

DESCRIPTION

Source *E. coli*-derived
Ser19-Ser178 (Cys167Tyr), with an N-terminal Met
Accession # NP_034678

N-terminal Sequence Ser19

Analysis

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 ED₅₀ for this effect is 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 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.**

- 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 R α /IL-10 R1 chains, resulting in recruitment of two IL-10 R β /IL-10 R2 chains and activation of a signaling cascade involving JAK1, TYK2, and STAT3 (11). IL-10 R β does not bind IL-10 by itself but is required for signal transduction (1). IL-10 R β also associates with IL-20 R α , IL-22 R α , or IL-28 R α 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.* **276**: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.