Since HIV was discovered as the causative agent of AIDS almost 30 years ago, HIV infection has become a devastating pandemic, with millions of individuals becoming infected and dying from HIV-related disease every year. A global research effort over the past three decades has discovered more about HIV than perhaps any other pathogen. Immunologists continue to be intrigued by the capacity of HIV to effectively knock out an essential component of the adaptive immune system — CD4+ T helper cells. This Poster summarizes how HIV establishes infection at mucosal surfaces, the ensuing immune response to the virus involving DCs, B cells and T cells, and how HIV subverts this response to establish a chronic infection. Based on a clearer understanding of HIV infection and the response to it, the field has now entered an era of renewed optimism for the development of a successful vaccine.

The immune response to HIV
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**The DC response to HIV**

The DC response to HIV involves the interaction between virally infected monocytes and macrophages. Upon HIV infection, these cells become the primary targets of HIV replication and act as reservoirs for the virus. DCs play a critical role in presenting HIV antigens to T cells, which leads to the initiation of the immune response. In this process, DCs migrate to lymph nodes, where they present HIV antigens to T cells, which then undergo activation and expansion.

**The B cell response to HIV**

B cells are also targeted by HIV, which binds to CD4+ T cells, leading to the activation and proliferation of B cells. This results in the production of antibodies, which can help neutralize HIV. The B cell response to HIV is mediated by the interaction between B cells, T helper cells, and plasmablasts, which produce antibodies targeting HIV.

**Amplification in draining lymph nodes**

The immune response to HIV is amplified in draining lymph nodes, where HIV-specific T cells are activated and expanded. This process is mediated by the interaction between HIV-infected CD4+ T cells and HIV-specific CD8+ T cells, which results in the production of cytotoxic T cells that can kill HIV-infected cells.

**The T cell response to HIV**

The T cell response to HIV is characterized by the activation and proliferation of HIV-specific T cells. This response is mediated by the interaction between HIV-infected CD4+ T cells and HIV-specific CD8+ T cells, which results in the production of cytotoxic T cells that can kill HIV-infected cells. The T cell response to HIV is also influenced by the release of cytokines, which modulate the immune response and promote the activation and proliferation of T cells.

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