

DESCRIPTION

Source *E. coli*-derived
Ala2-Lys98
Accession # NP_033139

N-terminal Sequence Analysis Ala2

Predicted Molecular Mass 11 kDa

SPECIFICATIONS

Activity Measured by its ability to enhance neurite outgrowth of E16-E18 rat embryonic cortical neurons. Able to significantly enhance neurite outgrowth when immobilized as a 3 µL droplet containing 50 ng on a nitrocellulose-coated microplate.

Endotoxin Level <0.01 EU per 1 µg of the protein by the LAL method.

Purity >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in sterile Dulbecco's PBS.

Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

S100A13 is an 11 kDa member of the S100 (soluble in 100% saturated ammonium sulfate) family of vertebrate EF-hand Ca⁺⁺-binding proteins (1 - 3). It is widely expressed as a homodimer with 98 amino acid (aa) long subunits (2, 3). Mouse S100A13 shares 87%, 83%, 91%, 86%, 81% and 53% aa identity with rat, human, bovine, canine, opossum and chicken S100A13, respectively. Like other S100 proteins, S100A13 is small and generally acidic, but it contains a basic residue-rich sequence at the C-terminus, and two EF hand motifs that bind Ca⁺⁺ with differing affinities (2 - 4). Some S100 proteins, including S100A13, are able to bind the cell surface receptor for advanced glycation end-products (RAGE) (5). Despite lacking a signal sequence, S100A13 plays an important role in Cu⁺⁺-dependent export of FGF-1 (FGF acidic) and IL-1α from the cell in response to stresses such as heat shock, anoxia and starvation (6 - 8). Binding of copper is necessary for formation of a multi-protein complex between S100A13, FGF-1 and p40 synaptotagmin-1 (syt-1) (9, 10). Cu⁺⁺ ions supplied by S100A13 are thought to oxidize and downregulate the activity of FGF-1 prior to export (10). Calcium influx may also play a similar role in FGF-1 release from neuronal cells (11). S100A13 is composed of four amphiphilic helices that may interact with acidic phospholipid headgroups. With FGF-1 and syt-1, S100A13 likely perturbs the membrane, which allows the S100A13 protein complex to exit the cell (4, 12). S100A13 has been proposed as a marker for angiogenesis in tumors and endometrium, due to its role in stress-induced export of FGF-1 (13, 14). Based on in house studies, S100A13 has also been found to promote neurite outgrowth from rat cortical embryonic neurons (15).

References:

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