

Native Human 26S Proteasome

Cat. No. 26SPro-135H **Lot. No.** (See product label)

SPECIFICATION

Product Overview

Purified from human blood cells by fractionation. The highest activity, soluble and homogenous. All starting material has been tested and found to be negative for hepatitis B surface antigen, human immunodeficiency virus type 1 antigen, antibodies against human immunodeficiency viruses type 1 and 2, and hepatitis C virus. A highly purified preparation of '26S' proteasomes, useful for carrying out in vitro protein degradation studies with suitably ubiquitinated protein substrates. Consists of a high purity mixture of '26S' proteasomes singly (26S) and doubly (30S) capped with 19S regulatory subunit complexes in the ratio of 40% single cap : 60% double capped at the time of preparation.

Species

Human

Source

Erythrocytes

Description

The 26S proteasome is the major protease in eukaryotic cells, responsible for protein degradation in both the cytosol and the nucleus. As a compartmental protease of the AAA+ (ATPases associated with various cellular activities) family, the proteasome uses ATP hydrolysis to disrupt higher-order structures of its substrates and translocate the unfolded polypeptides into an internal degradation chamber for proteolytic cleavage. This ability to unravel native structures allows the proteasome to function as a modulator of the eukaryotic proteome and degrade numerous regulatory proteins in addition to damaged or misfolded polypeptides. Therefore, the 26S proteasome not only is essential for general protein and amino acid homeostasis but also controls a myriad of essential cellular processes, including the cell cycle, DNA

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replication, transcription, signal transduction, and stress responses. The 26S proteasome consists of two distinct sub-complexes, a 20S core particle (CP) and a 19S regulatory particle (RP, also termed PA700).

Stability

When ready for use the enzyme should be thawed by standing on ice. If the enzymatic activity of the 26S proteasome is to be measured, it should be used immediately after thawing since the enzyme complex is labile. After dissociation of the 26S complex the 20S proteasome activity is relatively stable.

Storage

At -80 centigrade. Avoid freeze/thaw cycles.

Storage Buffer

Suspended in 10mM TRIS, containing 25mM KCl, 1.1mM MgCl₂, 0.1mM EDTA, 1mM DTT, 1mM sodium azide, 2mM ATP, pH 7.0, and 35% glycerol.

Shipping

Shipped on Dry Ice.

Reference

1. UBQLN2 Mediates Autophagy-Independent Protein Aggregate Clearance by the Proteasome, Roland Hjerpe, Thimo Kurz et al.; Cell Volume 166, Issue 4, 11, 935-949, (2016). 2. Structural Snapshots of 26S Proteasome Reveal Tetraubiquitin-Induced Conformations, Zhanyu Ding, Michael H. Glickman, Yao Cong et al.; Molecular Cell Volume 73, Issue 6, 1150-1161.e6, (2019). 3. Synthetic Uncleavable Ubiquitinated Proteins Dissect Proteasome Deubiquitination and Degradation, and Highlight Distinctive Fate of Tetraubiquitin Sumeet K. Singh, Ashraf Brik et al.; Journal of the American Chemical Society 138 (49), 16004-16015, (2016).

GENE INFORMATION

Gene ID

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Human 26S proteasomes were purified to apparent homogeneity. (A) Coomassie stained 12% SDS-PAGE of purified human 26S proteasome. (B) Purified human 26S proteasomes were separated by 4% native-PAGE and analyzed by overly assays using Suc-LLVY-AMC. (C) Coomassie stained 4% native-PAGE of purified human 26S proteasome. (D) Immunoblotting described cleavage of Di-Ub (K63) by 26S as a 19S activity assay.

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