

Product Specification Sheet

Human Plasminogen

Cat. # PLMN15-N Purified Human plasminogen protein (biologically active) **SIZE:** 120 U

Embryonic vascular system undergoes a series of complex, highly regulated series of events involving differentiation, migration and association of primitive endothelial cells. This process is termed vasculogenesis. A further remodeling of the primitive vascular system forms the mature cardiovascular system. This process is known as angiogenesis (sprouting of new capillary vessels from pre-existing vasculature). Angiogenesis accounts for the formation of vasculature into previously avascular organs such as brain and kidney. Angiogenic activity in the adult is required during the normal tissue repair, and for the remodeling of the female reproductive organs (ovulation and placental development). Certain pathological conditions, such as tumor growth and diabetic retinopathy, also require angiogenesis.

Plasminogen precursor or profibrinolysin or plasma trypsinogen (human 810 aa, chromosome 6q26) is synthesized in the kidney. It is present in plasma and many other extracellular fluids. Plasminogen is the zymogen in the circulating blood from which plasmin is formed. Plasminogen is a single-chain glycoprotein with 790 amino acid residues. Activation to the active form, plasmin, by urokinase involves cleavage at the arg-val bond between residues 560 and 561, resulting in the formation of the 2-chain plasmin molecule held together by 2 disulfide linkages. The heavier chain contains about 411 residues and the lighter chain about 233. The main function of plasmin is the digestion of fibrin in blood clots. Plasmin is a proteolytic enzyme with a specificity similar to that of trypsin. Like trypsin, plasmin belongs to the family of serine proteinases, in which the active site catalytic triad, his-57, asp-102, and ser-195 (chymotrypsin numbering), is situated in the light chain. The mature chain represents 20-810 aa. Processed active peptide domain is 20-97 aa. Angiostatin mature chain represents 98-810 aa. This region contains 5 structurally related kringle domains K1-5 (Kringle 1, 103-181 aa; Kringle 2, 184-262 aa; Kringle 3, 275-352 aa; Kringle 4, 377-454 aa; Kringle 5, 481-560 aa). Each Kringle domain contains 6 conserved cysteines. Kringles 1-5 domains share approx 45-50% sequence homology.

Source of Antigen and Antibodies

Human plasma plasminogen was purified (95%, mol wt 90 kDa) from human plasma that has been shown by certified tests to be negative for HbsAg and HIV and HCV. However, all precautions must be taken to avoid contamination.

Purified human plasminogen protein Cat # PLMN15-N, is formulated in 20 mM Tris-HCl, 2 mM EDTA, pH 7.5 and supplied in powder form. Store powder at –20°C for 6 months.

Stock solution should be prepared in distilled water and suitable aliquots stored at –20°C for 1-2 months or 1 week at 4°C.

Specific Activity

Typical activity is ~120 U/mg protein (lot specific activity will be specified on the vial). One unit is defined as the amount of enzyme that will hydrolyze 1.0 mmol of N-tosyl-Arg ethyl ester in 30 minutes at 37°C, pH 8.0.

General References: Petersen, T. E.; (1990) *J. Biol. Chem.* 265: 6104-6111; Forsgren, M (1987) *FEBS Lett.* 213: 254-260; Degen, S. J. F(1990). *Genomics* 8: 49-61; Hobart, M. J. (1979) *Ann. Hum. Genet.* 42: 419-423, 1979.

Citations of ADI's

Antibodies for Angiotensin (see updated list at the web site)

*This product is for in vitro research use only.

Related material available from ADI

Antibodies to Ang-1, Ang-2, Angiostatin, Endostatin, and plasminogen

Recombinant Mouse and Human VEGFs, Anti-Tie-1 and Tie-2, Anti-flk-1, Flt-1, and Flt-4 (VEGFRs 1-3)

Western Blot recycling kit (Use the same blot to probe with multiple antibodies Ang-1 and Ang-2, etc.) **recycle blot at room temp in 5-10 min;** No mercaptoethanol or heating required).

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