Recombinant Human Calsyntenin-1

Catalog Number: 5346-CL

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived Arg30-Thr851, with a C-terminal 6-His tag Accession # AAH33902
N-terminal Sequence Analysis	Arg30
Structure / Form	Monomer
Predicted Molecular Mass	92.8 kDa

SPECIFICATIONS

SDS-PAGE	110-120 kDa, reducing conditions
Activity	Measured by the ability of the immobilized protein to support the adhesion of Neuro-2A mouse neuroblastoma cells. The ED_{50} for this effect is typically 1-4 µg/mL. **Optimal dilutions should be determined by each laboratory for each application.**
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, 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 300 µg/mL in 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

Calsyntenin-1 (CST-1; gene name CLSTN1), also called Alcadein-α, is a 140-150 kDa type I transmembrane glycoprotein that is member of the Alcadein family of cadherin domain-containing molecules (1, 2). The human Calsyntenin-1 cDNA encodes 981 amino acids (aa), including a 28 aa signal sequence and the 953 aa mature protein (1). Further cleavage by ADAM10 and ADAM17 generates an N-terminal 115 kDa portion containing the two cadherin domains (aa 38-265), termed soluble Alc-α, and a C-terminal portion, termed CTF1-α (1, 3). CTF1-α contains 34 extracellular aa, 21 transmembrane aa, and 101 cytoplasmic aa that are highly acidic and bind calcium (1, 4). Isoforms of 962-994 aa contain a 78 aa substitution for aa 917-981, with or without deletions of aa 72-81 and 507-525. Within the soluble Alc-α portion (aa 30-851), human Calsyntenin-1 shares 92% aa sequence identity with mouse, 93% with equine, and 91% with rat, canine, bovine and porcine Calsyntentin-1. It is expressed in neuronal post-synaptic plasma membranes, neuronal APP-containing early endosomal vesicles (full-length CST-1) and APP-negative recycling-endosomal vesicles (CST-1 cleaved form), plus the secretory granules of anterior pituitary basophilic gonadotrophs and pancreatic islet α-cells (1-6). Soluble Alc-α mediates adhesion and can be released from axons, while CTF1-α can be internalized and mediates trafficking of vesicles via interaction with Kinesin-1 (1, 6-9). This interaction facilitates intracellular transport of vesicles along microtubules in axonal growth cones (7-10). Calsyntenin regulates amyloid precursor protein (APP) cleavage and transport, and perturbation of axonal transport of APP by CST-1 containing carriers results in increased production of Aβ. Finally, CST-1 may also play a regulatory role in post-synaptic signaling (1, 2, 4, 8, 10).

References:

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