

>>>TFPI-ANTIPHOSPHOLIPID SYNDROME

- an opportunity for diagnostic kit development

>>>market opportunity

Thrombosis is a leading cause of morbidity and mortality and is manifested in a wide range of diseases, including cardiovascular diseases, cancer, diabetes, stroke and chronic renal failure. The direct and indirect costs associated with the diagnosis and treatment of thrombosis presents a significant financial burden to the community. Identifying abnormalities and mechanisms that lead to thrombosis will aid the development of new diagnostics and potentially better therapeutics.

>>>competition

The worldwide significance of thrombosis, has led to many research groups investigating ways to improve patient care. WABRI has identified a novel mechanism in a subgroup of patients that frequently develop thrombosis. This provides a competitive advantage for the development of a new diagnostic kit.

>>>project description

Thrombosis is the result of an imbalance in one or more of the mechanisms involved in haemostasis, including blood coagulation, platelet aggregation and fibrinolysis. Blood coagulation is initiated by the exposure of tissue factor (TF) to the circulating blood and leads to the generation of a fibrin clot. The natural inhibitor of TF is tissue factor pathway inhibitor (TFPI), which regulates the initiation of coagulation by inhibiting TF - activated factor VII (TF - FVIIa) in the presence of activated factor X (FXa). To date, no direct relationship between low levels of TFPI and thrombosis has been described. Animal models of disseminated intravascular coagulation (DIC) and gene knockout experiments in mice support an essential physiological role for TFPI in preventing thrombosis.

The antiphospholipid syndrome is an acquired autoimmune condition characterised by venous and arterial thrombosis. In some patients, the ability of TFPI to effectively regulate blood coagulation is compromised

and may contribute to ongoing thrombotic episodes.

WABRI Researchers are using assays, cell culture and molecular techniques to characterise the mechanism(s) of TFPI interference in these patients. Identification of these mechanisms provides an exciting opportunity to develop new diagnostics and therapeutics, which will improve the care of patients with the antiphospholipid syndrome and other thrombotic diseases.

>>>progress

Investigators have identified a novel interference to the regulation of blood coagulation in patients with antiphospholipid syndrome. Following identification of the mechanism and entities involved in this interference, WABRI will apply its expertise in diagnostics to develop a screening test that will improve the care of patients with antiphospholipid syndrome and other thrombotic disorders.

>>>intellectual property

No IP protection has been sought for this work at this stage. All specific details are being treated as confidential. The rights to exploit the technology vest with the Western Australian Biomedical Research Institute through Curtin University of Technology.

>>>expected outputs of the project

A diagnostic kit will be developed to identify patients with antiphospholipid syndrome. The kit will improve diagnosis of the syndrome and aid patient care.

>>>further information

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