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# Product Information

**Ubiquitin Activating Enzyme (E1), human recombinant, expressed in *Sf*21 insect cells**

Catalog Number **U5633**
Storage Temperature –70 °C

## Product Description

The ubiquitin proteolytic system plays an important role in a broad array of basic cellular processes. Among these are regulation of cell cycle, modulation of the immune and inflammatory responses, development and differentiation, and control of signal transduction pathways. These complex processes are controlled via specific degradation of a single or a subset of proteins. Degradation of a protein by the ubiquitin system involves two successive steps, conjugation with multiple moieties of ubiquitin and degradation of the ubiquitin tagged protein by the 26S proteasome.[1]

Ubiquitin activating enzyme (E1) performs the initial step in the formation of the ubiquitin-protein isopeptide bond. E1 catalyzes the activation of the C-terminal carboxyl group of ubiquitin by forming a high energy thioester bond in an ATP-dependent manner.[2] This activated ubiquitin is then transferred to a lysine of the target protein via the E2/E3 conjugation cascade. It is the critical step for the initiation of any *in vitro* conjugation reactions.[3] A working concentration of 50–200 nM is recommended to support *in vitro* conjugation.

This recombinant, human ubiquitin activating enzyme (E1) product is a 110 kDa protein, isolated from baculoviral expression in *Sf*21 (*Spodoptera frugiperda*) insect cells. It is supplied as a solution in 50 mM HEPES, pH 8.0.

Purity: ≥95% (SDS-PAGE)

## Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

## Storage/Stability

This product ships on dry ice and storage at –70 °C is recommended. The product is stable through multiple freeze/thaw cycles.

## References

1. Ciechanover, A., The Ubiquitin-mediated proteolytic pathway: mechanisms of action and cellular physiology. Biol. Chem. Hoppe-Seyler, **375**, 565-581 (1994).
2. Ciechanover, A. *et al*., Activation of the heat-stable polypeptide of the ATP-dependent proteolytic system. Proc. Natl. Acad. Sci., **78**, 761-765 (1981).
3. Ciechanover, A. *et al*., “Covalent affinity” purification of ubiquitin-activating enzyme. J. Biol. Chem., **257**, 2537-2542 (1982).
4. Haas, A. *et al*., Ubiquitin-activating enzyme. Mechanism and role in protein-ubiquitin conjugation. J. Biol. Chem., **257**, 2543-2548 (1982).

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