Rpn1 Protein (26S Proteasome Regulatory Subunit 1)

Cat. # PS110

Background:

The 26S proteasome plays a central role in the ubiquitin-mediated degradation of cellular proteins. It consists of a 20S catalytic core capped by one or two 19S regulatory particles. The repeat-containing domains of ribophorins 1 and 2 (Rpn1 and Rpn2, 110 and 104 kDa, respectively) represent the largest subunits of the 26S proteasome and may also be involved in ribosome binding. Deletion of either subunit is lethal, and mutations in yeast result in impaired proteasome function and accumulation of polyubiquitinated proteins. Rpn1 is a component of the 26S proteasome base. In human, the Rpn1 subunit interacts with the ubiquitin protein ligase (E3) KIAA10. RPN1 and RPN2 form the receptors for the ubiquitin-like proteins Rad23 and Dsk2. The leucine-rich-repeat-like domain of RPN1 may participate in the recognition of the cargo proteins carried by Rad23 for unfolding and subsequent degradation. The deubiquitinating enzyme Ubp6/USP14 recognizes the proteasome base via the Rpn1 subunit. Deubiquitination by Ubp6 prevents ubiquitin from Rpn-mediated translocation to the 20S particle.

Product Information

Quantity: 50 μg

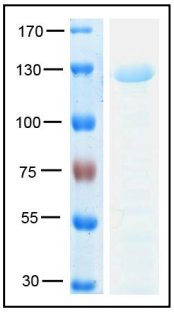
Molecular weight: 109.5kDa

Tag: His_6

Buffer: 20 mM sodium phosphate pH 7.4, 500 mM NaCl, 200 mM imidazole, 1mM β – mercaptoethanol.

Source: Yeast recombinant, expressed in *E. coli*. Accession number P38764.

Storage: -80°C. Avoid repeated freeze/thaw cycles



Recombinant Rpn1 protein (Hisx6 tag) was expressed in *E.coli* and purified on the Ni-NTA resin using a standard protocol. 5ug of purified protein was resolved on 10% PAGE and stained with Coomassie blue.

References

1. Saeki, Y.et al. (2002) Identification of ubiquitin-like protein-binding subunits of the 26S proteasome. Biochem. Biophys. Res. Commun.
2. Kimura Y, et al. (2003) N-Terminal modifications of the 19S regulatory particle subunits of the yeast proteasome. Arch Biochem Biophys 409(2):341-8.
3. Gomez TA, et al. (2011) Identification of a functional docking site in the Rpn1 LRR domain for the UBA-UBL domain protein Ddi1. BMC Biol. May 31;9:33.
4. Rosenzweig R. et al. (2012) Rpn1 and Rpn2 coordinate ubiquitin processing factors at proteasome. J Biol Chem. Apr 27;287(18):14659-71.
5. Huber EM and Groll M. (2012) The 19S cap puzzle: a new jigsaw piece. Structure. 20(3):387-8
6. Lander GC et al. (2012) Complete subunit architecture of the proteasome regulatory particle. Nature. Jan 11;482 (7384):186-91.