The novel $\alpha_{IIb}\beta_3$ antagonist TMV-7 and its derivative RR prevent thrombosis without increasing bleeding risk

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Experience:

1985~ 1991 Associate Professor, Department of Pharmacology, College of Medicine, NTU

1989~ 2001 Outstanding Research Award, National Science Council, Taiwan.

2001 Scientific Technology Award, Executive Yen, ROC

2002~2008 Chair, Department of Pharmacology, College of Medicine, NTU

2009 Outstanding Innovative Research Award, National Taiwan University

1991~present Professor, Department of Pharmacology, College of Medicine, NTU

Publications: http://ppt.cc/sjpEM

Market Needs:

Use of antithrombotic therapy, including antiplatelet and anticoagulant agents, is a vital element in reducing the overall morbidity and mortality in patients with cardiovascular disease. Improving the problem that clinical anti-thrombotics have significant bleeding risk.

Our Technology:

Disintegrin TMV-7 and its derivative RR prevented thrombosis without increasing bleeding risk by selectively inhibiting $G\alpha_{13}$-binding without affecting talin-binding to β_3 in human and mouse thrombin-activated platelets and causing agonist-induced PAC1-binding to $\alpha_{IIb}\beta_3$ and clot retraction, processes of hemostasis driven by talin. At efficacious antithrombotic doses, both TMV-7 and RR had no effect on tail-bleeding time even given at higher dose (i.e., 2.5 μg/g, 20-fold higher), indicating that they are efficacious antithrombotic $\alpha_{IIb}\beta_3$ antagonists with a greater safety profile than the current $\alpha_{IIb}\beta_3$ antagonists. Furthermore, TMV-7 is also a potent antiarrhythmic agent with cardioprotective properties in rats with myocardial ischemia-reperfusion injury.

Strength:

We have designed the optimal anti-thrombotic agents with better safety profile. We are constructing a new RR derivative using a specific N-terminal PEGylation technique to enhancing its pharmaceutical advantages and pharmacological activities.

Competing Products:

Tirofiban, eptifibatide, and abciximab

Intellectual Properties:

Provisional Patent (14/126,808)

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