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ASSOCIATION BETWEEN HIV INFECTION AND ANTI-DFS70/LEDGFP75 ANTIBODIES

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BACKGROUND

Dense fine speckled 70 (DFS-70) is a ubiquitous protein present in several tissues in humans and animals. It has important role in the cell stress response and in supporting transcription of several genes. In addition, it assists HIV-1 integration into human genome by binding to HIV-1 integrase (HIV1-In). A fraction of the human population (1-8%) presents high titer autoantibodies to DFS70 for long periods with no specific association with autoimmune diseases and no known underlying trigger. Intriguingly, there is a striking overlap between the DFS70 molecular domain for HIV1-In binding and DFS70 major autoepitope, eliciting the hypothesis that anti-DFS70 antibodies might somehow interfere in HIV infection. This study analyses the frequency and titer of anti-DFS70 antibodies in the context of HIV infection as well as its potential role in an *in vitro* HIV infection model.

MATERIALS AND METHODS

Patients were retrieved from the HIV and sexually transmitted diseases outpatient clinic. Two hundred forty-four individuals exposed to HIV were selected into five groups according to the presence of HIV infection and the viral load: group I (n = 38) comprised uninfected high-risk to infection subjects; group II (n = 47) comprised patients with viral load < 200 copies/mL; group III (n = 76) comprised patients with viral load between 1,000 and 100,000 copies/mL; group IV (n = 78) comprised patients with viral load above 100,000 copies/mL; and group V (n = 5) comprised elite controller patients. Anti-DFS70 antibodies were determined by ELISA according to the manufacturers' instructions. Viral load was determined by quantitative reverse transcriptase - polymerase chain reaction (RT-PCR). The ability of anti-DFS70 in interfering with HIV infection was tested *in vitro* by adding anti-DFS70 serum or normal human serum to cultures with JLTRG cells.

RESULTS

Anti-DFS70 was present in 13.2% individuals in group I, 2.2% in group II, 7.8% in group III, 12.8% in group IV, and none in group V. Anti-DFS70 serum levels were higher in HIV patients with moderate to high viral load (groups III and IV) than in those with low viral load (group II) (p = 0.01). *In vitro* experiments showed a higher rate of HIV infection in JLTRG cells cultured in the presence of anti-DFS70 antibodies (p = 0.02).

CONCLUSIONS

This study provides *in vivo* and *in vitro* evidence that anti-DFS70 antibodies potentiate the infectivity of HIV in human T cells and T cell lines. These preliminary results should be confirmed by additional studies in larger cohorts and with a prospective approach.