SANTA CRUZ BIOTECHNOLOGY, INC.

tPA (2A153): sc-59721

BACKGROUND

uPA (urokinase-type plasminogen activator) and tPA (tissue plasminogen activator), which are serine proteases and members of the trypsin family, are essential to the intrinsic coagulation system. tPA is primarily involved in fibrinolysis, whereas uPA principally mediates cell migration and tissue remodeling processes. uPA and tPA are responsible for cleaving plasminogen, a large serum β-globulin that is deposited on the Fibrin strands within a thrombus. uPA and tPA preferentially target plasminogen at the Arg-Val bond to produce plasmin (also designated fibrinolysin), which is a trypsin-like enzyme that acts on Arg-Lys bonds in Fibrin and Fibrinogen and contributes to the systematic activation of the coagulation cascade. uPA and tPA each consist of two chains that are designated A and B. The A chain of uPA can be cleaved, resulting in low and high molecular mass forms. uPA and tPA are regulated by the serpin family members PAI-1 and PAI-2, which are serine proteinase inhibitors that complex with uPA, tPA and other targeted proteinases and then slowly disassociate to produce cleaved species that fold into stable inactive conformations.

REFERENCES

1. Riccio, A., et al. 1985. The human urokinase-plasminogen activator gene and its promoter. Nucleic Acids Res. 13: 2759-2771.
2. Degen, S.J., et al. 1986. The human tissue plasminogen activator gene. J. Biol. Chem. 261: 6972-6985.
3. Milligan, K.S. 1987. Tissue-type plasminogen activator: a new fibrinolytic agent. Heart Lung 16: 69-74.
4. Loscalzo, J., et al. 1988. Tissue plasminogen activator. N. Engl. J. Med. 319: 925-931.
5. Cheng, X.F., et al. 1992. Binding of tissue plasminogen activator to human endothelial cells. Importance of the B-chain as a ligand. Biochem. J. 287: 407-413.
6. Prentice, C.R., et al. 1993. The fibrinolytic response to ancrod therapy: characterization of fibrinogen and fibrin degradation products. Br. J. Haematol. 83: 276-281.
7. Schaefer, B.M., et al. 1995. Differential expression of urokinase-type plasminogen activator (uPA), its receptor (uPA-R), and inhibitor type-2 (PAI-2) during differentiation of keratinocytes in an organotypic coculture system. Exp. Cell Res. 220: 415-423.

CHROMOSOMAL LOCATION

Genetic locus: PLAT (human) mapping to 8p11.21.

SOURCE

tPA (2A153) is a mouse monoclonal antibody raised against full length tPA of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

tPA (2A153) is recommended for detection of tPA of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for tPA siRNA (h): sc-36705, tPA shRNA Plasmid (h): sc-36705-SH and tPA shRNA (h) Lentiviral Particles: sc-36705-V.

Molecular Weight of tPA: 67 kDa.

SELECT PRODUCT CITATIONS

1. Bu, C., et al. 2007. Autoantibodies to plasminogen and tissue plasminogen activator in women with recurrent pregnancy loss. Clin. Exp. Immunol. 149: 31-39.
2. Song, S., et al. 2016. High-level expression of a novel recombinant human plasminogen activator (rhPA) in the milk of transgenic rabbits and its thrombolytic bioactivity *in vitro*. Mol. Biol. Rep. 43: 775-783.
3. He, Z., et al. 2018. Efficient increase of the novel recombinant human plasminogen activator expression level and stability through the use of homozygote transgenic rabbits. Int. J. Mol. Med. 42: 2269-2275.
4. He, Z., et al. 2018. A novel recombinant human plasminogen activator: efficient expression and hereditary stability in transgenic goats and *in vitro* thrombolytic bioactivity in the milk of transgenic goats. PLoS ONE 13: e0201788.
5. Lu, R., et al. 2019. Accurately cleavable goat β-lactoglobulin signal peptide efficiently guided translation of a recombinant human plasminogen activator in transgenic rabbit mammary gland. Biosci. Rep. 39: BSR20190596.
6. Song, S., et al. 2022. Double-gene copromoting expression analysis in tPA/GH transgenic goat mammary epithelial cells and thrombolytic activity of tPA *in vitro*. Biomed. Res. Int. 2022: 6484073.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.