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Anti-platelet activity of ginsenoside Rp1

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Ginseng radix (Panax ginseng C.A. Meyer) is a well-known herbal medicine used as a major ingredient in tonic recipes in eastern Asian countries. In particular, ginseng was traditionally used for treatment of cardiovascular ciseases. Ginsenoside Rg3, a single ginseng saponin components, is known to have anti-platelet activity. However, it is relatively instable under acid and heat condition like in the stomach. In order to overcome this, we obtained ginsenoside Rp1 (Rp1), which was prepared by reduction with hydrogenation. The ginsenoside Rp1 was relatively stable form and it's solubility was improved. In this study, we investigated the efficacy of Ginsenoside Rp1 in the platelet aggregation and it's mechanism of anti-platelet action. Rat platelet was prepared and the appropriate concentration was adjusted. The platelet aggregation was induced by collagen (2.5 μg/ml) and thrombin (0.1 u/ml). Ginsenoside Rp1 inhibited platelet aggregation induced by Collagen and Thrombin in a dose-dependent manner. In addition, Ginsenoside Rp1 revealed blocking of collagen-mediated ERK phosphorylation, and caused concentration-dependent decrease of cytosolic calcium mobilization. Taken together, the antiplatelet activity of Ginsenoside Rp1 through inhibition of ERK phosphorylation and intracellular calcium mobilization.