

DESCRIPTION

Source	<i>E. coli</i> -derived Glu27-Gly175, with an N-terminal Met Accession # P35230
N-terminal Sequence Analysis	Met
Predicted Molecular Mass	17 kDa

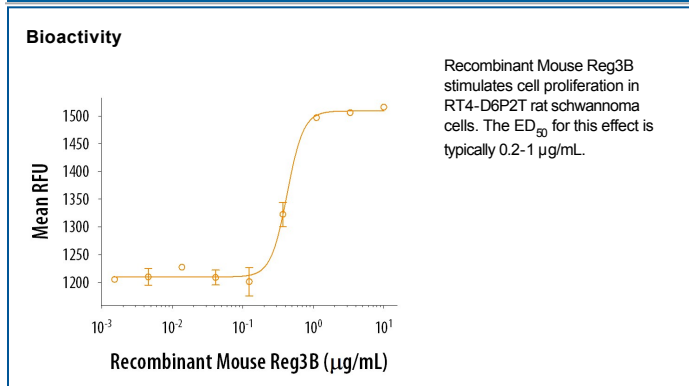
SPECIFICATIONS

SDS-PAGE	15 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using RT4-D6P2T rat schwannoma cells. The ED ₅₀ for this effect is typically 0.2-1 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE with silver staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. 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. <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



BACKGROUND

Regenerating islet-derived protein 3-beta (Reg3B), also known as Reg2, pancreatitis-associated protein 1 (PAP1), hepatocarcinoma-intestine-pancreas (HIP), and peptide 23, is one of several secreted Reg proteins that contain a single C-type lectin domain and contribute to anti-microbial immunity in the gut (1, 2). Reg3B is secreted as a 149 amino acid (aa) protein that contains a conserved protease-sensitive site which allows removal of an 11 residue propeptide from the N-terminus (3). In Reg3G, this short propeptide serves as an inhibitor that maintains the proprotein in an inactive state (3). Mature mouse Reg3B shares 92% aa sequence identity with rat Reg3B. Reg3B is expressed by neuroendocrine and Paneth cells in the small intestine, acinar and islet beta cells in the pancreas, and developing motor and sensory neurons in the CNS (4, 5). It is up-regulated in regenerating neurons, and it promotes Schwann cell proliferation (6). It is required for the ability of CNTF to support the survival of injured neurons (5). Reg3B is also upregulated in pancreatitis and can protect mice against inflammation and streptozotocin induced beta cell death (7, 8). In the gut, Reg3B is overexpressed in colitis and inflammatory bowel disease and by exposure to pathogenic bacteria (9-12). Its expression is dependent on the activation of TLR2 (10). Reg3B acts to clear bacterial infections *in vivo* and provide host resistance to infection (10, 12). It binds to the Lipid A moiety of LPS on Gram negative bacteria, and this interaction is important for its bactericidal activity (11, 13, 14). On *S. typhimurium*, the LPS saccharide O-antigen prevents the binding of Reg3B and thereby protects those cells from Reg3B induced killing (11, 14). In contrast to its tissue-protective functions, Reg3B enhances tumor growth and angiogenesis and inhibits tumor macrophage and T cell mediated inflammation (15). It also exacerbates the hepatotoxicity of acetaminophen by promoting the nitration of proteins in the liver (16).

References:

1. Parikh, A. *et al.* (2012) *Biomol. Concepts* **3**:57.
2. Narushima, Y. *et al.* (1997) *Gene* **185**:159.
3. Mukherjee, S. *et al.* (2009) *J. Biol. Chem.* **284**:4881.
4. Lasserre, C. *et al.* (1999) *Am. J. Pathol.* **154**:1601.
5. Tebar, L.A. *et al.* (2008) *Proc. Natl. Acad. Sci. USA* **105**:11400.
6. Livesey, F.J. *et al.* (1997) *Nature* **390**:614.
7. Vasseur, S. *et al.* (2004) *J. Biol. Chem.* **279**:7199.
8. Xiong, X. *et al.* (2011) *Am. J. Physiol. Endocrinol. Metab.* **300**:E669.
9. Ogawa, H. *et al.* (2003) *Inflamm. Bowel Dis.* **9**:162.
10. Dessein, R. *et al.* (2009) *Gut* **58**:771.
11. Stelzer, C. *et al.* (2011) *PLoS ONE* **6**:e20749.
12. van Ampting, M.T.J. *et al.* (2012) *Infect. Immun.* **80**:1115.
13. Miki, T. *et al.* (2012) *J. Biol. Chem.* **287**:34844.
14. Miki, T. and W-D. Hardt (2013) *PLoS ONE* **7**:e69901.
15. Gironella, M. *et al.* (2013) *Cancer Res.* **73**:5682.
16. Yun, J.W. *et al.* (2013) *Free Radic. Biol. Med.* **65C**:291.