Recombinant Human HSP47 His-tag

Catalog Number: 9166-SH

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human HSP47 protein Ala19-Asp412, with a C-terminal 6-His tag Accession # P50454
N-terminal Sequence Analysis	Ala19
Predicted Molecular Mass	44 kDa

SPECIFICATIONS

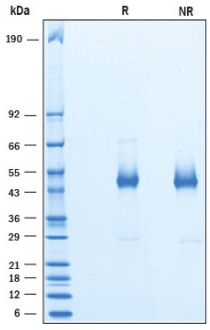
SDS-PAGE	47-51 kDa, reducing conditions
Activity	Measured by its ability to enhance neurite outgrowth of E16-E18 rat embryonic cortical neurons. Recombinant Human HSP47, immobilized at 5 µg/mL on a 96 well plate, is able to significantly enhance neurite outgrowth.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, 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, NaCl and TCEP. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in water.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	• 12 months from date of receipt, ≤ -20 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, ≤ -20 °C under sterile conditions after reconstitution.

DATA

SDS-PAGE



2 µg/lane of Recombinant Human HSP47 was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing a band at ~50 kDa under R conditions.

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BACKGROUND

Heat Shock Protein 47 (HSP47), also known as Serpin-H1, is a 47 kDa collagen-binding stress protein localized in the endoplasmic reticulum (ER) of collagen-secreting cells (1). It is encoded by the SERPINH1 gene, belongs to the serpin family, and contains the typical serpin fold but has no serine protease inhibitory activity (1). Human HSP47 shares 96% aa sequence identity with mouse HSP47. HSP47 is a chaperone that specifically binds pro-collagens at a neutral pH via Gly-Xaa-Arg repeats located on triple-helical procollagen to prevent aggregate formation (2). HSP47 is required for correct procollagen folding in the ER (1). Expression of HSP47 is directly correlated with expression of collagens in multiple types of cells and tissues. Gene disruption of HSP47 in mice causes embryonic lethality due to defects in collagen biosynthesis (1, 3) and HSP47-knockout cells show abnormal helix formation resulting in thin, branched fibrils (1, 4). HSP47 is associated with collagen-related disorders such as osteogenesis imperfecta (5) and fibrosis of the liver, lung, and other organs (6, 7). Its role in collagen regulation, as well as its ability to cause ER stress-mediated apoptosis in collagen-producing cells (6), make HSP47 a promising target for treatment in collagen-related diseases (7, 8). Additionally, HSP47 modulates the tumor microenvironment (9) and may serve as a predictive marker in patients with colorectal, renal, and laryngeal squamous cell carcinomas (10-12).

References:

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