Recombinant Human His6 Ubiquitin-activating Enzyme/UBE1

Catalog Number: E-304

DESCRIPTION

Source	*Spodoptera frugiperda*, *Sf* 21 (baculovirus)-derived human Ubiquitin-activating Enzyme/UBE1 protein Contains an N-terminal Met-Ser-Tyr-Tyr and 6-His tag Accession # P22314.3
Predicted Molecular Mass	121 kDa

SPECIFICATIONS

Activity	Recombinant Human His6-Ubiquitin Activating Enzyme (UBE1) is a member of the Ubiquitin-activating (E1) enzyme family that is required for the first step of the enzymatic cascade that subsequently utilizes a Ubiquitin-conjugating (E2) enzyme and a Ubiquitin ligase (E3) to conjugate Ubiquitin to substrate proteins. Reaction conditions will need to be optimized for each specific application. We recommend an initial Recombinant Human His6-Ubiquitin Activating Enzyme (UBE1) concentration of 50-200 nM.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain.
Formulation	Supplied as a solution in HEPES, NaCl and TCEP. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Shipping	The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 6 months from date of receipt, -70 °C as supplied. • 3 months, -70 °C under sterile conditions after opening.

BACKGROUND

Ubiquitin-activating Enzyme (UBE1), also known as Ubiquitin-like Modifier Activating Enzyme 1 (UBA1), is a 1058 amino acid (aa) canonical member of the Ubiquitin-activating (E1) enzyme family of proteins with a predicted molecular weight of 118 kDa. It is ubiquitously expressed and highly conserved; mouse and rat UBE1 share 95% and 96% aa sequence identity with the human UBE1 protein, respectively. UBE1 is found in the cytoplasm and nucleus, and contains a conserved active-site cysteine residue and ATP-binding site common to E1 enzymes (1-3). UBE1 is responsible for the first step in Ubiquitin-protein isopeptide bond formation (4,5). Ubiquitin is activated by UBE1 and thereafter linked to the side chain of a cysteine residue in UBE1, Cys632 in humans, yielding a Ubiquitin-UBE1 conjugate via a thioester bond (5-8). The activated Ubiquitin is then transferred to a lysine residue on the target protein via the Ubiquitin-conjugating – Ubiquitin ligase enzyme cascade. UBE1 is required for cell cycle progression and has been linked to cellular responses to DNA damage such as nucleotide excision repair (3,9,10). Mutations in UBE1 are associated with X-linked lethal infantile spinal muscular atrophy (11). UBE1 is a critical component for the initiation of *in vitro* ubiquitin conjugation reactions.

References:

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