

# PRODUCT INFORMATION



## uPA (human, recombinant)

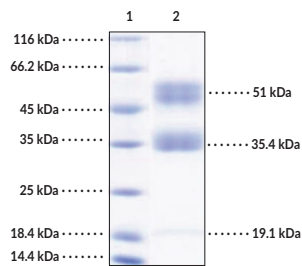
Item No. 44195

### Overview and Properties

|                               |  |
|-------------------------------|--|
| <b>Synonyms:</b>              | PLAU, U-Plasminogen Activator  |
| <b>Source:</b>                | Active recombinant human C-terminal His-tagged uPA expressed in HEK293 cells |
| <b>Amino Acids:</b>           | 21-431   |
| <b>Uniprot No.:</b>           | P00749   |
| <b>Molecular Weight:</b>      | 47.8 kDa   |
| <b>Storage:</b>               | -80°C (as supplied)  |
| <b>Stability:</b>             | ≥1 year  |
| <b>Purity:</b>                | ≥97% estimated by SDS-PAGE   |
| <b>Supplied in:</b>           | Lyophilized from sterile PBS, pH 7.4   |
| <b>Endotoxin Testing:</b>     | <1.0 EU/μg of the protein as determined by the LAL method                    |
| <b>Protein Concentration:</b> | <i>batch specific</i>  |
| <b>Activity:</b>              | <i>batch specific</i>  |
| <b>Specific Activity:</b>     | <i>batch specific</i>  |

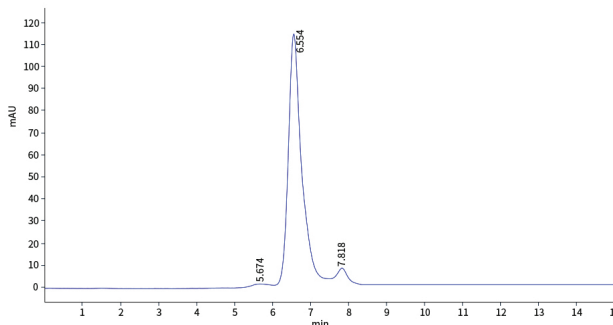
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Images



Lane 1: MW Markers  
Lane 2: uPA

**SDS-PAGE Analysis of uPA.** This protein has a calculated molecular weight of 47.8 kDa. It has an apparent molecular weight of approximately 51 kDa, 35.4 kDa, and 19.1 kDa, corresponding to unprocessed pro-uPA, the inactive amino-terminal fragment, and low molecular weight uPA, respectively, due to glycosylation and cleavage.



**WARNING**  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

**WARRANTY AND LIMITATION OF REMEDY**  
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# PRODUCT INFORMATION



## Description

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Urokinase-type plasminogen activator (uPA) is a serine protease that converts enzymatically inactive plasminogen into active plasmin.<sup>1,2</sup> It is synthesized and released as a single polypeptide chain called pro-uPA, which contains three domains: a growth factor domain (GFD), a kringle domain, and a serine protease domain.<sup>2</sup> The secreted polypeptide is cleaved by a variety of proteases, including cathepsin B, cathepsin L, trypsin, and plasmin, to form two-chain uPA. Two-chain uPA is further cleaved into two fragments: low molecular weight uPA containing the serine protease domain and a catalytically inactive amino-terminal fragment containing the GFD and kringle domain. Expression of *PLAU*, the gene encoding uPA, is increased several fold in tumor cells over non-tumor cells.<sup>1,2</sup> Increased serum uPA levels are associated with an increased number of tumor metastases in patients with metastatic breast cancer.<sup>3</sup> Cayman's uPA (human, recombinant) protein can be used for enzyme activity assay and Western blot (WB) applications. This protein consists of 422 amino acids, has a calculated molecular weight of 47.8 kDa, and a predicted N-terminus of Ser21 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 51 kDa, 35.4 kDa, and 19.1 kDa, corresponding to unprocessed pro-uPA, the inactive amino-terminal fragment, and low molecular weight uPA, respectively, due to glycosylation and cleavage. This purified protein was activated by trypsin *in vitro*.

## References

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1. Schmitt, M., Wilhelm, O., Jänicke, F., *et al.* Urokinase-type plasminogen activator (uPA) and its receptor (CD87): A new target in tumor invasion and metastasis. *J. Obstet. Gynaecol. (Tokyo 1995)* **21(2)**, 151-165 (1995).
2. Mahmood, N., Mihalciou, C., and Rabbani, S.A. Multifaceted role of the urokinase-type plasminogen activator (uPA) and its receptor (uPAR): Diagnostic, prognostic, and therapeutic applications. *Front. Oncol.* **8**, 24 (2018).
3. Banys-Paluchowski, M., Witzel, I., Aktas, B., *et al.* The prognostic relevance of urokinase-type plasminogen activator (uPA) in the blood of patients with metastatic breast cancer. *Sci. Rep.* **9(1)**, 2318 (2019).

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