

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Serpin A10/ZPI in direct ELISAs and Western blots.
Source	Monoclonal Mouse IgG _{2B} Clone # 895910
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Chinese hamster ovary cell line CHO-derived recombinant human Serpin-A10/ZPI Met1-Leu444 Accession # Q9UK55
Conjugate	Alexa Fluor 700 Excitation Wavelength: 675-700 nm Emission Wavelength: 723 nm
Formulation	Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. [General Protocols](#) are available in the Technical Information section on our website.

Western Blot Optimal dilution of this antibody should be experimentally determined.

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

BACKGROUND

Protein Z-dependent Protease Inhibitor (ZPI), also known as SerpinA10 (SERine Proteinase INhibitor-clade A10) is a monomeric, secreted member of the A (or extracellular) clade within the serpin superfamily of protease inhibitors (1-4). In general, members of this superfamily regulate multiple proteolytic cascades, and are particularly effective due to the fact that their inhibitory activities can be fine-tuned through the participation of discrete, non-serpin co-factors (4). Serpins are unusual in that they are one-time use, non-recyclable proteins whose native state is thermodynamically unstable. They act as non-physiologic substrates for enzymes that, once cleaved, form a covalent bond with the target enzyme, rendering it inactive (1, 2). ZPI is a hepatocyte-derived glycoprotein associated with the coagulation cascade (3, 5-7). Following vessel damage, underlying support collagen and fibroblasts are exposed to circulating plasma and platelets. This results in the activation of two coagulation pathways; an intrinsic pathway involving platelets, and an extrinsic pathway involving vascular stromal cells. Both pathways converge at the activation step for factor X, which converts prothrombin into thrombin, a prelude to the generation of fibrin. ZPI negatively regulates the activation state of two coagulation factor enzymes; factor XIa and factor Xa (5-7). Factor XI is unique to the intrinsic pathway, while factor X, as noted, is common to both pathways. Inhibition is most efficiently accomplished by ZPI binding to either factor Xa (with protein Z [PZ], calcium and phospholipids) or XIa (lacking non-heparin co-factors), precluding them from activating downstream zymogens. Binding is accompanied by serpin cleavage, but unlike a typical serpin, ZPI does not stay bound to enzyme; rather, it dissociates into a 4 kDa C-terminal fragment and a 68 kDa N-terminal sequence (6, 8, 9). Following dissociation, a second ZPI molecule is recruited, and the process repeated. In humans, the majority of ZPI circulates in a complex with PZ. PZ serves as an intermediary, bringing ZPI in contact with factor Xa or XIa on the surface of platelets (1, 10-12). Once cleaved, ZPI dissociates from PZ, and PZ is free to bind and present additional ZPI to Xa and XIa. Cell-surface heparan sulfate on endothelium is also reported to act as a scaffold for ZPI:Xa interactions (8, 13). Human and mouse systems are not strictly analogous, as ZPI > PZ in human blood, while PZ>ZPI in mouse blood (11). Mature human ZPI is 423 amino acids (aa) in length (aa 22-444), and it contains a factor Xa cleavage site between Tyr408Ser409. Human and mouse ZPI share 71% aa sequence identity. Notably on SDS-PAGE, human ZPI runs about 72 kDa, while mouse and rat ZPI exhibit MWs of 91 kDa and 51 kDa, respectively (14).

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