

**DESCRIPTION**

**Source** *E. coli*-derived  
 Ser19-Ser178 (Cys167Tyr), with an N-terminal Met  
 Accession # NP\_034678

**N-terminal Sequence Analysis** Ser19

**Structure / Form** Noncovalently-linked homodimer

**Predicted Molecular Mass** 18.8 kDa (monomer)

**SPECIFICATIONS**

**SDS-PAGE** 17 kDa, reducing conditions

**Activity** Measured in a cell proliferation assay using MC/9-2 mouse mast cells. Thompson-Snipes, L. *et al.* (1991) J. Exp. Med. **173**:507.  
 The ED<sub>50</sub> for this effect is typically 0.4-1.2 ng/mL.

**Endotoxin Level** <0.10 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 NaH<sub>2</sub>PO<sub>4</sub> and NaCl with BSA as a carrier protein. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

**Reconstitution** Reconstitute at 10 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.

**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**

Interleukin 10, also known as cytokine synthesis inhibitory factor (CSIF), is the charter member of the IL-10 family of α-helical cytokines that also includes IL-19, IL-20, IL-22, and IL-24 (1, 2). IL-10 is secreted by many activated hematopoietic cell types as well as hepatic stellate cells, keratinocytes, and placental cytotrophoblasts (2 - 5). Mature mouse IL-10 shares 85% amino acid sequence identity with rat and 70% - 77% with bovine, canine, equine, feline, human, ovine, and porcine IL-10. Whereas human IL-10 is active on mouse cells, mouse IL-10 does not act on human cells (6, 7). IL-10 is a 178 amino acid molecule that contains two intrachain disulfide bridges and is expressed as a 36 kDa noncovalently associated homodimer (8 - 10). The IL-10 dimer binds to two IL-10 Rα/IL-10 R1 chains, resulting in recruitment of two IL-10 Rβ/IL-10 R2 chains and activation of a signaling cascade involving JAK1, TYK2, and STAT3 (11). IL-10 Rβ does not bind IL-10 by itself but is required for signal transduction (1). IL-10 Rβ also associates with IL-20 Rα, IL-22 Rα, or IL-28 Rα to form the receptor complexes for IL-22, IL-26, IL-28, and IL-29 (12 - 14). IL-10 is a critical molecule in the control of viral infections and allergic and autoimmune inflammation (15 - 17). It promotes phagocytic uptake and Th2 responses but suppresses antigen presentation and Th1 proinflammatory responses (2).

**References:**

1. Pestka, S. *et al.* (2004) Annu. Rev. Immunol. **22**:929.
2. O'Garra, A. and P. Vieira (2007) Nat. Rev. Immunol. **7**:425.
3. Mathurin, P. *et al.* (2002) Am. J. Physiol. Gastrointest. Liver Physiol. **282**:G981.
4. Grewe, M. *et al.* (1995) J. Invest. Dermatol. **104**:3.
5. Szonyi, B.J. *et al.* (1999) Mol. Hum. Reprod. **5**:1059.
6. Vieira, P. *et al.* (1991) Proc. Natl. Acad. Sci. **88**:1172.
7. Hsu, D.-H. *et al.* (1990) Science **250**:830.
8. Moore, K. *et al.* (1990) Science **248**:1230.
9. Windsor, W.T. *et al.* (1993) Biochemistry **32**:8807.
10. Syto, R. *et al.* (1998) Biochemistry **37**:16943.
11. Kotenko, S.V. *et al.* (1997) EMBO J. **16**:5894.
12. Kotenko, S.V. *et al.* (2000) J. Biol. Chem. **275**:2725.
13. Hor, S. *et al.* (2004) J. Biol. Chem. **279**:33343.
14. Sheppard, P. *et al.* (2003) Nat. Immunol. **4**:63.
15. Fitzgerald, D.C. *et al.* (2007) Nat. Immunol. **8**:1372.
16. Wu, K. *et al.* (2007) Cell. Mol. Immunol. **4**:269.
17. Blackburn, S.D. and E.J. Wherry (2007) Trends Microbiol. **15**:143.