# Semaphorin 3A, Human Recombinant

**CATALOG #:** 7201-10 10 µg
7201-50 50 µg

**ALTERNATE NAMES:** SEMA3A, SEMAD

**SOURCE:** CHO cells

**PURITY:** ≥ 95% by SDS-PAGE gel and HPLC analyses

**MOL. WEIGHT:** 226.2 kDa.

**ENDOTOXIN LEVEL:** < 0.1 ng/µg of protein (<1EU/µg).

**FORM:** Lyophilized

**FORMULATION:** Sterile filtered through a 0.2 micron filter. Lyophilized from 10mM Tris, pH 8.8 and 100mM NaCl

**STORAGE CONDITIONS:** Store at -20°C. After reconstitution, aliquot and store at -20°C to -80°C. Avoid repeated freezing and thawing cycles.

**RECONSTITUTION:**
Initially reconstitute in 20mM Tris, pH 8.5 to 0.1-0.25 mg/ml. **Note:** Allow the reconstituted vial to sit at room temperature for 2 hour before use. This solution can be stored at 2-8°C for up to 1 week. For extended storage, it is recommended to further dilute in a buffer containing a carrier protein (example 0.1% BSA) and store in working aliquots at -20°C to -80°C.

**DESCRIPTION**:
Semaphorins are a large group of structurally related secreted, GPI-anchored and transmembrane cell signaling molecules. There are 8 major classifications (1-7) of Semaphorins characterized by the existence of a conserved 500 amino acid SEMA domain at the amino terminus. Classes 3, 4, 6, and 7 are found in vertebrates only, whilst class 5 is found in both vertebrates and invertebrates. Each class is then divided into additional subgroups based on shared structural characteristics. Semaphorins primarily function as axon growth cone guidance factors during neuronal development. Semaphorin 3A acts as a chemo-repellent to axons, and an inhibitor of the growth of axons by signaling through receptors, Neuropilin-1and Plexin-A. Recombinant human Semaphorin 3A is glycosylated, disulfide-linked homodimer of 1,976 amino acid residues, which includes the SEMA domain, immunoglobulin c2-like domain, and the C-terminal basic Arg/Lys-rich domain of the mature sequence, as well as an 8-residue N-terminal His-tag and a 230-residue C-terminal Fc region linked by two glycines. Recombinant Human Semaphorin 3A Fc has a calculated molecular weight of 226.2 kDa and therefore runs above the 200 kDa marker by SDS-PAGE analysis under nonreducing conditions. When run under reducing conditions, this protein migrates as three distinct bands that, due to glycosylation, run higher than expected at apparent molecular weights of approximately 120-130 kDa, 90-100 kDa, and 35-40 kDa.

**BIOLOGICAL ACTIVITY:**
Determined by its ability to bind recombinant rat Neuropilin-1 Fc Chimera in a functional ELISA assay.

**AMINO ACID SEQUENCE:**
HHHHHHHHGK NNVPRLKLSY KEMLESNNVI TFNGLANSSS YHTFLLDEER
SRLYVGAKDH IFSFDLVNIK DFQKIVWPVS YTRRDECKWA GKDILKECAN
FIKVLKAYNQ THLYACGTGA FHPICTYIEI GHHPEDNIFK LENSHFENGR
GKSPYDPKLL TASLLIDGEL YSGTAADFMG RDFAIFRTLG HHHPIRTEQH
DSRWLNDPKF ISAHLISESD NPEDDKVYFF FRENAIDGEH SGKATHARIG
QICKNDFGGH RSLVNKWTTF LKARLICSVP GPNGIDTHFD ELQDVFLMNF
KDPKNPVVYG VFTTSSNIFK GSAVCMYSMS DVRRVFLGPY AHRDGPNYQW
VPYQGRVPYP RPGTCPSKTF GGFDSTKDLP DDVITFARSH PAMYNPVFPM
NNRPIVIKTD VNYQFTQIVV DRVDAEDGQY DVMFIGTDVG TVLKVVSIPK
ETWYDLEEVL LEEMTVFREP TAISAMELST KQQQLYIGST AGVAQLPLHR
CDIYGKACAE CCLARDPYCA WDGSACSRYF PTAKRATRAQ DIRNGDPLTH
CSDLHHDNHH GHSPEERIIY GVENSSTFLE CSPKSQRALV YWQFQRRNEE
RKEEIRVDDH IIRTDQGLLL RSLQQKDSGN YLCHAVEHGF IQTLLKVTLE VIDTEHLEEL
LHKDDDGDGS KTKEMSNSMT PSQKVWYRDF MQLINHPNLN TMDEFCEQVW
KRDRKQRRQR PGHTPGNSNK WKHLQENKKG RNRRTHEFER APRSVGGPKS
CDKTHTCPPC PAPELLGGPS VFLFPPKPKD TLMISRTPEV TCVVVDVSHE
DPEVKFNWYV DGVEVHNAKT KPREEQYNST YRVVSVLTVL HQDWLNGKEY
KCKVSNKALP APIEKTISKA KGQPREPQVY TLPPSRDELT KNQVSLTCLV
KGFYPSDIAV EWESNGQPEN NYKTTPPVLD SDGSFFLYSK LTVDKSRWQQ
GNVFSCSVMH EALHNHYTQK SLSLSPGK

**RELATED PRODUCTS:**

- sCD14, Human Recombinant **(Cat. No. 7122-10, -50)**
- sCD22, Human Recombinant **(Cat. No. 7123-10, -50)**
- sCD23, Human Recombinant **(Cat. No. 7124-10, -50)**

***FOR RESEARCH USE ONLY! Not to be used in humans.***