Extracellular HIV-1 Nef increases migration of monocytes.

Abstract:
Infiltration of human immunodeficiency virus type 1 (HIV-1)-infected and uninfected monocytes/macrophages in organs and tissues is a general phenomenon observed in progression of acquired immunodeficiency syndrome (AIDS). HIV-1 protein Nef is considered as a progression factor in AIDS, and is released from HIV-1-infected cells. Here, we show that extracellular Nef increases migration of monocytes. This effect is (i) concentration-dependent, (ii) reaches the order of magnitude of that induced by formyl-methionyl-leucyl-proline (fMLP) or CC chemokine ligand 2 (CCL2)/monocyte chemotactic protein (MCP)-1, (iii) inhibited by anti-Nef monoclonal antibodies as well as by heating, and (iv) depends on a concentration gradient of Nef. Further, Nef does not elicit monocytic THP-1 cells to express chemokines such as CCL2, macrophage inhibitory protein-1alpha (CCL3) and macrophage inhibitory protein-1beta (CCL4). These data suggest that extracellular Nef may contribute to disease progression as well as HIV-1 spreading through affecting migration of monocytes.