Product Information

SILu™Prot PTX3, Pentraxin-Related Protein, Human

Recombinant, Expressed in HEK cells, SIL MS Protein Standard, ^{13}C- and ^{15}N-Labeled

MSST0003

Storage Temperature –20 °C
Synonyms: Tumor necrosis factor alpha-induced protein 5 (TNF alpha-induced protein 5), Tumor necrosis factor-inducible gene 14 protein, (TSG-14)

Product Description

SILu™Prot PTX3 is a recombinant, stable isotope-labeled human PTX3 which incorporates [$^{13}C_6$, $^{15}N_4$]-Arginine and [$^{13}C_6$, $^{15}N_2$]-Lysine. Expressed in human 293 cells, it is designed to be used as an internal standard for bioanalysis of PTX3 in mass spectrometry. SILu™Prot PTX3 is a recombinant glycosylated human protein expressed in human 293 cells. It is a homooctamer and a homodecamer consisting of 364 amino acids (monomer) with a calculated molecular mass of 40.4 kDa. It contains no tags.

Pentraxin 3 (PTX3) is a secreted glycosylated protein belonging to the pentraxin superfamily.[1] PTX3 is rapidly produced and released by several cell types, in particular by mononuclear phagocytes, dendritic cells, fibroblasts, and endothelial cells in response to primary inflammatory signals (e.g., toll-like receptor engagement, TNFα, IL-1β).[1] PTX3 behaves as an acute phase response protein, as the blood levels of PTX3, which are low in normal conditions (~25 ng/mL in the mouse, <2 ng/mL in humans), increase rapidly (peaking at 6–8 hours after induction) and dramatically (200–800 ng/mL) during endotoxic shock, sepsis, and other inflammatory and infectious conditions, correlating with the severity of the disease.[2] Under these conditions, PTX3 is a rapid marker for primary local activation of innate immunity and inflammation,[2-6] antiapoptotic cell survival,[2] cell cycle regulation,[3] cell adhesion,[4] tissue remodeling,[5] and lipid transportation.[6] PTX3 gene expression in human endothelial cells is suppressed to a greater extent by pitavastatin than the expression of 6,000 other human genes that have been examined, suggesting PTX3 may be a novel biomarker for inflammatory cardiovascular disease.[7]

Each vial contains ≥10 µg of SILu™Prot PTX3 standard, lyophilized from a solution of phosphate buffered saline. Vial content was determined by the Bradford method using BSA as a calibrator. The correction factor from the Bradford method to amino acid analysis is 110% for this protein.

Identity

Confirmed by peptide mapping

Purity

≥95% (SDS-PAGE)

Heavy amino acid incorporation efficiency

≥98% (MS)

UniProt

P26022

Sequence Information

ENSDDYDLMYVNLDNEIDNGLHPTEDPTPCACGQEHSEWDKLFIMLENSQMRERMLLQATDDVLRGELQRLREELGRLAESLARPC
APGAPAEARLTSALDELLQATRDAGRRLARMEGAEAQRPEEAGRALAAVLEELRQTRADLHAVQGWAARSWLPAGCETAILFPMRSK
KIFGSVHPVRPMRLESFSACIWVKATDVLNKTILFSYGTKRNPYEIQLYLSYQSIVFVVGGEENKLVAEAMVSLGRWTHLCGTWNSEE
GLTSLWVNGELAATTVEMATGHIVPEGGILQIGQEKNGCCVGGGFDETLAFSGRLTGFNIWDSVLSNEEIRETGGAESCHIRGNIVG
WGVTEIQPHGGAQYVS

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Briefly centrifuge the vial before opening. It is recommended to reconstitute the protein in sterile ultrapure water to a final concentration of 100 µg/mL.

Storage/Stability

Store the lyophilized product at −20 °C. The product is stable for at least 2 years as supplied. After reconstitution, it is recommended to store the protein in working aliquots at −20 °C.

References

1. Garlanda, C. et al., Pentraxins at the crossroads between innate immunity, inflammation, matrix deposition, and female fertility. Annu Rev Immunol., 23, 337-66 (2005).
2. Muller, B. et al., Circulating levels of the long pentraxin PTX3 correlate with severity of infection in critically ill patients. Crit Care Med., 29, 1404-7 (2001).
3. Fazzini, F. et al., PTX3 in small vessel vasculitides: an independent indicator of disease activity produced at sites of inflammation. Arthritis Rheum., 44, 2841-50 (2001).
4. Mairuhu A.T. et al., Elevated plasma levels of the long pentraxin, pentraxin 3, in severe dengue virus infections. J Med Virol., 4, 547-52 (2005).
5. Azzurri, A. et al., IFN-gamma-inducible protein 10 and pentraxin 3 plasma levels are tools for monitoring inflammation and disease activity in Mycobacterium tuberculosis infection. Microbes Infect., 7, 1-8 (2005).
6. Latini, R. et al., Prognostic significance of the long pentraxin PTX3 in acute myocardial infarction. Circulation, 16, 2349-54 (2004).
7. Inoue, K. et al., Pentraxin 3: a novel biomarker for inflammatory cardiovascular disease. Int. J. Vasc. Med., 2012, 657025, 6 pages (2012).

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