

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human ST2/IL-33R protein			
	Human ST2 (Lys19-Phe328) Accession # BAA02233	IEGRMD	Human IgG ₁ (Pro100-Lys330)	6-His tag
	N-terminus		C-terminus	
N-terminal Sequence Analysis	Lys19			
Structure / Form	Disulfide-linked homodimer			
Predicted Molecular Mass	62.5 kDa (monomer)			

SPECIFICATIONS

SDS-PAGE	89-102 kDa, reducing conditions
Activity	Measured by its ability to inhibit IL-33-dependent proliferation in D10.G4.1 mouse helper T cells. The ED ₅₀ for this effect is 0.03-0.12 µg/mL. Optimal dilutions should be determined by each laboratory for each application.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, 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 100 µg/mL in sterile 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.

BACKGROUND

ST2, also known as IL-1 R4 and T1, is an Interleukin-1 receptor family glycoprotein that contributes to Th2 immune responses (1, 2). Human ST2 consists of a 310 amino acid (aa) extracellular domain (ECD) with three Ig-like domains, a 21 aa transmembrane segment, and a 207 aa cytoplasmic domain with an intracellular TIR domain (3, 4). Alternate splicing of the 120 kDa human ST2 generates a soluble 60 kDa isoform that lacks the transmembrane and cytoplasmic regions as well as an isoform that additionally lacks the third Ig-like domain (4). Within the ECD, human ST2 shares 68% and 64% aa sequence identity with mouse and rat ST2, respectively. ST2 is expressed on the surface of mast cells, activated Th2 cells, macrophages, and cardiac myocytes (5-8). It binds IL-33, a cytokine that is upregulated by inflammation or mechanical strain in smooth muscle cells, airway epithelia, keratinocytes, and cardiac fibroblasts (5, 9). IL-33 binding induces the association of ST2 with IL-1R ACP, a shared signaling subunit that also associates with IL-1 RI and IL-1 Rrp2 (1, 10, 11). In macrophages, ST2 interferes with signaling from IL-1 RI and TLR4 by sequestering the adaptor proteins MyD88 and Mal (7). In addition to its role in promoting mast cell and Th2 dependent inflammation, ST2 activation enhances antigen induced hypernociception and protects from atherosclerosis and cardiac hypertrophy (5, 12-14). The soluble ST2 isoform is released by activated Th2 cells and strained cardiac myocytes and is elevated in the serum in allergic asthma (6, 8, 15). Soluble ST2 functions as a decoy receptor that blocks IL-33's ability to signal through transmembrane ST2 (10, 13-15).

References:

1. Barksby, H.E. *et al.* (2007) Clin. Exp. Immunol. **149**:217.
2. Gadina, M. and C.A. Jefferies (2007) Science STKE **2007**:pe31.
3. Tominaga, S. *et al.* (1992) Biochim. Biophys. Acta **1171**:215.
4. Li, H. *et al.* (2000) Genomics **67**:284.
5. Schmitz, J. *et al.* (2005) Immunity **23**:479.
6. Lecart, S. *et al.* (2002) Eur. J. Immunol. **32**:2979.
7. Brint, E.K. *et al.* (2004) Nat. Immunol. **5**:373.
8. Weinberg, E.O. *et al.* (2002) Circulation **106**:2961.
9. Sanada S. *et al.* (2007) J. Clin. Invest. **117**:1538.
10. Palmer, G. *et al.* (2008) Cytokine **42**:358.
11. Chackerian, A.A. *et al.* (2007) J. Immunol. **179**:2551.
12. Allakhverdi, Z. *et al.* (2007) J. Immunol. **179**:2051.
13. Verri Jr., W.A. *et al.* (2008) Proc. Natl. Acad. Sci. **105**:2723.
14. Miller, A.M. *et al.* (2008) J. Exp. Med. **205**:339.
15. Hayakawa, H. *et al.* (2007) J. Biol. Chem. **282**:26369.