ALPHA DIAGNOSTIC INTERNATIONAL

Product Data Sheet

Cat # RP-1463 Human Urokinase **Size**: 100 ug

Urokinase (Abbokinase), also called urokinase-type Plasminogen Activator (uPA), is a serine protease (EC 3.4.21.73). Urokinase is a two-chain glycoprotein containing 411 amino acids with 12 dissulfide bonds. Its molecular weight is 54,000 Dalton. Urokinase is synthesized as a zymogen form (prourokinase or single chain urokinase), and is activated by proteolytic cleavage between L158 and I159. The two resulting chains are kept together by a disulfide bond.

Urokinase is a secreted protein.
Tissue specificity Expressed in the prostate gland and prostate cancers.
Post-translational modification Phosphorylation of Ser-158 and Ser-323 abolishes proadhesive ability but does not interfere with receptor binding.

Urokinase was originally isolated from human urine, but is present in several physiological locations, such as blood stream and the extracellular matrix. The primary physiological substrate is plasminogen, which is an inactive zymogen form of the serine protease plasmin. Activation of plasmin triggers a proteolysis cascade which, depending on the physiological environment participate in thrombolysis or extracellular matrix degradation. This links urokinase to vascular diseases and cancer.

The most important inhibitors of urokinase are the serpins plasminogen activator inhibitor-1 (PAI-1) and plasminogen activator inhibitor-2 (PAI-2), which inhibits the protease activity irreversibly. In the extracellular matrix urokinase is tethered to the cell membrane by its interaction to the urokinase receptor.

Elevated expression levels of urokinase and several other components of the plasminogen activation system are found to be correlated with tumor malignancy. It is believed that the tissue degradation following plasminogen activation, facilitates tissue invasion and thus contributes to metastasis. This makes urokinase an attractive drug target and inhibitors have been sought to be used as anticancer agents. However incompatibilities between the human and murine system hampers clinical evaluation of these agents. Through its interaction with the urokinase receptor, urokinase affects several other aspects of cancer biology such as cells adhesion, migration and cellular mitotic pathways.

Synonyms:
Urokinase, Abbokinase, Urokinase-type Plasminogen Activator, uPA, EC3.4.21.73, UK.

Source:

Purified from Human urine (>95%). Contaminants: Free of: Hepatitis B surface antigen, Hepatitis C antibody and HIV I and II. It is supplied in powder form. It is recommended to reconstitute the lyophilized Urokinase in sterile 18MΩ-cm H2O not less than 100µg/ml, which can then be further diluted to other aqueous solutions

Lyophilized Urokinase although stable at room temperature for 3 weeks, should be stored desiccated below -18℃. Upon reconstitution Urokinase should be stored at 4℃ between 2-7 days and for future use below -18℃. Please prevent freeze-thaw cycles.

Biological Activity

Specific Activity: Activity greater than 68,000 IU/mg.

Activity: 1nM UK will cause a change in absorbance of 0.001 at 405nm in 1 minute at R/T in 100 ul 0.05M Tris-HCl, 0.1M NaCl, pH 7.4, using S2444 (0.6mM) as the substrate.

Usage

This item is for LABORATORY ESEARCH USE ONLY. The product may not be used as drugs, agricultural or pesticidal products, food additives or household chemicals If supplied in powder then reconstitute it in 100 ul water for 1 mg/ml stock and store in liquid at 4oC for ~1 week or aliquots in suitable size and store at -20oC for long term storage..

References: Jacobs P (1985) DNA 4, 139-146; Nagai M (1985) Gene 36, 183; Riccio A (1985) Nucel Acid. Res. 13, 2759; Schaller J (1982) Eur. J. Biochem. 125, 251;

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