3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

PROTEASOME FRACTION II
RABBIT RETICULOCYTE CELL EXTRACT

Product Number **F 4051**

Product Description

Proteasome Fraction II is the protein fraction of a reticulocyte cell extract that binds to an anion exchange resin. It is essentially free of ubiquitin and ATP and contains E1, most E2s, ubiquitin C-terminal hydrolases (UCHs), and the 20S and 26S proteasomes.

Degradation of short-lived, key regulatory proteins by the ubiquitin-proteasome pathway plays key roles in a number of cellular processes. A number of proteins are degraded by this system including: cyclins, cyclin-dependent kinases[1,2] and their inhibitors, tumor suppressors, oncoproteins, and transcriptional activators and their inhibitors. Two discrete steps are involved in the ubiquitin-mediated degradation of proteins: signaling by covalent conjugation of multiple ubiquitin moieties and degradation of the tagged substrate. Conjugation occurs by a three-step mechanism involving three different enzymes that act sequentially: E1, E2 and E3. Ubiquitin-activating enzyme (E1) catalyzes the activation of ubiquitin then E2 (ubiquitin-conjugating enzyme) transfers activated ubiquitin to E3, which is bound to substrate. E3 catalyzes the polyubiquitination of the targeted protein. The polyubiquitin tagged protein is then degraded by the 26S proteasome in an ATP-dependent process, and free ubiquitin is released. The 20S proteasome is the ATP-independent catalytic core of the 26S proteasome.[3-5]

Reagent

Proteasome Fraction II is supplied as a solution in 25 mM HEPES, pH 7.6.

Precautions and Disclaimer

For laboratory use only. Not for drug, household or other uses. Please consult the Material Safety Data Sheet for handling recommendations before working with this material.

Storage/Stability

Proteasome Fraction II solution should be stored in aliquots at –70 °C. Avoid multiple freeze thaw cycles. Do not store in a frost-free freezer.

Product Profile

Proteasome Fraction II is ideal for demonstrating ubiquitin- and ATP-dependent degradation/conjugation of radiolabeled or immunodetectable substrates. Isopeptidase inhibitor and a proteasome inhibitor are highly recommended for the accumulation of ubiquitin protein conjugates. Typical assay concentration for FII is 0.5 - 4 mg/ml.

References

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3. Tanaka, K., et al., The ligation systems for ubiquitin and ubiquitin-like proteins. Mol. Cells, **8**, 503-512 (1998).
4. Myung, J., et al., The ubiquitin-proteasome pathway and proteasome inhibitors. Med. Res. Rev., **21**, 245-273 (2001).
5. Benaroudj, N., et al., The unfolding of substrates and ubiquitin-independent protein degradation by proteasomes. Biochimie, **83**, 311-318 (2001).

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