TLR-7 based HIV Therapeutic

**OCR Number:** OCR 6098

**Description:**

Treatment of HIV infection by inhibiting Toll-like receptor 7 signaling

- Existing anti-viral drugs focus on suppressing viral activity rather than awakening the host’s immune system.
- Activation of the Toll-like receptor 7 (TLR7) on CD4+ T cells results in down-regulation of immune response known as T-cell anergy.
- Inhibitors of TLR7 reverse T-cell anergy caused by HIV infection, as well as reduce HIV activity in both *in vitro* and *ex vivo* systems made of cells from HIV patients.
- *In vivo* study using a humanized mouse model confirms the efficacy of TLR7 blockade in treating HIV infection.
- This mechanism may open a new avenue in the fight against HIV.

![Graph showing viral load comparison](image)

*In vivo* proof of concept using a humanized mouse model. Viral load measured in mice infected with HIV-1 in the presence (right) or absence (left) of the TLR7 inhibitor IRS661 after 7 days of infection.

**Lead Innovator:** David Hafler, M.D.

**Patents:** A PCT has been filed.


**PI:** David Hafler

**Licensing Contact:** Hong Peng

hong.peng@yale.edu