

Gene change raises odds of mother-to-child HIV transmission

May 25 2010

A correlation has been discovered between specific variants of the gene that codes for a key immune system protein, TLR9, and the risk of mother-to-child, or vertical, transmission of HIV. Researchers writing in BioMed Central's open access *Journal of Translational Medicine* studied three hundred children born to HIV-positive mothers, finding that those who had either of two TLR9 gene variants were significantly more likely to acquire the virus.

Anita De Rossi from the University of Padova, Italy, worked with a team of researchers to carry out the study using samples taken from children born between 1984 and 1996 from HIV infected mothers in the absence of antiretroviral prophylaxis. She said, "Two changes to the TLR9 gene have recently been linked to progression of HIV-1 disease and viral load in adult patients. We found that children who have two copies of either of these polymorphisms are at significantly higher risk of catching HIV as they are born".

TLR9 is a [protein](#) that plays a pivotal role in the induction of first-line defense mechanisms of the [innate immune system](#) and triggers effective adaptive immune responses to different bacterial and viral pathogens. This study is the first to link changes in the protein to vertical HIV transmission. De Rossi said, "This confirms the relevance of innate immunity in perinatal HIV-1 infection. This knowledge may be valuable in the development of new therapeutic strategies including the use the specific adjuvants".

More information: Toll-like receptor 9 polymorphisms influence mother-to-child transmission of human immunodeficiency virus type 1, Elisabetta Ricci, Sandro Malacrida, Marisa Zanchetta, Ilaria Mosconi, Marco Montagna, Carlo Giaquinto and Anita De Rossi, Journal of Translational Medicine (in press), www.translational-medicine.com/

Provided by BioMed Central

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