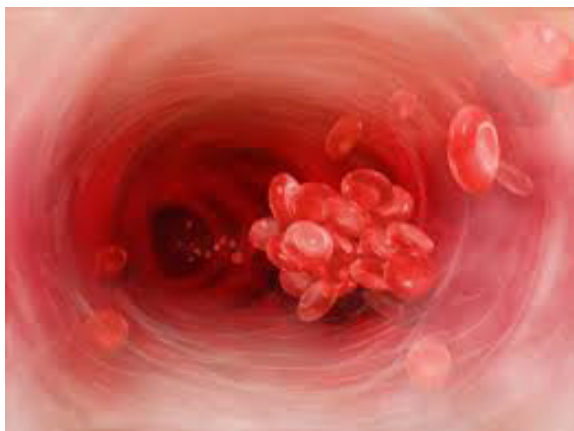


New drug for blood clot: FXII inhibitors to treat thrombosis

Summary

Thrombosis is the formation of a blood clot inside a blood vessel, which may cause reduced blood flow to a tissue, or even tissue death. Thrombosis, inflammation, and infections are responsible for >70% of all human mortality. Thrombosis is also the major factor for heart disease and stroke. 500,000 die from thrombosis every year in Europe. Inhibitory treatment of these conditions may also improve the outcomes of several non-fatal diseases. Researchers from Vanderbilt University and Oregon Health & Science University have jointly discovered new monoclonal antibodies that potently inhibit the blood coagulation protein factor XII (FXII), a critical player in the pathway, and anticoagulate blood. This invention provides foundation for commercial development of anti-thrombotic drugs based on new molecular entities.



Blood clots inside a blood vessel (image from web). Thrombosis is a major factor for heart disease, stroke and death.

Description of Technology

Activation of the contact pathway (FXI, FXII, Prekallikrein, High Molecular Weight Kininogen) plays an important role in experimental thrombosis and inflammation in mice and primates. Others have shown that certain infectious pathogens, such as *E. coli*, may exploit FXII activation to increase their virulence. FXII is a promiscuous and abundant plasma enzyme, thus its inhibition requires a potent high-affinity inhibitor with fast on and low off rate. There are currently no FXII inhibitors on the therapeutic anticoagulant market. Existing anticoagulants on the market targeting other components in the pathway have adverse bleeding side effects, associated drug-induced mortality and morbidity.

A critical factor in favor of targeting FXII is that inherited FXII deficiency has no known pathological phenotype. FXII is therefore an ideal and safe drug target compared to others in the pathway. The newly-discovered FXII inhibitors can be used as therapeutic antibodies in the prevention and treatment of disease conditions where activation of FXII plays a pathogenetic role.

Competitive Advantage

High-affinity inhibition of FXII to treat thrombosis with no adverse side effects.

Technology Development Status

Murine antibodies are ready for bench scale production. Initial steps of humanized recombinant material have been done. We seek partners for further development and commercialization of this promising drug candidate.

Intellectual Property Status: A U.S. patent application has been filed.

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