

Technical Information

sSEMA4D soluble Semaphorin 4D

CE

Cat. No.: BI-20405
Tests: 96
Method: **ELISA**
Range: 0 – 2,000 pmol/l
LLOQ: 31 pmol/l (STD2 62.5 pmol/l)
Incubation time: 4.5 hours
Sample volume: 10 µl
Sample type: Plasma
Sample preparation: Centrifuge freshly collected blood as soon as possible
Store centrifuged samples at -20°C for longer storage.
Samples are stable up to 4 freeze and thaw cycles.
Hemolyzed or lipemic samples may cause erroneous results.

Reference values: Median EDTA plasma (n=44): 245 pmol/l
Median citrate plasma (n=43): 192 pmol/l
Median heparin plasma (n=28): 201 pmol/l

Species: Human

Intended use:

Semaphorin 4D (SEMA4D or CD100) is a member of a family of transmembrane and secreted proteins that regulates key cellular functions and is involved in cell-cell communication (1-3). Most of the effects of SEMA4D is mediated by plexins (4, 5). SEMA4D participates in numerous physiological processes such as axon guidance, immune regulation, angiogenesis, tumor progression, and bone metabolism (6-9). Cleavage of SEMA4D near the cell membrane through matrix metalloproteinases leads to the biologically active soluble SEMA4D with a molecular weight of 120 kD consisting of 713 amino acids (3, 5, 10). SEMA4D has emerged to a novel therapeutic target in cancer and in bone diseases (11, 12). Semaphorin 4D is widely studied for its role in neural connectivity, vascularization, cell migration, the immune response, tumor progression, and bone remodeling. This sSEMA4D ELISA utilizes two monoclonal anti-human Semaphorin 4D antibodies, both recognizing conformational epitopes on Semaphorin 4D. The epitopes have been mapped by overlapping cyclic peptides and shown to involve amino acids AA30-AA34 and amino acids AA238-AA241, respectively (for further information on antibody characterization please visit our website www.bmgrp.com: see Validation Data)

Intended applications:

- Osteology
- Neurology
- Immunology
- Oncology

Literature:

1. Semaphorins command cells to move. Kruger RP et al., Nature Rev Mol Cell Biol, 2005; 6:789-800.
2. The semaphorins. Yazdani U and Terman JR, Genome Biol, 2006; 7(3): 211.
3. Biology and function of neuroimmune semaphorins 4A and 4D. Nkyimbeng-Takwi EH and Chapoval SP, Immunol Res, 2011; 50 (1):10-21.
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5. Semaphorins and their receptors in immune cell interactions. Suzuki K et al., Nature Immunology, 2007; 9:17-23.
6. Sema4D induces angiogenesis through Met recruitment by Plexin B1. Conrotto P et al., Blood, 2005; 105:4321-4329.
7. Diverse roles for semaphorin-plexin signaling in the immune system. Takamatsu H et al., Trends Immunol, 2012; 33(3):127-135.
8. Bone cell communication factors and Semaphorins. Negishi-Koga T and Takayanagi H, Bonekey Rep, 2012; 1:183.
9. Suppression of bone formation by osteoclastic expression of semaphorin 4D. Negishi-Koga T et al., Nat Med, 2011; 17(11):1473-1480.
10. Soluble SEMA4D/CD100: A novel immunoregulator in infectious and inflammatory diseases. Maleki KT et al., Clinical Immunology, 2016; 163:52-59.
11. Anabolic bone formation via a site specific bone targeting delivery system by interfering with semaphorin 4D expression. Zhang Y et al., J Bone Miner Res, 2015; 30(2): 286-296.
12. Generation and preclinical characterization of an antibody specific for SEMA4D. Fisher TL et al., Mabs, 2016; 8(1):150-162.
13. Coagulation-induced elevated sSEMA 4D concentrations in human serum versus plasma measured by sandwich ELISA. Laber et al., 2018; submitted.

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