

## Mouse monoclonal antibody to Lysosomal Associated Membrane Protein 1 (LAMP1) [5H6]: IgG

<b>Catalogue No.:</b>	M-1690-100
<b>Description:</b>	LAMP1 (Lysosomal Associated Membrane Protein 1, also known as CD107a, lysosomal associated membrane glycoprotein 1, LGP120 and LAMPA) is a protein primarily associated with the lysosomal membrane. In a typical cell LAMP1 is associated with spherical vesicles located next to the nucleus and the microtubule organizing center (1). LAMP1 is found on the cell surface of lymphocytes undergoing degranulation, a process in which cytoplasmic vesicles fuse with the plasma membrane, and this phenomena resulted in discovery of LAMP1 as a CD protein. The LAMP1 protein has a large N-terminal region which is inside the lysosome, hence topologically external to the cell, which is often referred to as the luminal domain (2). The luminal domain consists of two homologous globular segments separated by a proline rich sequence. Next there is a single membrane spanning domain and a short 11 amino acid C-terminal cytoplasmic tail. This tail region contains, at the extreme C-terminus, a so-called YXXI motif which is responsible for the sorting of the intact molecule to the endosome and lysozome, where Y = tyrosine, I = isoleucine and X = almost any amino acid (3). This motif is found in several other lysosomal proteins, where it functions in the same way. There are 417 amino acids in the human LAMP1 molecule, giving a native molecular weight of 44.8kDa. However the N-terminal luminal segment of LAMP1 is very heavily and variably glycosylated due to the presence of 18 N-linked glycosylation sites, so that on SDS-PAGE and on Western blots the protein runs as a diffuse band at 90-120kDa. Antibodies to LAMP1 are therefore excellent markers of lysosomes in mammalian cells, though some LAMP1 may also be seen on late endosomes and on the plasma membrane.
<b>Unit size:</b>	100 ug
<b>Antigen:</b>	Recombinant LAMP1 expressed and purified from E. coli.
<b>Antibody Type:</b>	Monoclonal
<b>Isotype:</b>	IgG1
<b>Clone:</b>	5H6
<b>Other Names:</b>	Lysosomal Associated Membrane Protein 1, also known as CD107a, lysosomal associated membrane glycoprotein 1, LGP120 and LAMPA
<b>Produced in:</b>	Mouse
<b>Applications:</b>	Western Blotting (WB), Immunocytochemistry (IC), Flow Cytometry. A dilution of 1:5,000 - 1:10,000 is recommended for WB. A dilution of 1:1,000 - 1:2,000 is recommended for IC. Use ~2ug per 10 <sup>6</sup> cells for Flow Cytometry. Biosensis recommends optimal dilutions/concentrations should be determined by the end user.
<b>Specificity:</b>	The antibody reacts with a diffuse band at ~90 kDa to 120 kDa by Western blot on HeLa cell extract. It has also been used successfully for immunocytochemistry showing strong punctate cytoplasmic staining corresponding to lysosomes and late endosomes.
<b>Species Against:</b>	Human.
<b>Antibody Against:</b>	

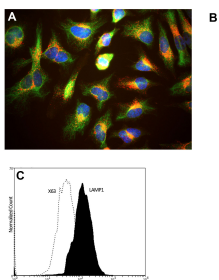
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Lysosomal Associated Membrane Protein 1 [LAMP1]

- Cross-reactivity:** Does not react with rodent protein.
- Form:** Lyophilized from PBS. Contains 5% trehalose.
- Appearance:** White powder
- Reconstitution:** Reconstitute in sterile distilled water. Centrifuge to remove any insoluble material.
- Storage:** After reconstitution of lyophilized antibody, aliquot and store at -20C for a higher stability. Avoid freeze-thaw cycles.
- Expiry Date:** 12 months after purchase
- General References:**
1. Matteoni, R. and Kreiss, T. E. Translocation and clustering of endosomes and lysosomes depends on microtubules. *J. Cell Biol.* 105:1253-1265 (1987).
  2. Howe CL, Granger BL, Hull M, Green SA, Gabel CA, Helenius A, Mellman I. Derived protein sequence, oligosaccharides, and membrane insertion of the 120-kDa lysosomal membrane glycoprotein (lgp120): identification of a highly conserved family of lysosomal membrane glycoproteins. *Proc Natl Acad Sci U S A.* 85:7577-81 (1988).
  3. Rohrer J, Schweizer A, Russell D, Kornfeld S. The targeting of Lamp1 to lysosomes is dependent on the spacing of its cytoplasmic tail tyrosine sorting motif relative to the membrane. *J Cell Biol.* 132:565-76 (1996).



A: HeLa cell staining with M-1690-100 (red), and counterstained with chicken polyclonal antibody to Vimentin C-1409-50 (green) and DNA (blue). The LAMP1 antibody reveals strong punctate cytoplasmic staining corresponding to lysosomes and late endosomes, while the Vimentin antibody reveals cytoplasmic intermediate filaments. B: Western blot of HeLa cell crude extract stained with M-1690-100 (lane 9). The antibody binds to a diffuse band running at between 90 and 120 kDa. C: Analysis of LAMP1 expression in human neuroblastoma SH-SY5Y cell line by Flow Cytometry. Fixing and Permeabilization of cells: Absolute methanol (10 minutes in ice) and 0.1% Tween-20 in PBS, Blocking: 1% BSA, Primary antibody: Mouse Monoclonal antibody to LAMP1 (cat # M-1690-100, 2 $\mu$ g per  $\sim 10^6$  cells) for 30 minutes at room temperature, Secondary antibody: Goat anti-mouse PE labeled secondary antibody (1:100 fold dilution) with incubation for 20 minutes in dark at room temperature. Non-specific Control IgG, clone X63 (cat # M-1249-100) was used as negative control under same conditions (black dashed). Flow cytometry data and results were generated using Orflo Moxiflow<sup>TM</sup> instrument and protocols.

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