

BACKGROUND

VCAM-1 (vascular cell adhesion molecule-1), or CD106, is an immunoglobulin-like adhesion molecule. It contains six or seven immunoglobulin domains and is expressed on both large and small vessels only after the endothelial cells are stimulated by cytokines.¹ Moreover, VCAM-1 expression is induced on endothelial cells during inflammatory bowel disease, atherosclerosis, allograft rejection, infection, and asthmatic responses. Primarily, VCAM-1 is an endothelial ligand for VLA-4 (Very Late Antigen-1 or alpha4beta1) of the beta1 subfamily of integrins and for integrin alpha4beta7. VLA-4 is expressed on most leukocytes and plays an important role in leukocyte trafficking by interacting with VCAM-1 on endothelial cells to mediate tethering, rolling, firm adhesion and transendothelial migration. During these responses, VCAM-1 forms a scaffold for leukocyte migration. VCAM-1 also activates signals within endothelial cells resulting in the opening of an "endothelial cell gate" through which leukocytes migrate. Immediately following this migration, the endothelial cell-endothelial cell contact is re-established. VCAM-1 outside-in signals are mediated by NADPH oxidase production of reactive oxygen species and subsequently activation of matrix metalloproteinases. These signals are required for endothelial cell shape changes and leukocyte migration.² In addition, VCAM-1/VLA-4 interaction has also been implicated in the compartmentalization of B cells into peripheral lymphoid tissue, the association of neutrophils with bone marrow (BM) stromal cells, the promotion of interactions between follicular dendritic cells (FDC) and B cells, and in the formation of a docking structure that surrounds the B cell receptor (BCR) and TCR in the immunological synapse (IS) that forms between antigen presenting cells and antigen-specific B and T cells.² Interestingly, certain melanoma cells can use VCAM-1 to adhere to the endothelium, and VCAM-1 may participate in monocyte recruitment to atherosclerotic sites. As a result, VCAM-1 is a potential target drug target.³

References:

1. Chen, T.C.: et al.: J Neuroimmunol.:73 (1-2): 155-61, 1997.
2. Carter, R.A., I.P., Wicks: Arthritis Rheum.: 44(5): 985-94, 2001.

TECHNICAL INFORMATION

Source: Anti-VCAM-1 is a rabbit polyclonal antibody raised against a peptide mapping at the C-terminus of CD106 of human origin, identical to the related rat and mouse sequence.

Specificity and Sensitivity: Anti-VCAM-1 reacts specifically with VCAM-1 of human, rabbit, mouse & rat origin in Immunohistochemistry (membrane/cytoplasmic staining) and western blotting (110Kda band), non-cross-reactive with other adhesion molecules.

Storage Buffer: PBS and 30% glycerol

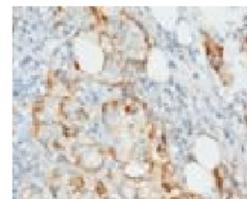
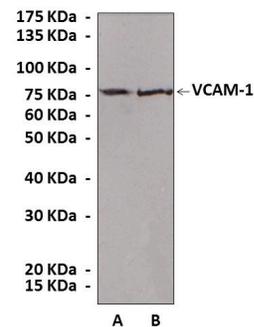
Storage: Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:500 – 1000
IP	n/d
IHC	1:50 – 200
ICC	n/d
FACS	n/d

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

QUALITY CONTROL DATA



Top: Detection of VCAM-1 proteins from HUVEC cell (A)(201p-25n) and human lymphatic endothelial cell (B)(100LK-25a) lysates in Western blot assay, using Anti-VCAM-1. **Bottom:** Immunohistochemical staining of paraffin-embedded human breast cancer tissue, using Anti-VCAM-1.

