

Novel Method for Treating or Preventing HIV via Tannin Inhibitors

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Technology description

Technology Summary

This technology is a pair of newly synthesized tannins that have been demonstrated in cell culture-based assays to have potent anti-HIV activity, while demonstrating a low level of cytotoxicity. They do this by inhibiting HIV reverse transcriptase and inhibition of a multi-functional protein (gp41) that HIV uses to gain cell entry. The low levels of cytotoxicity provide for a wide potential therapeutic window.

Background Information

With more than 33 million people currently infected with HIV, and 2 million additional individuals infected each year, there is a worldwide imperative to reduce transmission of this deadly virus. As a result of a concerted effort to identify natural products that inhibit HIV, a wealth of useful natural product leads have been reported. Several small molecular weight natural products have been discovered that inhibit viruses. Researchers at the University of Iowa have developed a method to treat and prevent HIV that involves tannins. Tannins are a bitter plant compound found in foods such as pomegranates, berries, and cinnamon. Tannins have been identified as having a range of potential clinical uses including antimicrobial therapy, cancer therapy, and a variety of GI and dermatological applications.

Researchers have synthesized two tannin families of compounds that they are currently testing with regards to their mechanism of action and work synergistically with other known HIV treatments. They also plan to start toxicological and pharmacokinetic studies in mice; these tests will be administered intravenously, orally, or peritoneally. They hypothesize that these tannins will effectively block HIV-1 infection at non-toxic concentrations, and that the tannins will synergize with other entry inhibitors in blocking HIV-1.

Application area

- Prevention of HIV
- Treatment of other microbial infections
- Treatment of cancer, GI issues, or dermatological issues

Advantages

- Newly synthesized compounds have novel structures
- Tannin family of compounds offers a potential for multiple methods of HIV inhibition and prevention as well as a large therapeutic window

Institution

[University of Iowa](#)

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