

Quality And Quantity: Mucosal CD4+ T Cells And Hiv Susceptibility

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Abstract:

PURPOSE OF REVIEW: The HIV sexual transmission probability measured in the context of discordant couples appears too low to fuel the HIV pandemic, but these rates are substantially amplified by specific co-factors. The most consistent predictors of transmission are the HIV levels in the blood and genital tract of an infected individual, each of which increases the transmission probability in a dose-dependent manner. In an analogous fashion, we propose that both the quantity and quality of HIV-susceptible target cells in the exposed genital or rectal mucosa may be key predictors of HIV susceptibility. **RECENT FINDINGS:** The absolute number of mucosal CD4+ T cells is increased in several situations that are associated with amplified HIV transmission, particularly during genital infections. In addition, qualitative mucosal T-cell parameters such as immune activation and the expression of the HIV binding molecules CCR5 and/or $\alpha 4\beta 7$ are important determinants of gp120 binding and productive HIV infection. In particular, the Th17 and Th22 cell subsets are enhanced within mucosal compartments and appear to be highly HIV-susceptible. **SUMMARY:** Blockade of specific HIV target cell subsets at the site of exposure, if done in a safe and effective manner, represents an opportunity for new HIV prevention tools.