

KO401 Semaphorin (Anti Mouse Semaphorin 4A Monoclonal Antibody (Clone No. HIAT-2) )			
Primary Source	-	Gene ID	20351
Type	Monoclonal	Keyword	
Immunogen	Peptide of mouse Sema4A extracellular domain	SemB; Semab; AI132332; Sema4a	
Raised in	Sema4A deficient mouse	sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4A	
Myeloma	P3U1		
Clone number	HIAT-2		
Isotype	IgG1k	Application	
Source	Serum-free medium	WB	Not tested
Purification notes	ProteinG	IHC	Not tested
Cross Reactivity	Human	ICC	Not tested
Concentration	0.25 mg/mL	ELISA	1.0-10 µg/mL
Contents (Volume)	25 µg (100 µL/vial)	FCM	50 ng/mL
Label	Unlabeled	Neutralization	Not tested
Buffer	PBS [containing 2 % Block Ace as a stabilizer, 0.1 %Proclin as a bacteriostat]	IP	5.0 µg/mL
Storage	Store below -20 °C. Once thawed, store at 4 °C. Repeated freeze-thaw cycles should be avoided.		

#### Note

Semaphorins are a family of phylogenetically conserved soluble and transmembrane proteins. Semaphorins were originally identified as axon guidance factors during neuronal development. Semaphorins are now known to be widely expressed mediators that play significant roles in immune responses and organ morphogenesis.

The class IV semaphoring subfamily member, Sema4A was identified originally as a semaphorin expressed in developing embryos, and Sema4A transcript levels increase gradually throughout embryonic development. Sema4A is expressed in the brain, lung, kidney, testis, and spleen of adults. In the immune system, Sema4A is preferentially expressed by bone marrow-derived and splenic dendritic cells (DCs), but not by resting T cells. Expression of Sema4A also becomes detectable on the cell surface of T cells following activation.

Sema4A regulates T-cell-mediated immune responses by interacting with its receptor Tim-2, which is expressed on TH2 cells as a negative regulator. Sema4A expression is specifically induced on the cell surface of TH1 cells during helper T-cell differentiation. T-cell derived Sema4A is necessary for regulating T-cell differentiation. Sema4A expressed on endothelial cells, directly binds to Plexin-D1 and negatively regulates VEGF-dependent vascular formation.

It is also suggested that Sema4A is critically involved in the development of myocarditis and dilated cardiomyopathy.

セマフォリン分子群は系統学的に保存された可溶性及び膜貫通型の分子群で、従来神経ガイダンス因子として知られてきました。現在では、セマフォリンは器官形成・血管新生や免疫系で重要な役割を果たしていることが明らかとなっています。

Sema4A は、class IV セマフォリンに属し、発生過程の胎児から同定されました。Sema4A は成体において、脳、肺、腎臓、精巣、脾臓に発現し、免疫系では、主に樹状細胞に高発現しています。Sema4A は休止期の T 細胞には発現が認められませんが、T 細胞の活性化に伴い発現が確認されます。

Sema4A は、T 細胞に存在する受容体 Tim-2 に結合することで、T 細胞の免疫応答を調節しています。Sema4A の発現は、Th1 型のヘルパーT 細胞に分化するとTh1 細胞特異的にT細胞にも誘導されてきます。血管内皮細胞で発現するSema4Aは、Plexin-D1に結合し、VEGF依存性血管形成を阻害します。また、Sema4A は、心筋炎及び拡張型心筋症の発症にも重要な役割を果たしていることが示唆されています。

#### Reference

- 1 Kumanogoh A., et al.: The delta-opioid receptor: isolation of a cDNA by expression cloning and pharmacological characterization.

Nature  
2002 Oct 10;419(6907):629-33.

#### WARNING AND PRECAUTION

1. Not for diagnostic use. The safety and efficacy of product in diagnostic or other clinical uses has not been established.
2. Harmful by inhalation, in contact with skin and if swallowed. Do not breathe dust. Avoid contact with skin and eyes.
3. If contact with skin and eyes, wash all affected areas with large volume of water. If inhaled remove to fresh air. In severe case obtain medical attention.
4. Wash hand thoroughly after handling the product.
5. Do not use this product if container is broken or some contaminants are detected.
6. When preserving the product, Close the container, ensure it does not fall aside or down.
7. Dispose of the container and expired reagents in accordance with federal, state and local government regulations.
8. Do not use the container and accessories of the product for other purpose.

#### 取り扱い上の注意

この添付文書をよく読んでから使用して下さい。

1. 本品は研究用試薬であり、医薬品その他の目的にはご使用になれません。
2. 取り扱い中は皮膚、粘膜、着衣に触れたり、目に入らないように適切な措置を行って下さい。
3. 試薬が誤って目や口に入った場合には、水で十分に洗い流すなどの応急処置を行い、必要があれば医師の手当を受けて下さい。
4. 取り扱い後には手洗いを十分に行って下さい。
5. 容器の破損、異物混入等異常が認められた物は使用しないで下さい。
6. 試薬を保管する場合は、蓋をし、転倒落下防止を確実にし、指定の貯蔵方法で保管して下さい。
7. 使用後の容器は、廃棄物に関する規定に従って処理して下さい。
8. 容器、付属品等の他目的への転用は保証できません。