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## Purified Mouse anti-Human CD11a Monoclonal Antibody

**CLX16AP**

**Lot:**

**Size:** 0.1 mg

**Clone:** MEM-83

**Isotype:** Mouse IgG1

**Specificity:** The antibody MEM-83 reacts with CD11a ( $\alpha$ -subunit of human LFA-1), a 170-180 kDa type I transmembrane glycoprotein expressed on B and T lymphocytes, monocytes, macrophages, neutrophils, basophils and eosinophils.

**HLDA IV; WS Code NL 211**

**Immunogen:** Human peripheral blood lymphocytes.

**Species Reactivity:** Human

**Application:** **Functional Application**

The antibody MEM-83 directly induces the binding of T cells to purified ICAM-1. Using an in vitro-translated CD11a cDNA deletion series, the MEM-83 activation epitope was mapped to the "I" domain of the LFA-1  $\alpha$ -subunit. The studies have therefore identified a novel LFA-1 activation epitope mapping to the I domain of LFA-1, which could play a role in the regulation of LFA-1 binding to ICAM-1.

**Flow Cytometry**

**Immunoprecipitation**

**Purity:** > 95% (by SDS-PAGE)

**Purification:** Purified from ascites by protein-A affinity chromatography.

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**Concentration:** 1 mg/ml

**Storage Buffer:** Phosphate buffered saline (PBS) with 15 mM sodium azide, approx. pH 7.4

**Storage / Stability:** Store at 2-8°C. Do not use after expiration date stamped on vial label. For long-term storage aliquot and store at -20°C. Avoid freeze/thaw cycles.

**Background: CD11a** (LFA-1a) together with CD18 constitute leukocyte function-associated antigen 1(LFA-1), the  $\alpha$ Lb2 integrin. CD11a is implicated in activation of LFA-1 complex. LFA-1 is expressed on the plasma membrane of leukocytes in a low-affinity conformation. Cell stimulation by chemokines or other signals leads to induction the high-affinity conformation, which supports tight binding of LFA-1 to its ligands, the intercellular adhesion molecules ICAM-1, -2, -3. LFA-1 is thus involved in interaction of various immune cells and in their tissue-specific settlement, but participates also in control of cell differentiation and proliferation and of T-cell effector functions. Blocking of LFA-1 function by specific antibodies or small molecules has become an important therapeutic approach in treatment of multiple inflammatory diseases. For example, humanized anti-LFA-1 antibody Efalizumab (Raptiva) is being used to interfere with T cell migration to sites of inflammation; binding of cholesterol-lowering drug simvastatin to CD11a allosteric site leads to immunomodulation and increase in lymphocytic cholinergic activity.

**References:**

- \*Sarantos MR, Raychaudhuri S, Lum AF, Staunton DE, Simon SI: Leukocyte function-associated antigen 1-mediated adhesion stability is dynamically regulated through affinity and valency during bond formation with intercellular adhesion molecule-1. J Biol Chem. 2005 Aug 5;280(31):28290-8.
- \*Giblin PA, Lemieux RM: LFA-1 as a key regulator of immune function: approaches toward the development of LFA-1-based therapeutics. Curr Pharm Des. 2006;12(22):2771-95.
- \*Kellersch B, Kolanus W: Membrane-proximal signaling events in beta-2 integrin activation. Results Probl Cell Differ. 2006;43:245-57.
- \*Fujii T, Takada-Takatori Y, Kawashima K: Roles played by lymphocyte function-associated antigen-1 in the regulation of lymphocytic cholinergic activity. Life Sci. 2007 May 30;80(24-25):2320-4.
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- \*Landis RC, Bennett RI, Hogg N.: A novel LFA-1 activation epitope maps to the I domain. J Cell Biol. 1993 Mar;120(6):1519-27.

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\*Landis RC, McDowall A, Holness CL, Littler AJ, Simmons DL, Hogg N.: Involvement of the "I" domain of LFA-1 in selective binding to ligands ICAM-1 and ICAM-3. J Cell Biol. 1994 Jul;126(2):529-37.

**Laboratory Reagent For Research Use Only.**

JV 07/14/08