

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-1 α 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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Description

Source	<i>E. coli</i> -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 E18 rat embryonic cortical neurons. Able to significantly enhance neurite outgrowth when immobilized as a 3 μ L droplet containing 100 ng on a nitrocellulose-coated microplate.
Endotoxin Level	<1.0 EU per 1 μ g 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 μ m filtered solution in PBS. See Certificate of Analysis for details.

Preparation and Storage

Reconstitution	Reconstitute at 100 μ g/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. <ul style="list-style-type: none"> ● 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.

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