UbcH12 (human), (recombinant) (His-tag)

NEDD8 (neural precursor cell expressed developmentally downregulated gene 8) is an ubiquitin-like protein, with approx. 60% identity to ubiquitin. Conjugation of mature NEDD8 (via its exposed C-terminal glycine^{76} residue) to specific lysine residues on a limited number of cellular target proteins via isopeptide bonds, allows NEDD8 to play a critical regulatory role in cell proliferation and development, a process closely associated to the ubiquitin-proteasome pathway.

The NEDD8 conjugation pathway proceeds by a mechanism analogous to that of the ubiquitin conjugation cascade, consisting of a dedicated NEDD8 E1 activating enzyme (APP-BP1/Uba3), E2 conjugating enzyme (UbcH12) and substrate specific E3 ligases. An increasing number of substrates for NEDDylation, including the tumor suppressors p53 and VHL, have been identified in addition to members of the well characterised cullin family of proteins, that play a structural role in ubiquitin E3 ligase complexes such as SCF.

Cullin NEDDylation in SCF complexes is facilitated by the RING domain containing Roc1 SCF subunit, which is thought to act as a NEDD8 E3 ligase, and enhances the complex's ubiquitin E3 ligase activity. NEDDylation of p53 is mediated by its ubiquitin E3 ligase Mdm2, providing an additional control mechanism for inhibition of its transcriptional activity. Reconstitution of the NEDD8 conjugation pathway *in vitro* using recombinant proteins is readily achieved and has been used to investigate a number of NEDD8 modification systems.

UbcH12, the major NEDD8 E2 enzyme, conjugates activated NEDD8 and mediates its subsequent linkage, via C-terminal isopeptide bond formation, to a number of proteins, including the tumour suppressors p53 and VHL, in addition to its well characterised modification of members of the cullin ubiquitin E3 ligase family. Such modifications allow NEDD8 to play a critical regulatory role in cell proliferation and development, a process closely associated to the ubiquitin-proteasome pathway.

Citations: 1 View Online »

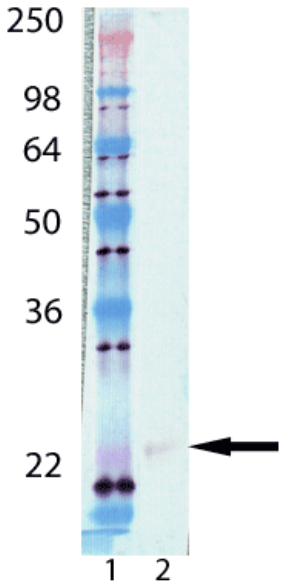
Ordering Information

Order Online »

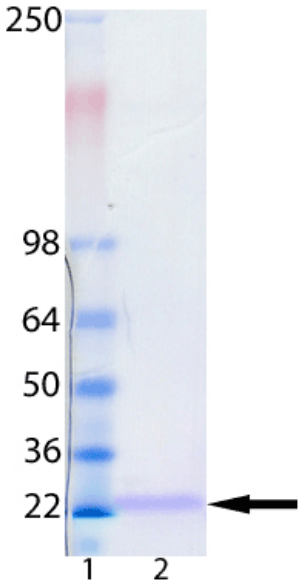
BML-UW9145-0100	100µg

Manuals, SDS & CofA

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Western Blot Analysis: Lane 1: MW marker, Lane 2: 100 ng of UbcH12 (human), (recombinant) (His-tag) probed with Anti-6X His tag® antibody.



SDS-PAGE analysis: Lane 1: MW marker, Lane 2: 2µg UbcH12 (human), (recombinant) (His-tag) (Prod. No. BML-UW9145).

Handling & Storage

Handling	Avoid freeze/thaw cycles. After opening, prepare aliquots and store at -80°C.
Long Term Storage	-80°C
Shipping	Dry Ice

Regulatory Status

RUO - Research Use Only

Product Details

Application Notes

Uses:
NEDD8 modification of specific proteins *in vitro*.
Demonstrate novel proteins are potential targets for NEDDylation under *in vitro* conditions.
Generate substrates for deNEDDylating enzymes.
NEDDylation pathway studies

Formulation	Liquid. In HEPES, pH 7.5, containing 100mM NaCl, 1mM DTT, 10% glycerol.
MW	~22kDa
Purity	≥95% (SDS-PAGE)
Source	Produced in *E. coli* BL21 (λDE3). UbcH12 is fused to an N-terminal His-tag.
UniProt ID	P61081

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