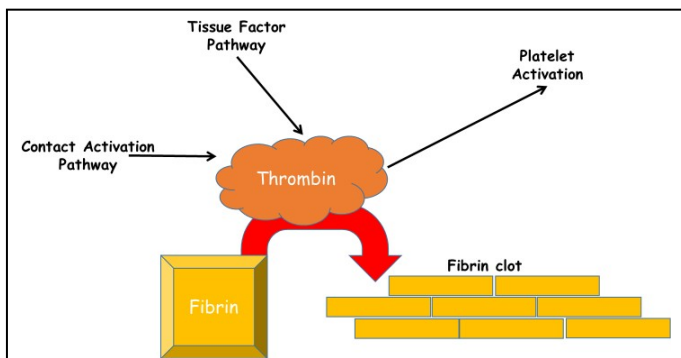




Thrombin Generation Assay

Activation, Surge, and Termination of the clotting cascade

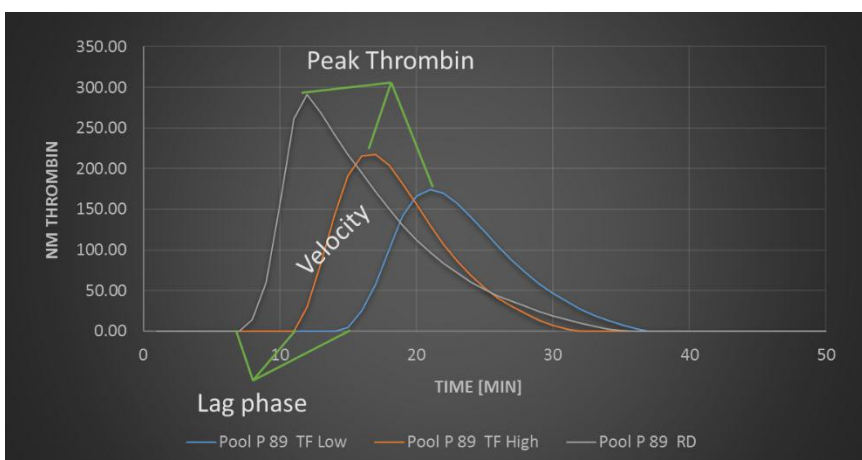
Thrombin is the final product of the intrinsic and extrinsic pathways, converting soluble fibrinogen into fibrin. It also serves as a potent activator of platelet function. As a key enzyme in hemostasis and thrombosis, it is imperative that reliable monitoring of thrombin be performed in study subjects during pharmacologic safety trials, and in patients dosed with hemostasis-modulating medication.



Established methods such as partial thromboplastin time (PT) or activated partial thromboplastin time (aPTT) are routinely used to monitor coagulation, and are simple, reliable, and internationally standardized. They are, however, a single end-point analysis of the coagulation cascade. The elegance and challenge of hemostasis is the complexity of the system. Novel molecular techniques allow us to study not only an individual factor, like thrombin, but its “life-time” activity before activation, during activation, and down-regulation. Current instrumentation allows monitoring of the coagulation cascade in a cost-effective manner and is readily customizable.

Thrombin Generation Assay (TGA) is increasingly being incorporated into clinical studies. In one instance, the TGA provided more robust analysis of activated Protein C in lupus anticoagulant patients than common anticoagulant techniques (Regnault, et al. 2003). With growing evidence of the power of TGA, it has become a staple assay to use during development of new drugs, as well as continuous monitoring of medication effects in patients.

Three thrombin reaction curves performed in platelet-rich plasma under three different stimuli, low and high TF, and a lipid activator, RD. These curves monitor factors that could influence coagulation. A lag phase demonstrates the time to thrombin activation; while the velocity (slope) and peak thrombin detail thrombin specific functions. Area under the curve or “thrombin potential”, gives the complete story of thrombin activation and inactivation over time.



CirQuest offers TGA study design, performance, data analysis, and QC reporting to provide robust evaluation of the hemostasis system.