Recombinant Human Angiopoietin-1

Catalog Number: 923-AN/CF

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived Ser20-Phe498, with a C-terminal 6-His tag Accession # Q5HYA0
N-terminal Sequence Analysis	Ser20
Structure / Form	Oligomer
Predicted Molecular Mass	56 kDa

SPECIFICATIONS

SDS-PAGE	70 kDa, reducing conditions
Activity	Measured by its ability to inhibit serum deprivation induced apoptosis in HUVEC human umbilical vein endothelial cells. Kwak, H.J. *et al.* (1999) FEBS Letters **448**:249. The ED_{50} for this effect is 10-40 ng/mL in the presence of 5 µg/mL of a cross-linking antibody, Mouse Anti-polyHistidine Monoclonal Antibody (Catalog # MAB050).
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in Tris-Citrate and NaCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile 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

Angiopoietin-1 (Ang-1) is a secreted glycoprotein that plays a critical role in the development and maintenance of the vascular system (1, 2). It contains a coiled-coil region and a C-terminal fibrinogen-like domain separated by a short flexible region (3, 4). Mature human Angiopoietin-1 shares 97% amino acid sequence identity with mouse and rat Angiopoietin-1. It is expressed by vascular smooth muscle cells and pericytes as an approximately 70 kDa molecule that associates into disulfide-linked homotrimers, tetramers, and pentamers (3, 5). Angiopoietin-1 binds and activates the receptor tyrosine kinase Tie-2, and its association into tetramers is important for full Tie-2 activation (3, 4). Angiopoietin-1 ligation of Tie-2 on vascular endothelial cells (EC) induces the development and branching of blood vessels (6, 7). In sub-confluent EC (*i.e.* during angiogenesis), Angiopoietin-1 promotes EC motility and Tie-2 localization at the trailing edge of the cell (8). In confluent EC (*i.e.* in homeostasis), multimeric Angiopoietin-1 enhances vascular integrity by promoting the *in trans* homotypic association of Tie-2 between EC or with the substratum (8, 9). In addition, Angiopoietin-1 suppresses several VEGF-induced effects on the vasculature including endothelial permeability, stretch-induced release of Angiopoietin-2, and up-regulation of the leukocyte adhesion molecules VCAM-1, ICAM-1, and E-Selectin (10-12). Angiopoietin-1 also interacts with a variety of integrins and the extracellular matrix independently of Tie-2 (13, 14). These interactions support the adhesion, migration and stress resistance of EC, fibroblasts, and myocytes (13, 14). Angiopoietin-1 can protect against pulmonary arterial hypertension (5), reduce the extent of fibrosis and remodeling in infarcted diabetic myocardium (15), and enhance tumor progression and metastasis (16).

References:

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