

Sperm head agglutination induced by V3 peptide does not occur through a CD4 receptor

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摘要

Abstract

BACKGROUND: Although recent studies have shown that HIV (human immunodeficiency virus) can attach to sperm, the mechanism by which it does this is not yet understood. It has been shown that CD4 receptors on T4 cells are responsible for the binding of gp120 (glycoprotein 120) to HIV; however, the existence of CD4 receptors on sperm is controversial. The V3 peptide is part of gp120 and crucial for the syncytium formation by CD4 receptors. In this study we used an anti-CD4 antibody to block V3 peptide-induced sperm head agglutination in an attempt to gain a further understanding of the mechanism of HIV attachment to sperm. **METHODS:** Ten semen samples from 10 healthy men were studied. A sperm head fixation method (SHFM) was used to evaluate the blocking effect of anti-CD4 antibody (Q4120) of V3 peptide-induced sperm head agglutination in phosphate-buffered saline solution. **RESULTS:** While the sperm swam out of the micropipette, as occurs in SHFM, the V3 peptide induced an average of 53.2 +/- 10.8 (mean +/- SEM) head-to-head bound sperm (in the 10 semen samples. The sperm that had been preincubated with anti-CD4 antibody induced an average of 54.1 +/- 11.6 head-to-head bound sperm. There was no significant difference found between sperm that had been preincubated or not preincubated with anti-CD4 antibody, in terms of sperm head agglutination. **CONCLUSIONS:** The anti-CD4 antibody can block the binding of gp120 and CD4 positive T cells in a low concentration, but it did not block V3 peptide-induced sperm head agglutination. Therefore, V3 peptide-induced sperm head agglutination may not occur through a CD4 receptor