

**DESCRIPTION**

**Source** *E. coli*-derived  
Asp23-Pro158, with an N-terminal Met  
Accession # Q9BYZ8

**N-terminal Sequence Analysis** Met

**Predicted Molecular Mass** 16.0 kDa

**SPECIFICATIONS**

**Activity** Measured by the ability of the immobilized protein to support the adhesion and proliferation of HCT-116 human colorectal carcinoma cells under low serum conditions.  
The ED<sub>50</sub> for this effect is 2-8 µg/mL.

**Endotoxin Level** <0.01 EU per 1 µg of the protein by the LAL method.

**Purity** >95%, by SDS-PAGE under reducing conditions and visualized by silver stain.

**Formulation** Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

**Reconstitution** Reconstitute at 300 - 500 µg/mL in sterile, deionized water.

**Shipping** The product is shipped with polar packs. 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**

Reg4 (regenerating islet-derived protein 4), also called Reg IV or RELP (Reg-like protein), is a 17 kDa secreted glycoprotein belonging to the regenerating gene (Reg) family within the calcium (C-type) dependent lectin superfamily, although carbohydrate binding of Reg4 is calcium-independent (1-4). Human Reg4 is synthesized as a 158 amino acid (aa) precursor with a 22 aa signal sequence and a 136 aa mature chain that contains a C-type lectin-like domain (CTLD) and one potential N-linked glycosylation site. Human Reg4 shares 68% aa sequence identity with mouse and rat, and 77% with canine and porcine Reg4, respectively. Alternate splicing creates a 134 aa isoform that diverges at aa 56, and a 123 aa isoform that diverges at aa 101 (5). Like other members of the regenerating gene family, Reg4 is preferentially expressed in the gastrointestinal (GI) tract (1, 2, 6). Reg4 expression is increased within or near inflammation, dysplasia and metaplasia of the GI epithelium, such as inflammatory bowel disease (Crohn's disease and ulcerative colitis), colon adenocarcinoma, pancreatic cancer, gastric adenocarcinoma, and is often increased in the plasma in these conditions (1-3, 6, 7). It is especially associated with neuroendocrine tumors in the GI, as well as some prostate, parathyroid, skin Merkel cell and lung small-cell carcinomas (7-9). Reg4 expression is induced by growth factors and promotes phosphorylation and activation of the EGF R (6, 8, 10). Tumor cells expressing Reg4 are generally more mitogenic, metastatic and resistant to apoptosis (11-13).

**References:**

1. Hartupee, J.C. *et al.* (2001) *Biochim. Biophys. Acta* **1518**:287.
2. Zhang, Y-W. *et al.* (2003) *World J. Gastroenterol.* **9**:2635.
3. Kamarainen, M. *et al.* (2003) *Am. J. Pathol.* **163**:11.
4. Ho, M.R. *et al.* (2010) *J. Mol. Biol.* **402**:682.
5. Protein accession Q9BYZ8-1, Q9BYZ8-2, EAW56711.
6. Nanakin, A. *et al.* (2007) *Lab. Invest.* **87**:304.
7. Oue, N. *et al.* (2005) *J. Pathol.* **207**:185.
8. Ohara, S. *et al.* (2008) *Cancer Sci.* **99**:1570.
9. Heiskala, K. *et al.* (2010) *Histol. Histopathol.* **25**:63.
10. Bishnupuri K.S. *et al.* (2006) *Gastroenterology* **130**:137.
11. Rafa, L. *et al.* (2010) *Int. J. Oncol.* **36**:689.
12. Bishnupuri K.S. *et al.* (2010) *Gastroenterology* **138**:616.
13. Guo, Y. *et al.* (2010) *Cancer Genet. Cytogenet.* **199**:38.