Recombinant Human S100A13

Catalog Number: 4327-SA

DESCRIPTION

Source	*E. coli*-derived Ala2-Lys98 Accession # NP_005970
N-terminal Sequence Analysis	Ala2
Predicted Molecular Mass	11.3 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 100 ng on a nitrocellulose-coated microplate.
Endotoxin Level	<1.0 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 two 98 amino acid (aa) long subunits (2, 3). Human S100A13 shares 83%, 90%, 91%, 87%, 78% and 47% aa identity with mouse, rat, cow, dog, opossum and chicken S100A13, respectively. Like other S100 proteins, S100A13 is small and generally acidic, but contains a basic residue-rich sequence at the C terminus, and two EF hand motifs that bind with Ca^{++} 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).

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