Antigen-driven HIV expansion in allergen-specific T cells

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In industrialized countries there is a high prevalence of allergy toward nickel ions. The exposure of affected individuals to nickel leads to a delayed-type hypersensitivity reaction, which is induced by antigen-specific CD4 and CD8 T cells. Beside this antigenic potential, immunomodulatory properties of nickel ions were described. To dissect the role of both mechanisms for HIV replication, we studied HIV expansion in PBMC of nickel-allergic and nonallergic donors. Nickel ions promote HIV replication in PBMC as efficiently as protein antigens. The nickel-mediated virus expansion strictly required the presence of nickel-specific T cells. Data obtained with nickel-specific CD4 T cell clones showed that antigen-mediated proliferation is an absolute prerequisite for HIV expansion. However, the previously suggested immunomodulatory properties of nickel ions do not seem to contribute to HIV expansion. As a widely distributed antigen with increasing numbers of allergic people, nickel may be an important and underestimated factor of HIV expansion in vivo.

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