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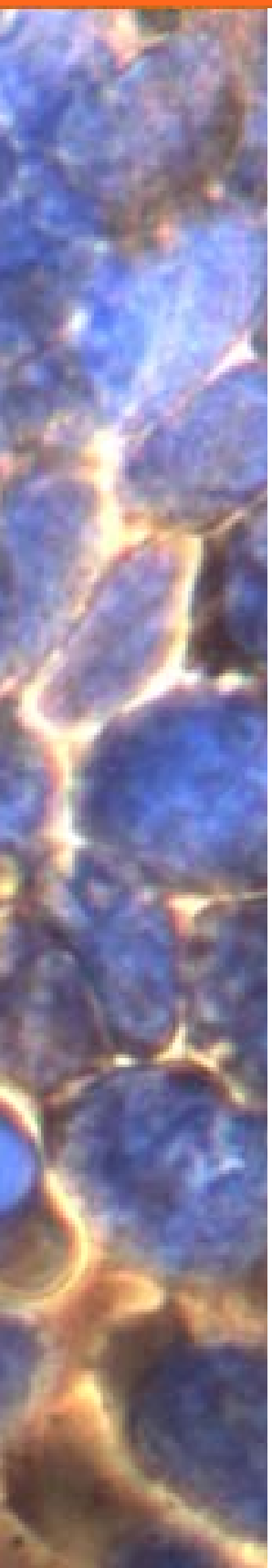
Blood Research Institute

Drug Screen Assay – pro/anticoagulant molecules



In Brief

A drug screening assay for prothrombinase function, a critical enzyme in blood clotting. Useful to check procoagulant/anticoagulant activity of new compounds.

Description

The technology relates to the discovery that TFPIα binds certain forms of factor five (FVa) and inhibits the initiation of thrombin formation. It describes a novel method of assaying the activity of a compound for its ability to either mimic (anticoagulant assay) or block (procoagulant assay) inhibition of early forms of prothrombinase by TFPIα, which includes the combination of:

- Prothrombin
- FVa activated in such a way that the acidic region of the B-domain is either present or absent
- TFPIα (procoagulant assay) or no TFPIα (anticoagulant assay)
- the compound of interest to be tested
- FXa to initiate the reaction and
- a means to measure thrombin generation (of which there are several)

Benefits

- Useful to companies looking to screen for procoagulant/anticoagulant compounds
- Allows for identification of a novel class of compounds that act by specifically blocking or promoting the initiation phase of clot formation

Inventor Alan Mast

Patent protection

pending

Publications

Wood JP, Petersen HH, Yu B, Wu X, Hilden I, Mast AE. TFPIα interacts with FVa and FXa to inhibit prothrombinase during the initiation of coagulation. *Blood Adv.* 2017; 1:2692–2702.

Wood JP, Bunce MW, Maroney SA, Tracy PB, Camire RM, Mast AE. Tissue factor pathway inhibitor-alpha inhibits prothrombinase during the initiation of blood coagulation. *Proc Natl Acad Sci U S A.* 2013;110:17838–17843.

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