COSMO BIO CO., LTD.
Inspiration for Life Science

MONOCLONAL ANTIBODY

For research use only, Not for diagnostic use

Catalog SZU-PS-M01

Anti 20S proteasome (GC3α)

BACKGROUND

The 26S proteasome is an essential component of the ubiquitin-proteolytic pathway in eukaryotic cells and is responsible for the degradation of most cellular proteins. It is composed of a 20S proteasome as a catalytic core and regulatory particles at either end. The subunits of the 20S proteasome can be classified into two families, α and β. In eukaryotes, the 20S proteasome contains seven α-type subunits and seven β-type subunits. The fourteen subunits are arranged in four rings of seven and form an α7β7β7α7 structure.
This antibody recognizes **several subunits of the 20S proteasome** from all organisms tested, yeast to human. The advance of this antibody is application for immuno-electron microscopy.

Product type	Primary antibody
Immunogen	Purified 20S proteasome purified from goldfish ovary
Rased in	Mouse (BALB/c)
Myeloma	P3-U1
Clone number	GC3α
Isotype	IgG1
Source	Serum free culture supernatant
Purification	Affinity purified by Protein G
Buffer	PBS containing 0.02% NaN_3 as a preservative
Concentration	1 mg / mL
Volume	100 uL
Label	Unlabeled
Specificity	-
Cross reactivity	yeast, fish, frog, rat, human, plants
Storage	Store below 4°C. (below -70°C for prolonged storage). Aliquot to avoid cycles of freeze/thaw.
Other	-

Application notes
Recommended dilutions

- **Immunoelectron microscopy:** 1/100 - 1/200 (Ref.1, Fig.5, Fig.7)
- **Western blotting:** 1/1000 - 1/2000 (Ref.1, Fig.1) (Ref.3 Fig. 1)
- **Immunohistochemistry:** 1/200 - 1/1000 (Ref.1, Fig. 3)

Other applications have not been tested.
Optimal dilutions/concentrations should be determined by the end user.

References

1) Haraguchi, C. M., Mabuchi, T., Hirata, S., Shoda, T., Tokumoto, T., Hoshi, K., Yokota, S. 2007. Possible function of caudal nuclear pocket: degradation of nucleoproteins by ubiquitin-proteasome system in rat spermatids and human sperm. J Histochem Cytochem 55, 585-595. PubMed: 17312012
2) Ohsaki, Y., Cheng, J., Fujita, A., Tokumoto, T., Fujimoto, T. 2006. Cytoplasmic lipid droplets are sites of convergence of proteasomal and autophagic degradation of apolipoprotein B. Mol Biol Cell 17, 2674-2683. PubMed: 16597703
3) Tokumoto, M., Horiguchi, R., Nagahama, Y., Ishikawa, K., Tokumoto, T. 2000. Two proteins, a goldfish 20S proteasome subunit and the protein interacting with 26S proteasome, change in the meiotic cell cycle. Eur J Biochem 267, 97-103. PubMed: 10601855

ANTIBODY CHARACTERIZATION

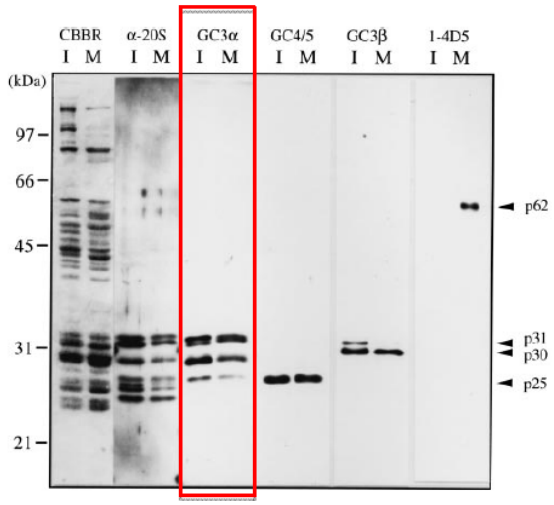

Figure 1 Immunoblotting of the purified 26S proteasomes.

26S proteasomes were electrophoresed under denaturing conditions (12.0% gel) and stained with Coomassie Brilliant Blue (CBBR), or immunostained with antibodies (α-20S, anti-Xenopus 20S proteasome polyclonal antibody; **GC3α**; GC4/5; GC3β; or 1-4D5) after electroblotting.
Lanes I and M indicate 26S proteasomes from immature and mature oocytes, respectively. Protein bands that cross-reacted with GC4/5 (p25), GC3β (p30 and p31) and 1-4D5 (p62) are indicated. Molecular masses of standard proteins are indicated on the left. Reference : Eur J Biochem. 2000 Jan;267(1)97-103.

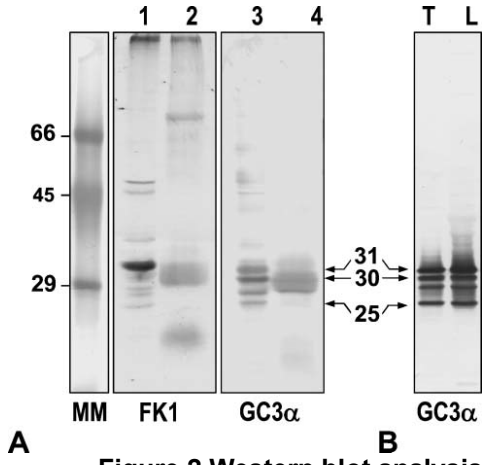

Figure 2 Western blot analysis

(A) Western blot analysis of proteins in rat testicular nuclei (Lanes1 and 3) and sperm heads (Lanes2 and 4). Lanes 1 and 2: pUP signals with mouse monoclonal antibody FK1. Lanes 3 and 4: 20S proteasome subunits detected by mouse monoclonal antibody GC3α. Numbers, 31, 30, and 25 show molecular mass of each subunit, respectively. MM, molecular mass markers.
(B) Western blot analysis of proteasomes partially purified from rat testes (Lane T) and liver (Lane L) with mouse monoclonal antibody to gold fish proteasome subunits (GC3α).
Reference: J Histochem Cytochem. 2007 Jun;55(6)585-95. Epub 2007 Feb 20.

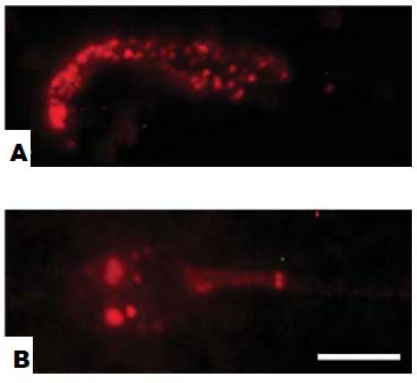

Figure 3 Immunofluorescence staining of rat epididymal sperm and human ejaculated sperm.
(A) Smear preparation of rat sperm. (B) Human ejaculated sperm. Bar = 5 um.

ANTIBODY CHARACTERIZATION

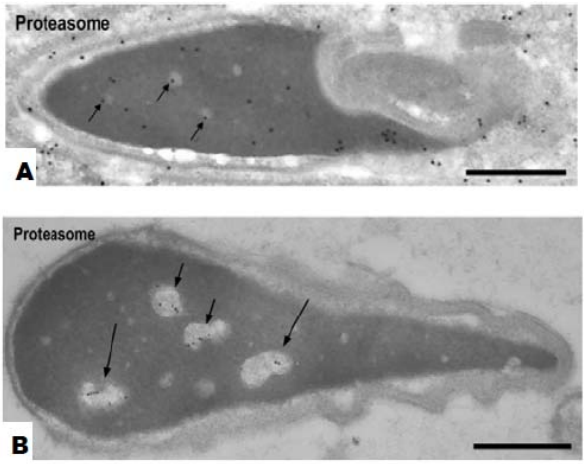

Figure 4 Immunoelectronmicroscopic localization of proteasome

(A) Step 19 spermatids. Nuclear staining becomes weaker.Some gold particles are present in clear spots (arrows). Bar = 0.5 um.

(B) Nuclei of human ejaculated sperm Gold labeling is observed in the clear spots (short arrows) and in the vacuoles (long arrows) but not in the dense matrix. Bar = 0.5 um.

RELATED PRODUCTS:

Product Name	Quantity	Maker	Cat#
Anti 20S proteasome (GC3α) Monoclonal Antibody	100 ug	CAC	SU-PS-M01
Anti 20S proteasome (GC3β) Monoclonal Antibody	100 ug	CAC	SU-PS-M01
Anti 20S proteasome (GC4/5) Monoclonal Antibody	100 ug	CAC	SU-PS-M01
Anti Multiubiquitin, Chain (FK1) Monoclonal Antibody	0.5 MG	NBT	MFK-001
Anti Multiubiquitin, Chain (FK1) Monoclonal Antibody	1 MG	NBT	MFK-002
Anti Multiubiquitin, Chain (FK2) Monoclonal Antibody	0.5 MG	NBT	MFK-003
Anti Multiubiquitin, Chain (FK2) Monoclonal Antibody	1 MG	NBT	MFK-004
Anti SUMO1 (4D12) Monoclonal Antibody	100 ug	CAC	CE-041A
Anti SUMO2 and SUMO3 (3H12) Monoclonal Antibody	100 ug	CAC	CE-042A

For research use only, Not for diagnostic use.

COSMO BIO CO., LTD.
Inspiration for Life Science
TOYO 2CHOME, KOTO-KU, TOKYO, 135-0016, JAPAN
URL: http://www.cosmobio.co.jp e-mail: export@cosmobio.co.jp
[Outside Japan] Phone : +81-3-5632-9617 [国内連絡先] Phone : +81-3-5632-9610
FAX : +81-3-5632-9618 FAX : +81-3-5632-9619