SANTA CRUZ BIOTECHNOLOGY, INC.

F4/80 (3C137): sc-71086

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The epidermal growth factor (EGF)-TM7 family constitutes a group of class B G protein-coupled receptors, which includes CD97, EMR1(EGF-like molecule containing mucin-like hormone receptor 1, designated F4/80 in mouse), EMR2, EMR3, FIRE and ETL. These family members are characterized by an extended extracellular region with several N-terminal EGF domains, and are predominantly expressed on cells of the immune system. The EGF-TM7 protein family are encoded by a gene cluster on human chromosome 19p13. The F4/80 molecule is solely expressed on the surface of macrophages and serves as a marker for mature macrophage tissues, including Kupffer cells in liver, splenic red pulp macrophages, brain microglia, gut lamina propria and Langerhans cells in the skin. It is detected as 160 kDa protein that undergoes extensive N-linked glycosylation as well as some O-linked glycosylation. The function of F4/80/EMR1 is unclear, but it is speculated to be involved in macrophage adhesion events, cell migration or as a G protein-coupled signaling component of macrophages.

REFERENCES

1. Baud, V., Chissoe, S.L., Viegas-Pequignot, E., Diriong, S., N'Guyen, V.C., Roe, B.A. and Lipinski, M. 1995. EMR1, an unusual member in the family of hormone receptors with seven transmembrane segments. Genomics 26: 334-344.
2. Haidl, I.D. and Jefferies, W.A. 1996. The macrophage cell surface glycoprotein F4/80 is a highly glycosylated proteoglycan. Eur. J. Immunol. 26: 1139-1146.
3. Mander, T.H. and Morris, J.F. 1996. Development of microglia and macrophages in the postnatal rat pituitary. Cell Tissue Res. 286: 347-355.
4. McKnight, A.J., Macfarlane, A.J., Seldin, M.F. and Gordon, S. 1998. Chromosome mapping of the EMR1 gene. Mamm. Genome 8: 946.
5. Carver, E.A., Hamann, J., Olsen, A.S. and Stubbs, L. 2000. Physical mapping of EMR1 and CD97 in human chromosome 19 and assignment of Cd97 to mouse chromosome 8 suggest an ancient genomic duplication. Mamm. Genome 10: 1039-1040.
6. Lin, H.H., Stacey, M., Hamann, J., Gordon, S. and McKnight, A.J. 2000. Human EMR2, a novel EGF-TM7 molecule on chromosome 19p13.1, is closely related to CD97. Genomics 67: 188-200.
7. Kwakkenbos, M.J., Chang, G.W., Lin, H.H., Pouwels, W., de Jong, E.C., van Lier, R.A., Gordon, S. and Hamann, J. 2002. The human EGF-TM7 family member EMR2 is a heterodimeric receptor expressed on myeloid cells. J. Leukoc. Biol. 71: 854-862.
8. Schaller, E., Macfarlane, A.J., Rupec, R.A., Gordon, S., McKnight, A.J. and Pfeffer, K. 2002. Inactivation of the F4/80 glycoprotein in the mouse germ line. Mol. Cell. Biol. 22: 8035-8043.
9. O'Reilly, D., Addley, M., Quinn, C., MacFarlane, A.J., Gordon, S., McKnight, A.J. and Greaves, D.R. 2004. Functional analysis of the murine EMR1 promoter identifies a novel purine-rich regulatory motif required for high-level gene expression in macrophages. Genomics 84: 1030-1040.

CHROMOSOMAL LOCATION

Genetic locus: Emr1 (mouse) mapping to 17 D.

SOURCE

F4/80 (3C137) is a rat monoclonal antibody raised against thioglycollate stimulated peritoneal macrophages of mouse origin.

PRODUCT

Each vial contains 100 µg IgG_{2b} in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

F4/80 (3C137) is recommended for detection of F4/80 of mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

Suitable for use as control antibody for F4/80 siRNA (m): sc-42865, F4/80 shRNA Plasmid (m): sc-42865-SH and F4/80 shRNA (m) Lentiviral Particles: sc-42865-V.

Molecular Weight of F4/80: 160 kDa.

Positive Controls: WEHI-3 cell lysate: sc-3815 or M1 whole cell lysate: sc-364782.

SELECT PRODUCT CITATIONS

1. Li, C., Liu, B., Dai, Z. and Tao, Y. 2011. Knockdown of VEGF receptor-1 (VEGFR-1) impairs macrophage infiltration, angiogenesis and growth of clear cell renal cell carcinoma (CRCC). Cancer Biol. Ther. 12: 872-880.
2. Wang, ZW., Wang, J.J., Zhang, J.Z., Xue, Z.J., Miao, J., Li, L. and Hu, W.X. 2017. Thrombolysis of deep vein thrombosis and inhibiting chemotaxis of macrophage by MCP-1 blockage. Eur. Rev. Med. Pharmacol. Sci. 21: 1695-1701.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

CONJUGATES

See **F4/80 (C-7): sc-377009** for F4/80 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.