
MATERIAL DATA SHEET

Recombinant Human NEDD8 Activating Enzyme (APPBP1/UBA3)**Cat. # E-313**

Neural Precursor Cell Expressed Developmentally Downregulated Gene 8 (NEDD8) Activating Enzyme (APP-BP1/UBA3) is a heterodimeric NEDD8-activating (E1) enzyme with a predicted molecular weight of 112 kDa. It is responsible for the first step in the conjugation of NEDD8 to protein substrates. The NEDD8 Activating Enzyme heterodimer is composed of a regulatory subunit, Amyloid beta Precursor Protein Binding Protein 1 (APP-BP1), and a catalytic subunit, Ubiquitin-like Modifier Activating Enzyme 3 (UBA3). Human APP-BP1 is a 534 amino acid (aa) protein with a predicted molecular weight of 60 kDa that is expressed ubiquitously in fetal tissues and in the adult brain (1). APP-BP1 is required for UBA3 neddylation activity, regulates enzyme specificity, and is expressed as two isoforms, the full length protein and a second isoform with an alternate N-terminal, aa1-17, sequence (2). APP-BP1 has been shown to drive cell cycle progression, and its expression is increased in the hippocampus of Alzheimer's disease brains (3,4). Human UBA3 is a 463 aa protein with a predicted molecular weight of 52 kDa. It is ubiquitously expressed and shares high aa sequence identity with the C-terminal domain of human UBE1 (5). UBA3 contains an ATP-binding domain and an active site cysteine residue, Cys237 in humans, which are both common to E1 enzymes. Like APP-BP1, two isoforms of UBA3 have been identified in humans, the full length protein and a truncated isoform, which lacks aa 8-21. UBA3 is required for cell cycle progression and has been shown to downregulate steroid receptor activation (4,6). Neddylation and its associated enzymes have been implicated in the progression of Alzheimer's disease, via neddylation of APP, and cancer via post-translational modification of oncogenes (7,8).

Product Information

Quantity:	25 µg
MW:	60 kDa (APP-BP1) 52 kDa (UBA3)
Source:	<i>E. coli</i> -derived Accession # Q13564 (APP-BP1) Q8TBC4 (UBA3)
Stock:	Supplied as a solution in HEPES and NaCl.
Purity:	>95%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain.

Use & Storage

Use: Recombinant Human NEDD8 E1 (APP-BP1/UBA3) is a member of the NEDD8-activating (E1) enzyme family that is required for the first step of the enzymatic cascade that subsequently utilizes a NEDD8-conjugating (E2) enzyme and a NEDD8 ligase (E3) to conjugate NEDD8 to substrate proteins. Reaction conditions will need to be optimized for each specific application. We recommend an initial Recombinant Human NEDD8 E1 (APP-BP1/UBA3) concentration of 50-200 nM.

Storage: Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -70 °C as supplied.
- 3 months, -70 °C under sterile conditions after opening.

Literature

References:

1. Chow, N. et al. (1996) J Biol Chem 271:11339.
2. Walden, H. et al. (2003) Mol Cell 12:1427.
3. Chen, Y. et al. (2003) J Cell Biol 163:27.
4. Chen, Y. et al. (2000) J Biol Chem 275:8929.
5. Gong, L. & E.T. Yeh (1999) J Biol Chem 274:12036.
6. Fan, M. et al. (2002) Mol Endocrinol 16:315.
7. Chen, Y. et al. (2012) J Cell Mol Med [Epub ahead of print]
8. Soucy, T.A. et al. (2010) Genes Cancer 1:708.

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