Evaluation of the Innate Immune Modulator Acitretin as a Novel Strategy to Clear HIV Reservoir

Roger Badia, Edurne Garcia-Vidal, Maria Pujantell, Bonaventura Clotet, Eva Riveira-Muñoz, Ester Ballana and José A. Esté
Clearing HIV reservoir: State of art and new approaches

Current strategies to induce latent HIV expression: Shock and Kill


Acitretin

- Second-generation retinoid.
- Used to treat severe psoriasis (Soriatane®, Neotigason®).

Cheap and effective anti-HIV treatment


Our AIM:

To evaluate Acitretin as an agent to clear the HIV reservoir
Acitretin as innate immune modulator

ACH-2 cells

Uninfected and Infected (+NL4-3)
TZM-bl cells
Acitretin as a latency-reversing agent (LRA): I

**J-Lat. Clon 8.4**
- 24h incubation
- Effect as a LRA alone

**J-Lat. Clon 9.2**
- 24h incubation
- Effect as a LRA alone and in combination with LRA panobinostat

Did not reactivate

![Graph showing reactivation rates for J-Lat. Clon 8.4 and 9.2 with Acitretin and VOR at various concentrations.](image-url)
Acitretin as a latency-reversing agent (LRA): II

**ACH-2**
- 48h incubation
- Effect as a LRA alone

**Latently infected primary CD4+ T lymphocytes**
- Overnight incubation
- Effect as a LRA alone

**Latently infected Jurkat cells**
- 24h incubation
- Effect as a LRA alone

**Results**
- Did not reactivate
- Did not reactivate
- Did reactivate (slightly)
Acitretin as an apoptotic inducer of HIV-reactivated latently infected Jurkat (JHig) cells

**JHig cell subpopulations dot plots:**

- **UN**
  - GFP+: 18.8%
  - Annexin V+: 68.6%
- **PNB 0.16μM**
  - GFP+: 17.7%
  - Annexin V+: 27.5%
- **VOR 4μM**
  - GFP+: 22.8%
  - Annexin V+: 33.4%
- **VOR 0.35μM**
  - GFP+: 24.8%
  - Annexin V+: 69.1%
- **Ac 25μM**
  - GFP+: 21.5%
  - Annexin V+: 64.8%
- **Ac 5μM**
  - GFP+: 20.2%
  - Annexin V+: 66.3%

**JHig selective apoptosis:**

- **24h incubation**
- **Effect as a LRA alone**

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GFP-: non-reactivated cells
GFP+: reactivated cells
Annexin V-: live cells
Annexin V+: apoptotic cells
CONCLUSION:

- Acitretin is not able to induce HIV-reactivation in most of the tested models.
- Acitretin do not induce HIV-selective apoptosis in reactivated cells.
Thank you for your attention!

HIV pathogenesis group

Edurne Garcia
Maria Pujantell
Marc Castellví
Roger Badia
Eva Riveira
Ester Ballana
José A. Esté