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DEVELOPMENT OF A NOVEL ADENOVIRUS-BASED CANCER IMMUNOTHERAPY THAT TARGETS THE SLAMF7 PATHWAY AND SUPPRESSES ESTABLISHED TUMORS

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Objective: HIV-1/AIDS therapy remains concerned problems due to side effects of highly active antiretroviral therapy. Thus, seeking of alternative strategies for HIV-1 inhibition is still needed. *Houttuynia cordata* Thunb (*H. cordata*) is a plant that possesses several antimicrobial activities. This study aimed to investigate the cytotoxicity of *H. cordata* extract on CD4⁺ lymphocytes; the anti-HIV-1 activity of the extract on CD4⁺ lymphocytes and the effects of the extract on anti-HIV-1 enzymatic activities.

Methods: Cytotoxicity of the extract was determined using MTT assay. To investigate anti-HIV-1 activity of *H. cordata*, C8166 cells were treated with the extract either before or after being exposed to HIV-1NPO3 and incubated for 72 h. The amounts of p24 antigen were detected by ELISA. Anti-HIV-1 integrase and protease activities of both the water and ethanolic extracts of *H. cordata* were determined using enzymatic assay.

Results: No cytotoxicity of *H. cordata* extract up to 400 µg/ml was observed. The extract showed potent anti-HIV-1 activity with 69% inhibition in pre-treated C8166 cells. However, HIV-1 replication was not significantly suppressed when the cells firstly exposed to the virus and then treated with the extract. *H. cordata* water extract possessed inhibitory effect against HIV-1 integrase while the ethanolic extract showed weakly inhibitory activity. Neither the water nor ethanolic extracts had anti-HIV-1 protease activity.

Conclusion: This study demonstrated that *H. cordata* can inhibit HIV-1 at the early stages of infection without cytotoxicity. These findings may lead to the development of a new effective anti-HIV-1 agent that is effective at the early stages of the infection.

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