

August 22, 2022

Barcelona, Spain

14th International
Virology Summit
9th International Conference on
Gynecology and Obstetrics

Wipawee Nittayananta et al., J AIDS Clin Res 2022, Volume 13

Microbicide gel containing ellagic acid can inhibit HIV-1 infection

Wipawee Nittayananta, Aornrutai Promsong, Florian Hladik, Claire Levy, Nithinart Chaitaveep, Suwipa Ungphaiboon, Supinya Tewtrakul and Surada Sathakarn

Thammasat University, Thailand

Objective: The purpose of this study was to investigate the *in vitro* effects of ellagic acid both in solution and gel forms on HIV-1 replication, viral enzyme activity and cytokine secretion by infected cells.

Methods: The anti-HIV-1 activity of ellagic acid in solution was determined *in vitro* using infection of TZM-bl cells by the R5-tropic pBaLEnv-recombinant viruses. Viral growth was assessed by β -galactosidase production and Nano-GloLuciferase assay. The antiviral effect of ellagic acid in gel formulation (Ellagel), as would be used for vaginal application, was also investigated by neutralization assay. The effect of ellagic acid on cytokine secretion of TZM-bl cells was determined by multiplexed bead array after 48 h of HIV-1 exposure.

Results: Ellagic acid in solution, added either 1 h before or immediately after HIV-1 exposure, suppressed replication of R5-tropic virus in TZM-bl cells up to 69%. Ellagic acid up to 100 μ M was not toxic to either TZM-bl or primary vaginal cells. Ellagel at the concentrations of 50 μ M and 25 μ M inhibited the virus by 84% and 56%, respectively. In assays of specific HIV-1 enzyme activity, Ellagel inhibited HIV-1 integrase (IC_{50} 7.32 μ M) but not protease. Ellagic acid did not significantly modulate cytokine secretion.

Conclusion: We conclude that ellagic acid either in solution or in gel form inhibits HIV infection without adverse effects on target cells. Thus, vaginal formulations containing ellagic acid could be tested as a new microbicide against HIV-1 infection.

Keywords: cytokines, chemokines, ellagic acid, HIV-1, microbicide gel.

Biography

Wipawee Nittayananta is affiliated from Faculty of Dentistry Thammasat University, Thailand.

Received: May 26, 2022; **Accepted:** May 28, 2022; **Published:** August 22, 2022