# Recombinant Mouse Semaphorin-4D (Sema4d), partial (Active)

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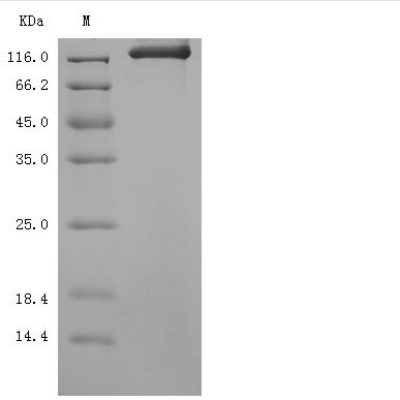
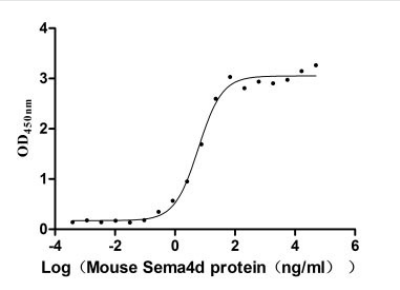
| **Product Code** | CSB-MP020990MO |
| **Abbreviation** | Recombinant Mouse Sema4d protein, partial (Active) |
| **Storage** | The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid 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.** | O09126 |
| **Form** | Lyophilized powder |
| **Storage Buffer** | Lyophilized from a 0.2 μm filtered PBS, 6% Trehalose, pH 7.4 |
| **Product Type** | Recombinant Protein |
| **Immunogen Species** | Mus musculus (Mouse) |
| **Biological Activity** | Measured by its binding ability in a functional ELISA. Immobilized Pepinemab at 2 μg/ml can bind Mouse Sema4d, the $EC_{50}$ is 4.878-7.446 ng/ml. |
| **Purity** | Greater than 95% as determined by SDS-PAGE. |
| **Sequence** | FAPVPRLTWEHGEVGLVQFHKPGIFNYSALLMSEDKDTLYVGAREAVFAVNAL NISEKQHEVYWKVSEDKKSKCAEKGKSKQTECLNYIRVLQPLSSTSLYVCGTN AFQPTCDHLNLTSFKFLGKSEDGKGRCPFDPAHSYTSVMVGGELYSGTSYNF LGSEPIISRNSSHSPLRTEYAIPWLNEPSFVFADVIQKSPDGPEGEDDKVYFFF TEVSVEYEFVFKLMIPRVARVCKGDQGGLRTLQKKWTSFLKARLICSKPDSGL VFNILQDVFVLRAPGLKEPVFYAVFTPQLNNVGLSAVCAYTLATVEAVFSRGKY MQSATVEQSHTKWVRYNGPVPTPRPGACIDSEARAANYTSSLNLPDKTLQFV KDHPLMDDSVTPIDNRPKLIKKDVNYTQIVVDRTQALDGTFYDVMFISTDRGAL HKAVILTKEVHVIEETQLFRDSEPVLTLLLSSKKGRKFVYAGSNSGVVQAPLAF CEKHGSCEDCVLARDPYCAWSPAIKACVTLHQEEASSRGWIQDMSGDTSSCL DKSKESFNQHFFKHGGTAELKCFQKSNLARVVWKFQNGELKAASPKYGFVG RKHLLIFNLSDGDSGVYQCLSEERVRNKTVSQLLAKHVLEVKMVPRTPPSPTS EDAQTEGSKITSKMPVASTQGSSPPTPALWATSPRAATLPPKSSSGTSCEPK MVINTVPQLHSEKTVYLKSSDNR |
| **Research Area** | Immunology |
| **Source** | Mammalian cell |
| **Target Names** | Sema4d |
| **Expression Region** | 24-733aa |
| **Notes** | Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week. |
| **Tag Info** | C-terminal mFc-tagged |
| **Mol. Weight** | 108.1 kDa |

**Protein Length** Partial

**Image**




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




Activity
Measured by its binding ability in a functional ELISA. Immobilized Pepinemab at 2 μg/ml can bind Mouse Sema4d, the $EC_{50}$ is 4.878-7.446 ng/ml.

**Description**

The recombinant mouse semaphorin-4D (Sema4d) production involves gene cloning, plasmid preparation, protein expression, purification, and analysis. Primers are designed to amplify the gene encoding the 24-733 amino acid (aa) region of the mouse Sema4d protein, which is then cloned into a plasmid alongside the C-terminal mFc-tag gene. The recombinant plasmid is transfected into mammalian cells using a transfection reagent, and 24 hours later, a selective antibiotic is introduced to identify cells expressing the Sema4d protein. The cells are lysed to release the TNFSF15 protein, which is purified from the culture supernatant via affinity chromatography. SDS-PAGE confirms the recombinant Sema4d protein purity exceeds 95%. The endotoxin levels of the Sema4d protein are below 1.0 EU/μg, as measured by the LAL method. Functional ELISA demonstrates Pepinemab binding to the mouse Sema4d protein, with an $EC_{50}$ ranging from 4.878 to 7.446 ng/mL.

Mouse Sema4D, also known as CD100, is a member of the semaphorin family of proteins, which are primarily recognized for their roles in axon guidance during neuronal development. Sema4D is expressed in various tissues, including the brain, heart, and immune cells [1][2][3]. It is mainly involved in the immune regulation, neurodevelopment, and angiogenesis.

Sema4D interacts with its receptor, Plexin-B1, which mediates several signaling pathways that influence cell migration, adhesion, and survival [4][5]. The binding of Sema4D to Plexin-B1 has been shown to activate intracellular signaling cascades, including the PI3K pathway, which is crucial for endothelial cell migration and angiogenesis [4][6]. This pro-angiogenic effect is particularly significant in the context of tumor biology, where Sema4D has been implicated

in promoting tumor growth and metastasis through its effects on the vascular system [7][8].

Sema4D plays a role in neuronal axonal guidance and synaptic formation. It also regulates neuron-glial cell interactions. Sema4D has been identified as a key player in modulating T-cell responses and has been shown to influence the maturation of dendritic cells [9][10]. The immunoregulatory functions of Sema4D are particularly relevant in the context of autoimmune diseases, where its expression can affect the activation and differentiation of immune cells [11][12]. Studies have demonstrated that Sema4D-deficient mice exhibit resistance to experimental autoimmune encephalomyelitis, highlighting its role in T-cell-mediated immune responses [11].

References:

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| **Endotoxin** | Less than 1.0 EU/ug as determined by LAL method. |
| **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** | The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.<br>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. |