

DESCRIPTION

Source *E. coli*-derived
Ala2-Thr105
Accession # P31949

N-terminal Sequence Analysis Ala2

Structure / Form Disulfide-linked homodimer

Predicted Molecular Mass 12 kDa

SPECIFICATIONS

SDS-PAGE 9 kDa, reducing conditions

Activity Measured by its binding ability in a functional ELISA.
When Recombinant Human ANXA-2 is immobilized at 0.5 µg/mL (100 µL/well), the concentration of Recombinant Human S100A11 that produces 50% of the optimal binding response is approximately 0.4-2.4 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 PBS and DTT with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 500 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

S100A11, also known as S100C and Calgizzarin, is a 10 kDa member of the S100 family of calcium binding proteins (1-3). Human S100A11 contains two EF hand motifs and shares 82% amino acid sequence identity with mouse and rat S100A11. It forms covalent homodimers upon transglutamination and also disulfide-linked tetramers (4, 5). S100A11 is secreted by keratinocytes and can be crosslinked into the cornified envelope of the skin (6). Dimerization enhances its ability to signal through RAGE on keratinocytes, induce the production of EGF family proteins, and induce cell proliferation (7). Dimerization also enables S100A11 to bind RAGE on chondrocytes, leading to chondrocyte hypertrophy and catabolism of the cartilage matrix (4). S100A11 is additionally found in the cytosol where it becomes phosphorylated and translocates to the nucleus in response to DNA damage, RELM alpha exposure, or elevated extracellular calcium concentrations (8-10). Calcium also promotes S100A11 association with S100B as well as Annexins A1, A2, and A6 (5, 11-13). S100A11-Annexin A2 complexes are recruited to sites of plasma membrane damage where they facilitate membrane repair in migrating cancer cells (13). S100A11 is upregulated in various cancers and supports tumor cell proliferation, invasion, and migration (7, 14). In addition, S100A11 is produced in the ovary, and it acts on cumulus cells to inhibit oocyte fertilization (15).

References:

1. Donato, R. *et al.* (2013) *Curr. Mol. Med.* **13**:24.
2. Liu, Y. *et al.* (2015) *Br. J. Pharmacol.* **172**:1664.
3. Tanaka, M. *et al.* (1995) *Cancer Lett.* **89**:195.
4. Cecil, D.L. and R. Terkeltaub (2008) *J. Immunol.* **180**:8378.
5. Chang, N. *et al.* (2007) *Am. J. Physiol. Cell Physiol.* **292**:C1417.
6. Robinson, N.A. *et al.* (1997) *J. Biol. Chem.* **272**:12035.
7. Sakaguchi, M. *et al.* (2007) *Mol. Biol. Cell* **19**:78.
8. Gorsler, T. *et al.* (2010) *BMC Cell Biol.* **11**:100.
9. Fan, C. *et al.* (2011) *Mol. Cell Proteomics* **10**:M110.000901.
10. Sakaguchi, M. *et al.* (2003) *J. Cell Biol.* **163**:825.
11. Deloulme, J.C. *et al.* (2000) *J. Biol. Chem.* **275**:35302.
12. Mailliard, W.S. *et al.* (1996) *J. Biol. Chem.* **271**:719.
13. Jaiswal, J.K. *et al.* (2014) *Nat. Commun.* **5**:3795.
14. Liu, Y. *et al.* (2015) *Exp. Ther. Med.* **9**:1460.
15. Hanaue, M. *et al.* (2011) *Mol. Reprod. Dev.* **78**:91.