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ProductInformation

TRANSFORMING GROWTH FACTOR - ALPHA (TGF-α)
Rat, Synthetic

Product No. **T9533**

Product Description

Transforming Growth Factor-Alpha (TGF-α), originally discovered in 1978 in conditioned medium of retrovirus-transformed fibroblasts [1], is a protein that reversibly confers a transformed phenotype upon normal non-neoplastic cells, such as normal rat kidney (NRK) fibroblasts [2]. The transforming activity of TGF-α was later shown to require the presence of Transforming Growth Factor-Beta 1 (TGF-β1, Product No. T1654), which potentiates the action of TGF-α via a separate receptor [2,3,4]. Secreted TGF-α proteins range from 5 to 20 kDa [5], but this species of TGF-α from rat (Product No. T9533) is a 5.6 kDa polypeptide produced by synthetic means. The primary structure of rat TGF-α is quite similar to that of Epidermal Growth Factor (Product No. E1257), showing a 30-35% homology in amino acid sequence with conservation of all six cysteine residues [6], resulting in a similar NMR - determined three - dimensional structure[7]. TGF-α exerts its cellular action via the EGF cell-surface receptor [8,9] and induces many of the same actions as EGF [5,10,11] but is immunologically distint from EGF [12].

Product Specifications

Biological Activity: EC_{50} = 0.02 - 2.0 ng/ml using Balb/MK [13].
Purity: > 98% by HPLC
Mycoplasma: None detected
Endotoxin*: < 1 EU/vial

Reconstitution and Use

Rat synthetic TGF-α is supplied as a sterile, γ-irradiated lyophilized powder packaged in a stoppered amber serum vial containing 10 µg of TGF-α. A stock solution of 10 µg/ml may be prepared by adding 1.0 ml of sterile protein-containing medium or balanced salt solution to the vial using aseptic technique. Rotate the vial to dissolve the powder. The stock solution may be further diluted with medium to obtain the desired working concentrations ranging from 0.01 to 1000 ng/ml of media [7]. Additional filtration is not recommended and may result in product loss due to adsorption onto the filter membrane.

Storage

Prior to reconstitution store vial at -20°C. After reconstitution, the product may be stored for two weeks at 0-5°C or may be stored as aliquots at -20°C. Prolonged storage of reconstituted product or repeated freezing and thawing are **not** recommended.

References

1. DeLarco, J. and Todaro, G., Proc. Natl. Acad. Sci. USA, **75**, 4001 (1978).
2. Massagne, J., Prog. Med. Virol., **32**, 142 (1985).
3. Anzano, M., et al., Cancer Res., **42**, 4776 (1982).
4. Anzano, M., et al., Proc. Natl. Acad. Sci. USA, **80**, 6264 (1983).
5. Derynck, R., Cell, **54**, 593 (1988).
6. Marquardt, H., et al., Proc. Natl. Acad. Sci. USA, **80**, 4684 (1983).
7. Campbell, I., et al., Prog. Growth Factor Res., **1**, 13 (1989).
8. Todaro, G., et al., Proc. Natl. Acad. Sci. USA, **77**, 5258 (1980).
9. Pike, L., et al., J.Biol. Chem., **257**, 14628 (1982).
10. Ibbotson, K., et al., Proc. Natl. Acad. Sci. USA, **83**, 2228 (1986).
11. Schreiber, A., et al., Science, **232**, 1250 (1986).
12. Kobrin, M., et al., J. Biol. Chem., **261**, 14414, (1986).
13. Carpenter, G., et al., Anal. Biochem., **153**, 279 (1985).

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