

## Characterizing Fibrinogen and TREM Like Transcript -1 Molecular Interaction for Development of Antithrombotic Agents

Platelets are important components of the immune response that produce clots to repair vascular damage and maintain hemostasis. The unregulated formation of clots in thrombosis, on the other hand, can lead to lethal hypercoagulable states like sepsis and several cardiovascular diseases (CVDs) like venous thromboembolism (VTE), ischemic stroke and ischemic heart disease. Previous studies described the discovery of TREM like transcript 1 (TLT-1), a receptor residing in  $\alpha$ -granules of platelets and megakaryocytes. TLT-1 was shown to bind fibrinogen, augment platelet aggregation and protect against hemorrhage. However, the high levels of soluble TLT-1 found in plasma of sepsis patients positively correlated with high mortality rates, suggesting that TLT-1 may contribute to thrombosis and CVDs. Our aim is to further understand the fibrinogen and TLT-1 interaction at the molecular level. Recently, we were able to characterize the binding kinetics between fibrinogen and TLT-1 that confirms this interaction has a high-affinity binding. Additionally, comparison of results with a control antibody showed the binding between these proteins is specific. Our next goal consists of identifying the region of interaction by isolating fibrinogen peptides that bind to TLT-1, and subsequently analyzing the sequences through mass spectrometry techniques. This identification would allow us to design antibodies or peptides capable of blocking the binding site of interaction. Future results could give insight into development of antithrombotic agents that target the fibrinogen and TLT-1 interaction during thrombosis and CVDs.