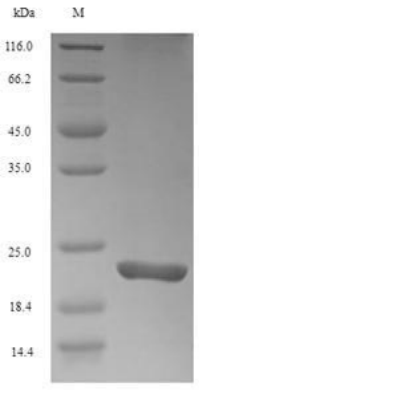
Recombinant Mouse Triggering receptor expressed on myeloid cells 2 (Trem2), partial

Product Code	CSB-EP024405MO
Relevance	May have a role in chronic inflammations and may stimulate production of constitutive rather than inflammatory chemokines and cytokines. Forms a receptor signaling complex with TYROBP and triggers activation of the immune responses in macrophages and dendritic cells.
Abbreviation	Recombinant Mouse Trem2 protein, partial
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	Q99NH8
Alias	Short name: TREM-2 Alternative name(s): Triggering receptor expressed on monocytes 2
Product Type	Recombinant Protein
Immunogen Species	Mus musculus (Mouse)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	LNTTVLQGMAGQSLRVSCTYDALKHWGRRKAWCRQLGEEGPCQRVVSTHG VWLLAFLKKRNGSTVIADDTLAGTVTITLKNLQAGDAGLYQCQSLRGREAEVL QKVLVEVLEDPLDDQDAGDLWVPEESSSFEGAQVEHSTSRNQETSFPPTS
Research Area	Immunology
Source	E.coli
Target Names	Trem2
Expression Region	19-171aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	20.8kDa
Protein Length	Extracellular Domain
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

The recombinant mouse TREM2 protein with an N-terminal 6xHis-tag is produced in E. coli. The extracellular domain of the TREM2 encoding gene (19-171aa), fused with the His-tag sequence, is cloned into an expression vector and transformed into the E. coli cells. The positive E. coli cells are selected and cultured for protein expression. After that, these cells undergo lysis, releasing the expressed TREM2 protein. The 6xHis-tagged recombinant TREM2 protein is purified using nickel affinity chromatography. SDS-PAGE assesses its purity, exceeding 90%.

The TREM2 protein is a membrane glycoprotein primarily found on microglia in the brain. TREM2 plays a crucial role in modulating microglial function, including phagocytosis of apoptotic neurons and the clearance of amyloid plaques in conditions like Alzheimer's disease [1]. Studies have shown that alterations in TREM2 expression, such as the Trem2 R47H variant, can lead to changes in microglial function and pathology, impacting processes like microgliosis and clustering around amyloid plaques [2][3]. Additionally, TREM2 deficiency has been linked to exacerbated neuroinflammation and impaired synaptic function in mouse models [4][5].

Research has also highlighted the importance of TREM2 in maintaining neuronal health, as Trem2 depletion in microglia can lead to low phagocytic activity and impaired clearance of apoptotic neurons [5]. Conversely, elevated levels of TREM2 have been shown to inhibit inflammatory responses and promote neuronal survival [5]. Furthermore, TREM2 mutations, such as the Y38C mutation, have been associated with impaired neuronal synapses in adult mice [6].

References:
[1] J. Satoh, H. Tabunoki, T. Ishida, S. Yagishita, K. Jinnai, N. Futamuraet al., Immunohistochemical characterization of microglia in nasu?hakola disease brains, Neuropathology, vol. 31, no. 4, p. 363-375, 2010. https://doi.org/10.1111/j.1440-1789.2010.01174.x
[2] P. Cheng-Hathaway, E. Reed-Geaghan, T. Jay, B. Casali, S. Bemiller, S. Puntambekaret al., The trem2 r47h variant confers loss-of-function-like phenotypes in alzheimer’s disease, Molecular Neurodegeneration, vol. 13, no. 1, 2018. https://doi.org/10.1186/s13024-018-0262-8
[3] X. Xiang, T. Piers, B. Wefers, K. Zhu, A. Mallach, B. Brunneret al., The trem2 r47h alzheimer’s risk variant impairs splicing and reduces trem2 mrna and

protein in mice but not in humans, Molecular Neurodegeneration, vol. 13, no. 1, 2018. https://doi.org/10.1186/s13024-018-0280-6
[4] H. Shin, Z. Jin, H. An, K. Park, J. Lee, S. Leeet al., Lipocalin-2 deficiency reduces hepatic and hippocampal triggering receptor expressed on myeloid cells-2 expressions in high-fat diet/streptozotocin-induced diabetic mice, Brain Sciences, vol. 12, no. 7, p. 878, 2022. https://doi.org/10.3390/brainsci12070878
[5] A. Liu, M. Chu, & Y. Wang, Up-regulation of trem2 inhibits hippocampal neuronal apoptosis and alleviates oxidative stress in epilepsy via the pi3k/akt pathway in mice, Neuroscience Bulletin, vol. 35, no. 3, p. 471-485, 2019. https://doi.org/10.1007/s12264-018-0324-5
[6] V. Jadhav, P. Lin, T. Pennington, G. Prisco, A. Jannu, G. Xuet al., Trem2 y38c mutation and loss of trem2 impairs neuronal synapses in adult mice,, 2020. https://doi.org/10.21203/rs.3.rs-33900/v2

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

Shelf Life

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