

# SEMA3A (A-12): sc-74554

## BACKGROUND

Semaphorins (SEMA) comprise a family of cell surface and secreted proteins that are conserved from insects to humans. Members of this family of proteins are approximately 750 amino acids in length (including signal sequences) and are defined by a conserved extracellular "Semaphorin" domain of approximately 500 amino acids containing 14-16 cysteines, many blocks of conserved sequences and no obvious repeats. Secreted and cell-bound Semaphorins are known to chemically attract and repel the growth of neural axons, guiding the development of intricate networks of neural tissue. In addition to their role in axonal guidance, Semaphorins have also been associated with the progression of cancer. Many Semaphorins bind to the receptors neuropilin and neuropilin-2, thus competing with VEGF for this interaction, which ultimately results in the suppression of angiogenesis. The loss of functional Semaphorins to compete with VEGF may play an important role in tumor progression.

## CHROMOSOMAL LOCATION

Genetic locus: SEMA3A (human) mapping to 7q21.11; Sema3a (mouse) mapping to 5 A1.

## SOURCE

SEMA3A (A-12) is a mouse monoclonal antibody raised against amino acids 103-402 of SEMA3A of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SEMA3A (A-12) is available conjugated to agarose (sc-74554 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74554 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74554 PE), fluorescein (sc-74554 FITC), Alexa Fluor® 488 (sc-74554 AF488), Alexa Fluor® 546 (sc-74554 AF546), Alexa Fluor® 594 (sc-74554 AF594) or Alexa Fluor® 647 (sc-74554 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-74554 AF680) or Alexa Fluor® 790 (sc-74554 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

SEMA3A (A-12) is recommended for detection of SEMA3A of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SEMA3A siRNA (h): sc-36470, SEMA3A siRNA (m): sc-36471, SEMA3A shRNA Plasmid (h): sc-36470-SH, SEMA3A shRNA Plasmid (m): sc-36471-SH, SEMA3A shRNA (h) Lentiviral Particles: sc-36470-V and SEMA3A shRNA (m) Lentiviral Particles: sc-36471-V.

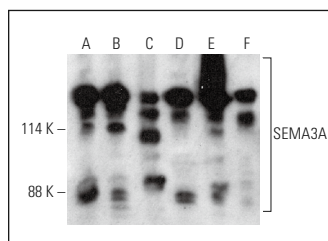
Molecular Weight of SEMA family members: 80-140 kDa.

Positive Controls: T98G cell lysate: sc-2294, H4 cell lysate: sc-2408 or IMR-32 cell lysate: sc-2409.

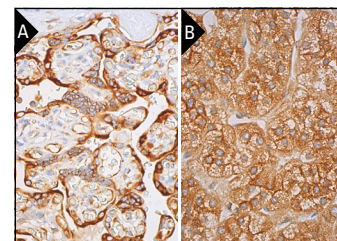
## STORAGE

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

## DATA



SEMA3A (A-12) HRP: sc-74554 HRP. Direct western blot analysis of SEMA3A expression in T98G (A), H4 (B), SK-N-MC (C), MIA PaCa-2 (D), IMR-32 (E) and F9 (F) whole cell lysates.



SEMA3A (A-12) HRP: sc-74554 HRP. Direct immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta (A) and human adrenal gland (B) tissue showing cytoplasmic staining of trophoblastic cells. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214.

## SELECT PRODUCT CITATIONS

- Kim, J.Y., et al. 2020. A kinome-wide screen identifies a CDKL5-SOX9 regulatory axis in epithelial cell death and kidney injury. *Nat. Commun.* 11: 1924.
- Ogura, Y., et al. 2020. Ketogenic diet feeding improves aerobic metabolism property in extensor digitorum longus muscle of sedentary male rats. *PLoS ONE* 15: e0241382.
- Nadanaka, S., et al. 2020. Reconsideration of the Semaphorin-3A binding motif found in chondroitin sulfate using Galnac4s-6st-knockout mice. *Biomolecules* 10: 1499.
- Yang, Y., et al. 2021. Semaphorin 4A antibody alleviates arsenic-induced hepatotoxicity in mice via inhibition of AKT2/NFκB inflammatory signaling. *Toxicol. Appl. Pharmacol.* 410: 115364.
- Barlak, N., et al. 2021. MicroRNA-145 transcriptionally regulates Semaphorin 3A expression in prostate cancer cells. *Cell Biol. Int.* 45: 1082-1090.
- Cantu-Guerra, H.L., et al. 2023. Cochlear hair cell innervation is dependent on a modulatory function of Semaphorin-3A. *Dev. Dyn.* 252: 124-144.
- Kim, S.J., et al. 2023. Axon guidance gene-targeted siRNA delivery system improves neural stem cell transplantation therapy after spinal cord injury. *Biomater. Res.* 27: 101.
- Kurt, S., et al. 2025. Inhibition of RIPK1-driven necroptosis ameliorates inflammatory hyperalgesia caused by lipopolysaccharide: involvement of TLR-, NLRP3-, and caspase-11-mediated signaling pathways. *Cell. Mol. Biol.* 70: 52-58.

## RESEARCH USE

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

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