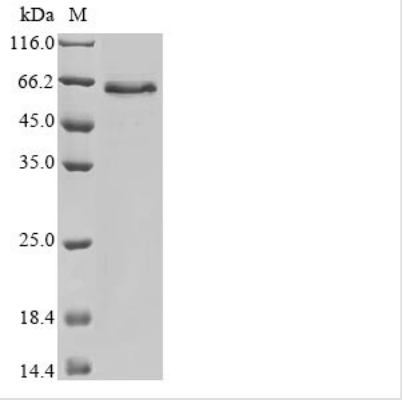
Recombinant Human Tissue-type plasminogen activator (PLAT) (R497Q)

Product Code	CSB-BP018120HU(A4)(M1)
Abbreviation	Recombinant Human PLAT protein (R497Q)
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P00750
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	SYQVICRDEKTQMIYQQHQSWLRPVLRSNRVEYCWCNSGRAQCHSVPVKSC SEPRCFNGGTCQQALYFSDFVCQCPEGFAGKCCEIDTRATCYEDQGISYRGT WSTAESGAECTNWNSSALAQKPYSGRRPDAIRLGLGNHNYCRNPDRDSKPW CYVFKAGKYSSEFCSTPACSEGNSDCYFGNGSAYRGTHSLTESGASCLPWN SMILIGKVYTAQNPSAQALGLGKHNYCRNPDGDAKPWCHVLKNRRLTWEYCD VPSCSTCGLRQYSQPQFRIKGGLFADIASHPWQAAIFAKHRRSPGERFLCGGI LISSCWILSAAHCFQERFPPHHLTVILGRTYRVVPGEEEQKFEVEKYIVHKEFD DDTYDNDIALLQLKSDSSRCAQESSVVRTVCLPPADLQLPDWTECELSGYGK HEALSPFYSERLKEAHVRLYPSSRCTSQHLLNRTVTDNMLCAGDTQSGGPQA NLHDACQGDSGGPLVCLNDGRMTLVGIISWGLGCGQKDVPGVYTKVTNYLD WIRDNMRP
Research Area	Cancer
Source	Baculovirus
Target Names	PLAT
Expression Region	36-562aa(R497Q)
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-tagged and C-terminal Myc-tagged
Mol. Weight	62.9 kDa
Protein Length	Full Length of Mature Protein
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Human Tissue-type plasminogen activator (PLAT) (R497Q) comes from a baculovirus expression system. This version represents the complete mature protein spanning amino acids 36 to 562, though it carries a specific R497Q mutation. Scientists have added both an N-terminal 10xHis-tag and a C-terminal Myc-tag to make detection and purification more straightforward. SDS-PAGE analysis shows the product maintains purity levels above 85%, which appears suitable for most research applications.

Tissue-type plasminogen activator (tPA) functions as a serine protease that breaks down blood clots. It does this by converting plasminogen into plasmin. This protein plays a crucial role in fibrinolysis—a process that seems essential for keeping our vascular system healthy. Given its significance in thrombolytic therapy, researchers frequently study tPA in cardiovascular and blood-related research. These studies may offer valuable insights into therapeutic approaches for clot-related disorders.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Protein-Protein Interaction Studies

This dual-tagged PLAT variant works well in pull-down assays for identifying and studying the binding partners of tissue-type plasminogen activator. The N-terminal His-tag lets researchers attach it to nickel-based resins. Meanwhile, the C-terminal Myc-tag helps with detection and confirms protein capture through anti-Myc antibodies. The R497Q mutation creates an interesting opportunity—scientists can examine how this particular amino acid change might alter protein interactions when compared to the normal PLAT version. Studies like these could shed light on the molecular mechanisms that drive PLAT function and regulation.

2. Structural and Biochemical Characterization

Researchers can use this recombinant protein for detailed structural analysis. This might include crystallography, NMR spectroscopy, or cryo-electron microscopy studies. The R497Q mutation allows scientists to explore what structural changes this specific amino acid swap causes in protein folding and overall shape. The dual tagging system makes protein purification and handling much easier during these structural investigations. When researchers compare results with normal PLAT, they may discover important structure-function relationships.

3. Antibody Development and Validation

Scientists can use this tagged PLAT variant as an antigen to create specific antibodies against human tissue-type plasminogen activator. The high purity level (over 85%) makes it appropriate for the immunization steps in antibody production. Both the Myc and His tags allow for easy detection and measurement during antibody screening and validation work. The R497Q variant might also help develop antibodies that target this specific mutation, or test whether existing antibodies react differently with various PLAT forms.

4. ELISA and Immunoassay Development

This dual-tagged protein can work as a standard or control in enzyme-linked immunosorbent assays designed to detect and measure PLAT levels. The His-tag allows researchers to attach it in a specific orientation on nickel-coated plates. The Myc-tag offers another detection approach using anti-Myc antibodies. Scientists can use this recombinant protein to create standard curves and check how well their immunoassays perform. The defined R497Q mutation makes it particularly useful for developing assays that can tell different PLAT variants apart.

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.