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添付資料： 研究報告書

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2. 研究テーマ

人参加水分解産物トリテルペン誘導体の抗 HIV protease および抗 HCV protease 作用に関する研究

3. 成果の概要 (100字程度)

- 1) Three new artificial triterpenoids were isolated from an acidic hydrolysate of *Panax ginseng*, along with three known triterpenes. Four of them show inhibitory activity against HIV-1 protease.
- 2) Sixteen dammarane triterpenes were synthesized, all of the mono and di-succinyl derivatives show strong inhibition on HIV-1 PR ($IC_{50} < 10 \mu M$), only di-succinyl and 2,3-*seco*-2,3-dioic acid derivatives show strong inhibition on HCV PR ($IC_{50} < 10 \mu M$).

4. 研究業績

(1) 学会における発表 無・ (学会名・演題)

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(2) 発表した論文 無・ (雑誌名・題名)

1) Phytochemistry Letter, Available online 16 December 2008

Anti-HIV Protease Triterpenoids from the Acid Hydrolysate of *Panax ginseng*

2) Submitted to Bioorg. Med. Chem.

Synthesis of Dammarane type triterpene derivatives and their inhibitory activities against HIV and HCV protease

人参加水分解産物トリテルペン誘導体の抗 HIV protease および抗 HCV protease 作用に関する研究

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要旨:

ADIS is one of the most fatal infectious diseases in the world, which is caused by HIV. Since HIV is easy to mutate and develop resistance to current drugs, it was described to be “a silent epidemic”.^{1,2} As in the case of hepatitis C, only 50% therapeutic effect for HCV infected patients by using pegIFN- α .^{3,5} Therefore, it is emergency to develop new chemopreventive agents against HIV and HCV.

Keywords: Dammarane; triterpene; 2,3-seco derivative; succinyl derivative; HIV protease; HCV protease

緒言:

In previous paper, we reported that some natural products and their derivatives have anti-HIV-1 PR,⁶ we also reported that embelin show inhibition on HCV PR.⁷ Numerous studies during past decade have demonstrated that pentacyclic triterpenes showed inhibitory activity on HIV.^{8,9} However, tetracyclic triterpenes, especially dammarane type triterpene derivatives were not reported for their inhibitory activity against HIV and HCV PRs.

対象と方法:

1. Strong acid were used to hydrolysize a methanol extract of *P. ginseng*.¹⁰
2. (20*R*)-panaxadiol and (20*R*)-panaxatriol were used as starting material to prepare various 2,3-*seco*, A-nor and acelated derivatives by using oxidation and substituent reactions.^{11,12}

結果:

1. Three new artificial triterpenoids were isolated from an acidic hydrolysate of *Panax ginseng* along with three known triterpenes. Four of them show inhibitory activity against HIV-1 PR.
2. Sixteen dammarane triterpenes were synthesized. All of the mono- and di-succinyl derivatives show strong inhibition on HIV PR. Only di-succinyl and 2,3-*seco* 2,3-dioic acid derivatives show strong inhibition on HCV PR.

考察:

Inhibitory activity of dammarane type triterpenes against HIV-1 and HCV proteases

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