SANTA CRUZ BIOTECHNOLOGY, INC.

TNFα (mBA-156): sc-4890

BACKGROUND

Tumor necrosis factor β (TNFβ), also known as lymphotoxin, is a pleiotropic cytokine that has a molecular weight of 25 kDa (1–3). TNFα, also known as cachectin, is a smaller cytokine with a molecular weight of 17 kDa that binds to the same receptors producing a vast array of effects similar to those of TNFβ (1–4). TNFβ and TNFα share 30% amino acid homology and have similar biological activities (1). TNFβ is produced by activated lymphocytes, including $CD4^+$ T helper cell type 1 lymphocytes, $CD8^+$ lymphocytes and certain B lymphoblastoid cell lines (4). TNFα is produced by several different cell types, which include lymphocytes, neutrophils and macrophages (3). TNFα and TNFβ can modulate many immune and inflammatory functions, while having the ability to inhibit tumor growth (4,5). Target tumor cells must express TNF receptors 1 (55 kDa) and 2 (75 kDa) to be killed, with the p55 receptor mediating the cytotoxic response (4,6,7).

SOURCE

TNFα (mBA-156) is produced in *E. coli* as 42 kDa biologically active protein corresponding to 156 amino acids of full length mature TNFα of mouse origin.

PRODUCT

TNFα (mBA-156) is purified from bacterial lysates (>98%); supplied as 50 µg purified protein.

BIOLOGICAL ACTIVITY

TNFα (mBA-156) is biologically active as determined by the cytolysis of murine L929 cells in the presence of actinomycin D is < 0.1 ng/ml.

Specific Activity: > 1×10^7 units/mg.

STORAGE

Store desiccated at -20° C; stable for one year from the date of shipment.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

BACKGROUND REFERENCES

1. Nedwin, G.E., Naylor, S.L., Sakaguchi, A.Y., Smith, D., Jarrett-Nedwin, J., Pennica, D., Goeddel, D.V., and Gray, P.W. 1985. Human lymphotoxin and tumor necrosis factor genes: structure, homology and chromosomal localization. Nucl. Acids Res. 13: 6361-6373.
2. Aggarwal, B.B., Kohr, W.J., Hass, P.E., Moffat, B., Spencer, S.A., Henzel, W.J., Bringman, T.S., Nedwin, G.E., Goeddel, D.V., and Harkins, R.N. 1985. Human tumor necrosis factor. Production, purification, and characterization. J. Biol. Chem. 260: 2345-2354.
3. Vilcek, J. and Lee, T.H. 1991. Tumor necrosis factor. New insights into the molecular mechanisms of its multiple actions. J. Biol. Chem. 266: 7313-7316.
4. De Togni, P., Goellner, J., Ruddle, N.H., Streeter, P.R., Fick, A., Mariathasan, S., Smith, S.C., Carlson, R., Shornick, L.P., Strauss-Schoenberger, J., Russell, J.H., Karr, R., and Chaplin, D.D. 1994. Abnormal development of peripheral lymphoid organs in mice deficient in lymphotoxin. Science 264: 703-707.
5. Qin, Z. and Blankenstein, T. 1995. Tumor growth inhibition mediated by lymphotoxin: evidence of B lymphocyte involvement in the antitumor response. Cancer Res. 55: 4747-4751.
6. Tartaglia, L.A., Rothe, M., Hu, Y.-F., and Goeddel, D.V. 1993. Tumor necrosis factor's cytotoxic activity is signaled by the p55 TNF receptor. Cell 73: 213-216.
7. Sarin, A., Conan-Cibotti, M., and Henkart, P.A. 1995. Cytotoxic effect of TNF and lymphotoxin on T lymphoblasts. J. Immunol. 155: 3716-3718.

RECONSTITUTION

In order to avoid freeze/thaw damaging of the active protein, dilute protein when first used to desired working concentration. Either a sterile filtered standard buffer (such as 50mM TRIS or 1X PBS) or water can be used for the dilution. Store any thawed aliquot in refrigeration at 2° C to 8° C for up to four weeks, and any frozen aliquot at -20° C to -80° C for up to one year. It is recommended that frozen aliquots be given an amount of standard cryopreservative (such as Ethylene Glycol or Glycerol 5-20% v/v), and refrigerated samples be given an amount of carrier protein (such as heat inactivated FBS or BSA to 0.1% v/v) or non-ionic detergent (such as Triton X-100 or Tween 20 to 0.005% v/v), to aid stability during storage.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.