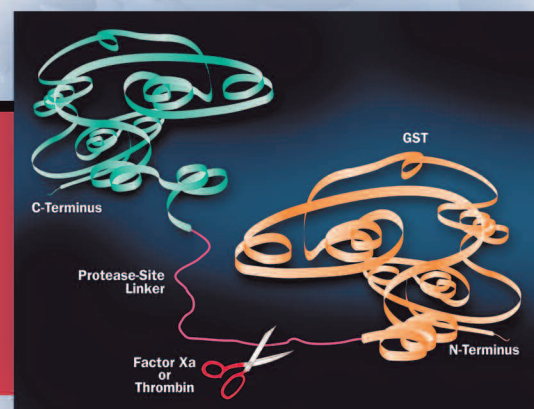


# Thrombin and Factor Xa

- Human, bovine and mouse plasma thrombin and Xa available
- Available in active-site blocked formulations
- >95% pure
- Custom formulations available

**For use in coagulation experiments, fusion protein cleavage, as standards or controls, and crystallography.**



## **Thrombin**

Alpha-thrombin is a serine protease and a key enzyme in the blood coagulation and wound healing processes. Thrombin is generated by proteolytic activation of the zymogen prothrombin and is commonly recognized as the enzyme responsible for the conversion of fibrinogen to fibrin. In addition to cleaving fibrinogen, thrombin is responsible for activating platelets and is indirectly responsible for regulation of its own production and inhibition through multiple proteolytic feedback pathways which include the activation of factors V, VIII, XI and Protein C. The central importance of thrombin to the overall coagulation process is established by the fact that any perturbation within the blood coagulation system that results in significantly amplified or impaired as well as accelerated or delayed thrombin generation will result in clinically relevant hemorrhagic or thrombotic events. Thrombin activity is down-regulated by inactivation of the cofactors, factor Va and VIIIa or by direct inhibition of thrombin by its principal inhibitor, anti-thrombin-III.

In addition to its pivotal role in the blood coagulation process, thrombin also contributes to the wound healing process. It activates protease activated receptor-1 (PAR-1) and in this manner can affect cellular function, growth and proliferation. Intact thrombin, as well as fragments of thrombin, have also been shown to have angiogenic, mitogenic and chemotactic activities.

## **Factor Xa**

Factor Xa is a serine protease that is produced by activation of the zymogen, factor X, by either the intrinsic or extrinsic factor tenase complexes. Factor Xa is the enzyme component in the prothrombinase complex (factor Xa, factor Va, negatively charge cell membrane and calcium ion), which catalyzes the rapid conversion of prothrombin to thrombin. Although factor Xa alone can convert prothrombin to thrombin, assembly of the prothrombinase complex results in a 300,000-fold increase in the rate of prothrombin conversion. Factor Xa activity is down-regulated by inactivation of the cofactor, factor Va or by direct inhibition of factor Xa by its principal inhibitor, anti-thrombin-III.

*Continued on reverse*

**Haematologic  
Technologies, Inc.**

57 River Road  
Essex Junction, VT USA  
Tel: 802.878.1777  
Fax: 802.878.1776  
www.haemtech.com

