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S1P1 Antibody

Catalog # ASC10770

Product Information

Application	WB, E, IHC-P
Primary Accession	P21453
Other Accession	NP_001391, 13027636
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	42811
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	S1P1 antibody can be used for detection of S1P1 by Western blot at 1 - 2 g/mL. Antibody can also be used for immunohistochemistry starting at 5 g/mL.

Additional Information

Gene ID	1901
Other Names	Sphingosine 1-phosphate receptor 1, S1P receptor 1, S1P1, Endothelial differentiation G-protein coupled receptor 1, Sphingosine 1-phosphate receptor Edg-1, S1P receptor Edg-1, CD363, S1PR1, CHEDG1, EDG1
Target/Specificity	S1PR1; At least two isoforms of S1P1 are known to exist; this S1P1 antibody will only recognize the shorter isoform.
Reconstitution & Storage	S1P1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	S1P1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	S1PR1
Synonyms	CHEDG1, EDG1
Function	G-protein coupled receptor for the bioactive lysosphingolipid sphingosine 1-phosphate (S1P) that seems to be coupled to the G(i) subclass of heteromeric G proteins. Signaling leads to the activation of RAC1, SRC, PTK2/FAK1 and MAP kinases. Plays an important role in cell migration, probably via its role in the reorganization of the actin cytoskeleton and the

	formation of lamellipodia in response to stimuli that increase the activity of the sphingosine kinase SPHK1. Required for normal chemotaxis toward sphingosine 1-phosphate. Required for normal embryonic heart development and normal cardiac morphogenesis. Plays an important role in the regulation of sprouting angiogenesis and vascular maturation. Inhibits sprouting angiogenesis to prevent excessive sprouting during blood vessel development. Required for normal egress of mature T-cells from the thymus into the blood stream and into peripheral lymphoid organs. Plays a role in the migration of osteoclast precursor cells, the regulation of bone mineralization and bone homeostasis (By similarity). Plays a role in responses to oxidized 1-palmitoyl-2-arachidonoyl-sn-glycero-3- phosphocholine by pulmonary endothelial cells and in the protection against ventilator-induced lung injury.
Cellular Location	Cell membrane; Multi-pass membrane protein. Endosome. Membrane raft. Note=Recruited to caveolin-enriched plasma membrane microdomains in response to oxidized 1-palmitoyl-2-arachidonoyl-sn-glycero-3-phosphocholine. Ligand binding leads to receptor internalization
Tissue Location	Endothelial cells, and to a lesser extent, in vascular smooth muscle cells, fibroblasts, melanocytes, and cells of epithelioid origin

Background

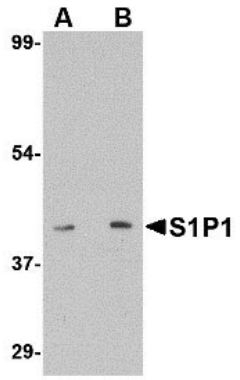
S1P1 Antibody: Movement of lymphocytes through lymphoid organs is required for generating immunity. Their migration into lymph nodes follows a series of events including integrin activation through chemokine signaling, adhesion and diapedis. The release of lymphocytes from lymph nodes is regulated by the phospholipid sphingosine-1-phosphate (S1P). One of its receptors S1P1 binds S1P with high specificity and affinity; agonism of this receptor by the immunosuppressive agent FTY720 inhibits the entry of tissue T cells into afferent lymphatics in homeostatic and inflammatory conditions. Recent experiments have indicated that CCR7-deficient T cells left lymph nodes more rapidly than wild-type cells did and these cells where also less effectively retained after treatment with FTY720, and that egress competence could be restored by inactivating G alpha i-protein-coupled receptor signaling. These results suggest that S1P1 acts in the lymphocyte to promote lymph node egress by overcoming retention signals mediated by CCR7 and G alpha i-protein-coupled receptor signaling.

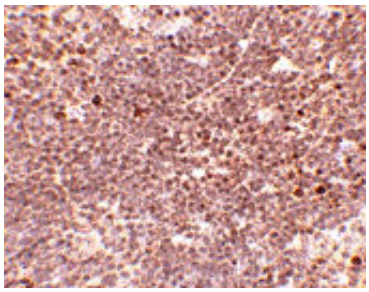
References

Miyasaka M and Tanaka T. Lymphocyte tracking across high endothelial venules: dogmas and enigmas. Nat. Rev. Immunol.2004; 3:360-70.
Mandala S, Hajdu R, Bergstrom J, et al. Alteration of lymphocyte tracking by sphingosine-1-phosphate receptor agonists. Science 2002; 296:346-9.
Ledgerwood LG, Lal G, Zhang N, et al. The sphingosine-1-phosphate receptor 1 causes tissue retention by inhibiting the entry of peripheral tissue T lymphocytes into afferent lymphatics. Nat. Immunol. 2008; 9:42-53.
Pham TH, Okada T, Matloubian M, et al. S1P1 receptor signaling overrides retention mediated by G alpha i-coupled receptors to promote T cell egress. Immunity 2008; 28:122-33.

Images

Western blot analysis of S1P1 in mouse thymus lysate with S1P1 antibody at (A) 1 and (B) 2 µg/mL.





Immunohistochemistry of S1P1 in mouse thymus tissue with S1P1 antibody at 5 µg/mL.