

## MATERIAL DATA SHEET

### Recombinant Human Ubiquilin 1 Tandem UBA (TUBE2) Biotin

#### Cat. # UBE-115

Ubiquilin 1 is a ubiquitously expressed member of the UBL-UBA family of Ubiquitin-binding proteins that is 589 amino acids (aa) in length and has a predicted molecular weight of 62.5 kDa (1). Human Ubiquilin 1 shares 88% aa sequence identity with the mouse and rat orthologs. It contains an N-terminal Ubiquitin-like (UBL) domain and a C-terminal Ubiquitin-associated (UBA) domain (2). The UBA domain is able to interact with mono- and poly-Ubiquitin chains, with a similar affinity for Lys48- and Lys63-linked chains (3,4). In contrast, the UBL domain interacts with Ubiquitin-interacting motif (UIM)-containing proteins, such as S5a/Angiostatin, a 19S Proteasome component (5). It is thought that Ubiquilin 1 may act as a molecular shuttle, bringing poly-ubiquitinated proteins to the 26S Proteasome by simultaneously binding poly-Ubiquitin via its UBA domain and the 19S Proteasome via its UBL domain (5). Ubiquilin 1 also binds two endoplasmic reticulum (ER)-localized proteins, Herp and Erasin, and may function in the ER-associated degradation pathway (6,7). It has been reported to co-precipitate with LC3/MAP1LC3A/Apg8p3, an autophagosomal marker, suggesting that it may play a role in autophagy (8,9). Single nucleotide polymorphisms in the *UBQLN1* gene have been linked to Alzheimer's disease (AD) (10). Furthermore, Ubiquilin 1 may regulate the processing of APP, which is associated with AD (11).

Tandem Ubiquitin Binding Entities (TUBEs) have been developed for the isolation and identification of ubiquitinated proteins. TUBEs display increased affinity for poly-Ubiquitin moieties over single Ubiquitin binding associated domain (UBA). TUBEs also display a protective effect on poly-ubiquitinated proteins, allowing for detection at relatively low abundance. This protein can be used for the isolation and identification of K48-linked (preferentially) or K63-linked poly-Ubiquitin chains or ubiquitinated substrates that contain these linkages. Detection with avidin-linked reagents allows for a higher efficiency and detection sensitivity than with other antibodies.

#### Product Information

|                  |  |
|------------------|--|
| <b>Quantity:</b> | 250 µg   |
| <b>MW:</b>       | 22 kDa   |
| <b>Source:</b>   | <i>E. coli</i> -derived<br>Accession # NP_038466   |
| <b>Stock:</b>    | X mg/ml (X µM) in 50 mM HEPES pH 8.0, 200 mM NaCl  |
| <b>Purity:</b>   | >90%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain. |

## Use & Storage

**Use:** Biotin- TUBE2 can be used for the purification and identification of K48- or K63-linked Ubiquitin chains. Reaction conditions will need to be optimized for each specific application. We recommend using 50-100 µg of Biotin- TUBE2 to detect 10-20 µg of purified Ubiquitin chains.

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

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

## Literature

### References:

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5. Ko, H.S. *et al.* (2004) *FEBS Lett.* **566**:110.
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***For research use only. Not for use in humans.***