

DESCRIPTION

Source	<i>E. coli</i> -derived human AG-2/AGR2 protein Arg21-Leu175, with a C-terminal 6-His tag Accession # NP_006399.1
N-terminal Sequence Analysis	Met-Arg21
Structure / Form	Noncovalently-linked homodimer
Predicted Molecular Mass	19 kDa

SPECIFICATIONS

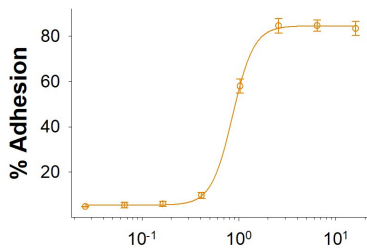
SDS-PAGE	17-20 kDa, under reducing conditions
Activity	Measured by the ability of the immobilized protein to support the adhesion of PC-3 human prostate cancer cells. The ED50 for this effect is 0.3-1.8 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE 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	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <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.

DATA

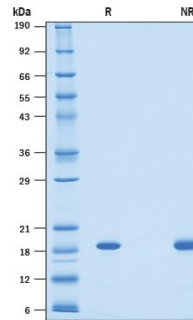
Bioactivity



Recombinant Human AG-2/AGR2 (µg/mL)

Recombinant Human AG-2/AGR2 His-tag (Catalog # 10326-AG) supports the adhesion of PC-3 human prostate cancer cells. The ED₅₀ for this effect is 0.03-0.18 µg/mL.

SDS-PAGE



2 µg/lane of Recombinant Human AG-2 His-tag (Catalog # 10326-AG) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 17-20 kDa.

BACKGROUND

AG-2 (Anterior gradient protein 2; also AGR2, GOB4 and HPC8) is an 18-21 kDa member of the Protein disulfide-isomerase (PDI) family of enzymes. PDIs participate in the formation of transient disulfide linkages with molecules which aid in protein folding. Mature human AG-2 is 155 amino acids (aa) in length (aa 21-175) and has a dimeric thioredoxin fold structure (1) which contains one cysteine (Cys81). It is expressed strongly in secretory cell types, such as prostate epithelium, small intestine goblet, trachea and lung, and is also expressed in estrogen receptor-positive breast cancer cell lines (2). Although AG-2 possesses a signal sequence, it appears to be rarely secreted, instead being found in the ER due the presence of a KTEL ER retention signal at its C-terminus (3). Over aa 21-175, human AG-2 shares 94% aa identity with mouse AG-2. Over expressed in colorectal cancer stem cells, AG-2 is a marker regulated by the canonical Wnt/ β -catenin pathway, AG-2 levels combined with elevated levels of β -catenin are shown to indicate lower survival prognosis (4). Further, Wnt11-mediated signaling pathway has been implicated in secreted AG-2's role to promote metastasis of colorectal cancer (5). In prostate cancer, marker RAD9A affects the availability of AG-2. When added to RAD9A-depleted PC-3 cells, addition of AG-2 restores cell migration and adhesion properties (6). Additionally, AG-2 has been linked to pituitary adenomas as a biomarker (7).

References:

1. Patel, P. *et al.* (2013) *J. Mol. Biol.* **425**:929.
2. Thompson, D. A. and Weigel, R. J. (1998) *Biochem. Biophys. Res. Commun.* **251**:111.
3. Gupta, A. *et al.* (2012) *J. Biol. Chem.* **287**:4773.
4. Lamichane, B. *et al.* (2019) *Biochem. Biophys. Res. Commun.* **515**:600.
5. Tian, S. *et al.* (2018) *Experimental Cell Research.* **364**:198.
6. Broustas, C. G. *et al.* (2018) *Carcinogenesis.* **40**:164.
7. Tohti, M. *et al.* (2017) *Clinical Neurology and Neurosurgery.* **154**:19.