

## Stanniocalcin 1 Human HEK293

### Product Data Sheet

<b>Type:</b> Recombinant	<b>Cat. No.:</b>	
<b>Source:</b> HEK293	RD172095025	(0.025 mg)
<b>Species:</b> Human	RD172095100	(0.1 mg)
<b>Other names:</b> STC1, STC		

### Description

Total 240 AA. Mw: 25.9 kDa (calculated). C-Terminal Flag-tag, 10AA (highlighted). The AA sequence is identical to Swiss-Prot-P52823.

### Introduction to the Molecule

Stanniocalcin 1 (STC1) is the mammalian homologue of STC, which was originally identified as a calcium/phosphate-regulating hormone in bony fishes. In contrast, STC1 may play an autocrine and paracrine role with pleiotropic effects in mammals. It is expressed in a wide variety of tissues, but unexpectedly is not detected in the circulation under normal circumstances, which is possibly caused by its attaching to soluble and tethered forms of a high-affinity binding protein.

STC-1 can affect calcium homeostasis, bone and muscle mass and structure, and angiogenesis through effects on osteoblasts, osteoclasts, myoblasts/myocytes, and endothelial cells in mouse model. Differential regulation of myocardial STC1 protein expression was reported in heart failure. In addition, STC1 may regulate calcium currents in cardiomyocytes and may contribute to the alterations in calcium homeostasis of the failing heart. STC1 was found to be a selective modulator of hepatocyte growth factor (HGF)-induced endothelial migration and morphogenesis, an inhibitor of macrophage chemotaxis and chemokinesis, suppressor of progesterone and luteinization inhibitor. Together with STC-2, it may play important roles in the processes of implantation and decidualization in the rat. In terminally differentiated adipocytes, it may function as a "survival factor", which contributes to the maintenance of the integrity of mature adipose tissue. In context with its possible role in gestation, a Big STC, a three higher-molecular-mass variant has been described. STC1 was identified as one of hypoxia-responsive genes coupled to hypoxia-driven angiogenesis.

Current research indicates that STC-1 might be a useful molecular marker to detect tumor cells in blood and bone marrow from patients with various types of malignancies.

### Research topic

Bone and cartilage metabolism, Oncology, Reproduction

### Amino Acid Sequence

THEAEQNDSV SPRKSRVAAQ NSAEVVRCLN SALQVGCQAF ACLENSTCDT DGMIDICKSF LYSAAKFDTQ GKAFVKESLK  
CIANGVTSKV FLAIRRCSTF QRMIAEVQEE CYSKLNVCSE AKRNPEAITE VVQLPNHFSN RYYNRLVRSI LECDEDTVST  
IRDSLMEKIG PNMASLFHIL QTDHCAQTHP RADFNRRRTN EPQKLVLLR NLRGEEDSPS HIKRTSHESA **ASDYKDDDDK**

His 2 to Glu 5 were confirmed by N-terminal sequencing.

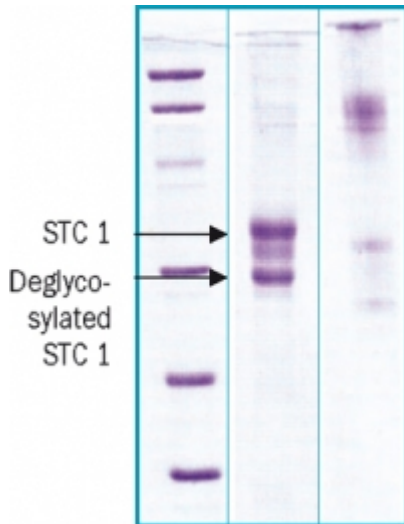
### Source

HEK293

### Purity

>95%

## SDS-PAGE gel



12% SDS-PAGE separation of Human Stanniocalcin-1

1. M.W. marker - 14, 21, 31, 45, 66, 97 kDa

2. reduced and heated sample, 5µg/lane

3. non-reduced and non-heated sample, 5µg/lane

## Endotoxin

< 1.0 EU/ug

## Formulation

Filtered (0.4 µm) and lyophilized in 0.5 mg/mL in 20mM Tris buffer, 50 mM NaCl, pH 7.5

## Reconstitution

Add deionized water to prepare a working stock solution of approximately 0.5 mg/mL and let the lyophilized pellet dissolve completely. Filter sterilize your culture media/working solutions containing this non-sterile product before using in cell culture.

## Shipping

At ambient temperature. Upon receipt, store the product at the temperature recommended below.

## Storage, Stability/Shelf Life

Store the lyophilized protein at -80 °C. Lyophilized protein remains stable until the expiry date when stored at -80 °C. Aliquot reconstituted protein to avoid repeated freezing/thawing cycles and store at -80 °C for long term storage. Reconstituted protein can be stored at 4 °C for a week.

## Quality Control Test

BCA to determine quantity of the protein.

SDS PAGE to determine purity of the protein.

LAL to determine quantity of endotoxin.

## Applications

Cell culture and/or animal studies, ELISA, Western blotting

## Note

This product is intended for research use only. The Certificate of Analysis is available on [www.biovendor.com](http://www.biovendor.com)

## References to this Product

- Block GJ, Ohkouchi S, Fung F, Frenkel J, Gregory C, Pochampally R, DiMattia G, Sullivan DE, Prockop DJ. *Multipotent stromal cells are activated to reduce apoptosis in part by upregulation and secretion of stanniocalcin-1*. Stem Cells. 2009 Mar;27 (3):670-81
- Westberg JA, Jiang J, Andersson LC. *Stanniocalcin 1 binds hemin through a partially conserved heme regulatory motif*. Biochem Biophys Res Commun. 2011 Jun 3;409 (2):266-9
- Tang SE, Wu CP, Wu SY, Peng CK, Perng WC, Kang BH, Chu SJ, Huang KL. *Stanniocalcin-1 ameliorates lipopolysaccharide-induced pulmonary oxidative stress, inflammation, and apoptosis in mice*. Free Radic Biol Med. 2014 Mar 28;71C:321-331
- Mohammadipoor A, Lee RH, Prockop DJ, Bartosh TJ. *Stanniocalcin-1 attenuates ischemic cardiac injury and response of differentiating monocytes/macrophages to inflammatory stimuli*. Translational Research. July 2016;
- Ito Y, Zemans R, Correll K, Yang IV, Ahmad A, Gao B, Mason RJ. *Stanniocalcin-1 is induced by hypoxia inducible factor in rat alveolar epithelial cells*. Biochem Biophys Res Commun. 2014 Oct 3;452 (4):1091-7

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