

Title **Dendritic cell immunoreceptor (DCIR) inhibitors to prevent the binding of the human immunodeficiency virus type 1 (HIV-1)**



Activity sector Healthcare, pharmacology, HIV-AIDS

Inventor(s) Caroline Gilbert *et al.*, Axe maladies infectieuses et immunitaires, Centre de recherche du CHU de Québec-Université Laval



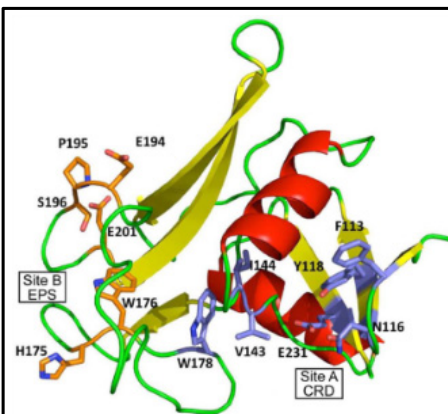
Markets HIV infection prevention and AIDS therapy, and immunomodulation

Unmet need(s) Early intervention or pre-exposure prophylaxis can prevent the irreversible damage inflicted on key immune cells following infection by HIV-1

New treatments with novel mechanisms of action

Solutions Novel inhibitors of the dendritic cell immunoreceptor (DCIR)

Description During primary infection, dendritic cells (DCs) are the first immune cells to interact with HIV-1 via DCIR, to subsequently establish contact and communicate with (virus reservoir) cells of the immune system. After internalization of HIV-1, DCs migrate to secondary lymphoid organs where the virus is transferred to CD4+ T lymphocytes. Molecular models of the extracellular domain of DCIR have enabled the virtual docking of potential ligands which could become inhibitors of HIV-1 attachment to DCs and transmission to reservoir cells, thus a new class of anti-HIV drugs.



Lambert AA, A Azzi, S-X Lin, G Allaire, KP St-Gelais, MJ Tremblay, and C Gilbert (2013). Dendritic cell immunoreceptor is a new target for anti-AIDS drug development: identification of DCIR/HIV-1 inhibitors. *PLoS ONE* **8**: e67873.

Strengths DCIR inhibitor molecules may provide new therapeutic strategies against HIV-1, but also against tuberculosis, malaria, autoimmune disease, and asthma

Opportunity SOVAR and Université Laval seek a partner for chemical derivation, co-development of lead candidate(s), licensing, or commercialization of this technology

Intellectual property Gilbert C, MJ Tremblay, S-X Lin, A Azzi, and A Lambert (2017). Three-dimensional cavities of dendritic cell immunoreceptor (DCIR), compounds binding thereto and therapeutic applications related to inhibition of human immunodeficiency virus type-1 (HIV-1). US9731001B2. Assignee: Université Laval

Reference GlobalData (2017). Human Immunodeficiency Virus (HIV) – Global Drug Forecast and Market Analysis to 2025