Revision 4

Store at -20C

#53108

Semaphorin-4D/CD100 (E5C3B) XP® Rabbit mAb

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP, IHC-Bond, IHC-P	H M	Endogenous	140	Rabbit IgG	#Q92854	10507

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50
IHC Leica Bond	1:200
Immunohistochemistry (Paraffin)	1:400

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

For a carrier free (BSA and azide free) version of this product see product #61515.

Specificity/Sensitivity

Semaphorin-4D/CD100 (E5C3B) XP® Rabbit mAb recognizes endogenous levels of total Semaphorin-4D/CD100 protein. This antibody also recognizes a 25 kDa Semaphorin-4D/CD100 cleavage fragment containing the carboxy terminus.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Gly814 of human Semaphorin-4D/CD100 protein.

Background

Semaphorin-4D/CD100 (Sema4D) is a disulfide-linked homodimeric type 1 transmembrane glycoprotein belonging to the class IV family of membrane bound semaphorins. The extracellular domain of Sema4D contains a cysteine-rich semaphorin-like domain, an Ig-like domain, and a PSI domain (1). Research studies have suggested that the cytoplasmic domain has a signaling function as it is phosphorylated on serine residues (2). Initial studies involving Sema4D revealed that it was implicated in axon guidance within the central nervous system through binding its high affinity receptor, plexin-B1 (3). Sema4D function has also been extensively characterized in the immune system and is the first semaphorin found to be expressed on the surface of many types of immune cells (4-6). In the immune system, CD72 serves as a low-affinity receptor for Sema4D (7) and research studies have shown that Sema4D not only regulates T-cell activation (8,9) but is also involved in the regulation of B-cell survival and differentiation (5). Many of the physiologic effects of Sema4D in the immune system are regulated by a soluble extracellular domain-containing fragment generated through proteolytic cleavage (10).

Sema4D has also been implicated in oncogenesis as research studies have demonstrated overexpression in multiple types of solid tumors (11,12). The role of Sema4D in oncogenesis, in part, has been linked to its ability to promote tumor angiogenesis (13), cell invasion (14), and immunosuppression through enhancement of myeloid derived suppressor cell function (15).

Background References

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13. Basile, J.R. et al. (2006) *Proc Natl Acad Sci U S A* 103, 9017-22.
14. Kato, S. et al. (2011) *Cancer Sci* 102, 2029-37.
15. Younis, R.H. et al. (2016) *J Immunol* 196, 1419-29.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation **IHC-Bond:** IHC Leica Bond **IHC-P:** Immunohistochemistry (Paraffin)

Cross-Reactivity Key

H: Human **M:** Mouse

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Limited Uses