CELL APPLICATIONS, INC.

Integrin beta-2/LFA-1beta Antibody

Cat. No. CG1286

Applications:	**WB, IHC**
Detected MW:	**29 kDa**
Species & Reactivity:	**Human**
Isotype:	**Rabbit IgG**

BACKGROUND

Lymphocyte function-associated antigen 1 (LFA-1, CD11a/CD18) is a cell adhesion molecule belonging to beta-2 integrin group with other two members Mac-1 (CD11b/CD18) and p150/CD18, which are herodimers with distinct alpha subunits of 150-180 kDa and same beta subunit of 95 kDa. It is expressed on T and B cells, granulocytes, and macrophages. LFA-1 adhesion is governed by its natural ligands including ICAM-1, 2, and 3, which are expressed on most leukocytes.[1] It was also found that the IgSF member junctional adhesion molecule 1 (JAM-1) is also a LFA-1 ligand.[2] LFA-1 participates in lymphocyte adhesion and activation, with prominent roles in the formation of the immunologic synapse and lymphocyte extravasation.[3] Patients with leukocyte adhesion deficiency (LAD) disorder, a syndrome in which the LFA-1 integrin is mutated or missing, suffer severe recurrent bacterial infections and impaired overall immunity.

Stimulation of LFA-1 with antibodies or purified ICAMs induces augmentation of T-cell antigen receptor (TCR)-directed T-cell responsiveness. LFA-1 was shown to be linked to the tyrosine kinase signaling pathway that stimulates tyrosine phosphorylation and activation of phospholipase C-r1 (PLC-r1). Integrin beta-2 chain (CD18) crosslinking independently induced downstream mobilization of intracellular Ca^{2+} and potently costimulated TCR-induced Ca^{2+} flux with an increase in both amplitude and kinetics. Moreover, it was also demonstrated that LFA-1 induced the activation of src family kinases, Vav1 and p44/42 mitogen-activated protein kinase (MAPK), in human $CD56^{+}$ NK cells. The LFA-1 signaling is directly linked to lymphocyte functional regulation.[4] In addition, signaling through the LFA-1 integrin may affect c-Jun-driven transcription by regulating JAB1 nuclear localization. Disassociation of JAB-1 from LFA-1 is induced by phosphorylation at Ser745 on LFA-1 and mediates LFA-1-dependent c-Jun activation and subsequent AP-1 activity.[5] After cell stimulation by phorbol ester or by CD3 ligation, the amino acids Thr758-Thr760 and Ser745 of LFA-1 become phosphorylated by PKC.

References:

1. Lub, M. et al: Immunol. Today 16:479-83, 1995
2. Ostermann, G. et al: Nature Immunol. 3:151-58, 2002
3. Kanner, S.B. et al: proc. Natl. Acad. Sci. USA 90:7099-7103, 1993
4. Perez, O.D. et al: Blood 104:1083-93, 2004
5. Bianchi, E. et al: Nature 404:617-21, 2000

TECHNICAL INFORMATION

Source:
Integrin-Beta-2 Antibody is a rabbit antibody raised against a short peptide from N-terminal sequence of human integrin beta-2.

Specificity and Sensitivity:
This antibody detects endogenous Integrin-beta-2 proteins without cross-reactivity with other family members.

Storage Buffer: Solution in phosphate-buffered saline, pH 7.2, containing 40% glycerol and 0.02% sodium azide

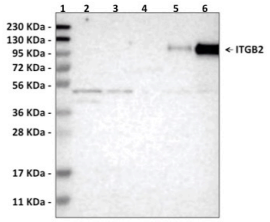
Storage:
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

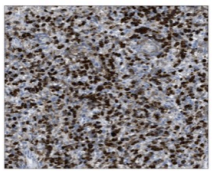
APPLICATIONS

Application:	*Dilution:
WB	1:100-!:250
IP	n/d
IHC	1:200-!:500
ICC	n/d
FACS	n/d

**Optimal dilutions must be determined by end user.*

QUALITY CONTROL DATA





Top: Lanes: 1.) Marker [kDa] 230, 130, 95, 72, 56, 36, 28, 17, 11 2.) Human cell line RT-4 3.) Human cell line U-251MG sp 4.) Human plasma (IgG/HSA depleted) 5.) Human liver tissue 6.) Human tonsil tissue
Bottom: Immunohistochemical staining of human spleen shows strong cytoplasmic positivity in cells in red pulp.