or less vulnerable to HIV infection, according to a study published in the journal *Blood* and reported by ScienceDaily.

Researchers have developed more sophisticated methods for typing blood in recent years. Moving beyond the old-fashioned grouping systems that split people into A, B and O blood types—and the more recent Rh blood typing system—they've uncovered another method for grouping people by their blood characteristics. The new method is concerned with a carbohydrate-carrying antigen called Pk. Some people have a lot of Pk in their blood, while others have none at all. Most people fall somewhere in between.

Nicole Lund, PhD, from the University of Toronto, and her colleagues previously found that people with Fabry disease—caused by a missing fat-metabolizing enzyme that can lead to eye, kidney and heart problems—who accumulate higher levels of Pk also have fewer body-wide infections. This led Lund's team to examine whether blood Pk levels could influence whether or not someone became infected with HIV. The group studied the blood of three groups of people: those with high levels of Pk, those with normal levels and those whose cells don't express any Pk at all. They found that the cells of people who express high levels of Pk, a rare group representing about one in a million people, were resistant to HIV infection. Conversely, the cells of those who express no Pk at all, representing about five in a million people, were particularly susceptible to HIV infection.

Don Branch, PhD, lead author of the study from the Canadian Blood Services, told ScienceDaily, "This study is not suggesting that your blood type alone determines if you will get HIV. 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."

Another researcher involved in the study explained that this finding could open new avenues of research into protecting people from HIV infection.