Data Sheet (Cat.No.TMPY-00904)

TargetMol

Urokinase/uPA Protein, Human, Recombinant (His)

General Information

Synonyms:	u-PA;QPD;BDPLT5;ATF;UPA;plasminogen activator, urokinase;URK
Protein Construction:	A DNA sequence encoding the human PLAU (NP_002649.1) (Met 1-Leu 431) with a C-terminal polyhistidine tag was expressed. Predicted N terminal: Ser 21
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P00749-1
Molecular Weight:	46 kDa (predicted); 18, 32 and 50 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Measured by its binding ability in a functional ELISA. Immobilized human uPA at 5 μg/ml (100 μl/well) can bind mouse PLAUR with a linear range of 1.6-40 ng/ml.
Purity:	≥ 97 % as determined by SDS-PAGE. ≥ 90 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Plasminogen activator, urokinase, also known as PLAU and uPA, is a serine protease which converts plasminogen to plasmin, a broad-spectrum protease active on extracellular matrix (ECM) components. It is involved in complement activation, cell migration, wound healing, and generation of localized extracellular proteolysis during tissue remodelling, pro-hormone conversion, carcinogenesis and neoplasia. Like many components of the blood coagulation, fibrinolytic and complement cascades, uPA has a modular structure, including three conserved

domains: a growth factor-like domain (GFD, residues 1-49), a kringle domain (residues 50-131), linked by an interdomain linker or "connecting peptide" (CP, residues 132-158) to the serine protease domain (residues 159-411). uPA and its receptor (uPAR) have been implicated in a broad spectrum of pathophysiological processes, including fibrinolysis, proteolysis, inflammation, atherogenesis and plaque destabilization, all of which are involved in the pathogenesis of MI (myocardial infarction). The role of uPA is not only linked to its action as an enzyme. In fact, the mere binding of uPA on the cell surface also brings about two events that broaden the spectrum of its biological functions: (1) a conformational change of the receptor, which, in turn, affects its interaction with other proteins; (2) a signal transduction which modulates the expression of apoptosis-related genes. Besides its applications as a thrombolytic agent and as a prognostic marker for tumors, uPA may provide the basis for other therapies, as the structure of the receptor-binding domain of uPA has become a model for the design of anti-cancer molecules. Because of the causal involvment of uPA in cancer invasion and metastasis, the blockade of uPA interactions and activity with specific inhibitors is of interest for novel strategies in cancer therapy.

Reference

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Xu J, et al. (2010) Association of putative functional variants in the PLAU gene and the PLAUR gene with myocardial infarction. Clin Sci (Lond). 119(8): 353-9.