**Description of Tissue Factor (TF)**

Tissue Factor (TF) is an integral membrane glycoprotein expressed in the plasma membranes of many cell types. It is a single chain molecule of 44 kDa consisting of an extra-cellular domain (residues 1-219), a trans-membrane domain (residues 220-242) and the C-terminal intracellular domain of residues 243-263. Most abundant in the tissue adventitia, TF becomes exposed to blood at the site of vascular injury. The availability of TF is important in initiating coagulation by acting as a receptor for both the zymogen and protease forms of plasma factor VII (FVII and FVIIa), as well as mediating the conversion of bound FVII to FVIIa. The binding of FVII to TF in the presence of a negatively charged surface such as a phospholipid (or cell surface) promotes the auto activation of FVII by FVIIa. The TF-FVIIa complex in the presence of calcium ions proteolytically activates factors IX and X. These enzyme products are then capable of activating FVII to FVIIa by feedback amplification. The activity of TF-FVIIa is regulated by a TFPI (tissue factor pathway inhibitor), a member of the Kunin superfamily of protease inhibitors. TFPI contains three kunitz domains and is able to bind and inhibit the TF-FVIIa complex in the presence of activated factor X and calcium ions. Antithrombin has also been reported to inhibit FVIIa activity in the presence of TF and heparin. Although a membrane protein, low levels of TF products have been demonstrated in plasma. Increased levels of circulating TF products may be a risk factor for thrombotic disease.

**REFERENCES and REVIEWS**