

Abstract

Dendritic cells (DCs) initiate immune responses by transporting antigens and migrating to lymphoid tissues to initiate T-cell responses. DCs are located in the mucosal surfaces that are involved in human immunodeficiency virus (HIV) transmission and they are probably among the earliest targets of HIV-1 infection. DCs have an important role in viral transmission and dissemination, and HIV-1 has evolved different strategies to evade DC antiviral activity. High mobility group box 1 (HMGB1) is a DNA-binding nuclear protein that can act as an alarmin, a danger signal to alert the innate immune system for the initiation of host defense. It is the prototypic damage-associated molecular pattern molecule, and it can be secreted by innate cells, including DCs and natural killer (NK) cells. The fate of DCs is dependent on a cognate interaction with NK cells, which involves HMGB1 expressed at NK-DC synapse. HMGB1 is essential for DC maturation, migration to lymphoid tissues and functional type-1 polarization of naïve T cells. This review highlights the latest advances in our understanding of the impact of HIV on the interactions between HMGB1 and DCs, focusing on the mechanisms of HMGB1-dependent viral dissemination and persistence in DCs, and discussing the consequences on antiviral innate immunity, immune activation and HIV pathogenesis.