

Título: ROLE OF VITAMIN D IN NATURAL RESISTANCE TO HIV-1 INFECTION: EFFECTS ON VIRAL TRANSMISSION DURING HIV-1 EXPOSURE

DESCRIPCIÓN

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Resumen Ejecutivo: The identification of protective mechanisms against type 1 human immunodeficiency virus (HIV-1) infection exhibited by people repeatedly exposed to HIV-1 but remain seronegatives (HESNs) is crucial to determine new elements that control HIV-1 infection, which could be the basis for the development of new therapeutic targets.

Beyond the role on mineral metabolism, vitamin D (VitD) has immunomodulatory functions that might influence the risk to acquire HIV-1 infection. VitD promotes the expression of anti-HIV-1 peptides that could prevent the infection, particularly at mucosal surfaces. Furthermore, its anti-inflammatory properties may reduce immune activation and dendritic cells maturation, reducing target cells, and viral dissemination.

Preliminary results from our Group suggest that high levels of VitD and vitamin D receptor (VDR) mRNA are associated with natural resistance to HIV-1 infection. Moreover, we observed positive correlations between VDR mRNA and higher levels of VitD in plasma, IL-10 mRNA and antimicrobial proteins in mucosa of HESNs, suggesting that up-regulation of IL-10 and antimicrobial peptides could be one of the factors mediating VitD-induced protection.

To reveal the functional effect of VitD in the resistance phenomenon to HIV-1 infection, we propose to evaluate the role of the VitD during HIV-1 exposure using an in vitro model of viral infection at the mucosal level.