

DESCRIPTION

Source *Spodoptera frugiperda*, Sf 21 (baculovirus)-derived
Gly81-Ala210
Accession # P34130
Manufactured and tested under current Good Manufacturing Practice (GMP) guidelines.

N-terminal Sequence Analysis Gly₈₁-Val-Ser-Glu-Thr-Ala-Pro-Ala-Ser-Arg

Predicted Molecular Mass 14 kDa (monomer)

SPECIFICATIONS

Activity Measured in a cell proliferation assay using BaF mouse pro-B cells transfected with TrkB.
The ED₅₀ for this effect is 0.3-3 ng/mL.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >97%, by SDS-PAGE with silver staining, under reducing conditions.

Mycoplasma Negative when tested in a ribosomal RNA hybridization assay.

Formulation Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.

PREPARATION AND STORAGE

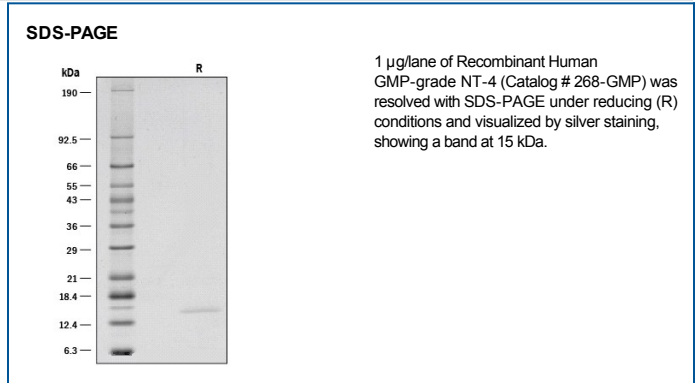
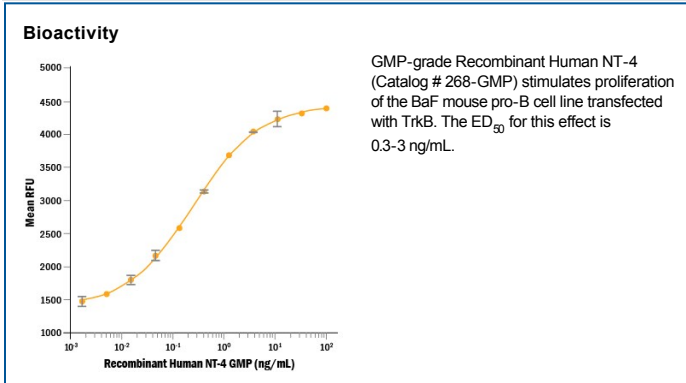
Reconstitution Reconstitute at 100 µg/mL in PBS.

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.**

- A minimum of 6 months when stored at ≤ -20 °C as supplied. Refer to lot specific COA for the Use by Date.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, ≤ -20 °C under sterile conditions after reconstitution.

DATA



BACKGROUND

Neurotrophin-4 (NT-4), also known as NT-5, is a member of the NGF family of neuronal and epithelial growth factors. Neurotrophins have six conserved cysteine residues that are involved in the formation of three disulfide bonds (1-3). The human NT-4 cDNA encodes a 210 amino acid (aa) precursor that includes a 24 aa signal sequence, a 56 aa propeptide, and a 130 aa mature protein (4, 5). NT-4 is synthesized as a 28 kDa prepropeptide that is proteolytically processed to generate the mature protein. Mature human NT-4 shares 48-52% aa sequence identity with human beta-NGF, BDNF, and NT-3. It shares 91% and 95% aa sequence identity with mouse and rat NT-4/5, respectively. The mature protein is secreted as a homodimer and can also form heterodimers with BDNF or NT-3 (6). NT-4 binds and induces receptor dimerization and activation of TrkB (4, 7). NT-4 promotes the development and survival of selected peripheral and CNS neurons (8-10). BDNF, which also activates TrkB, overlaps with many but not all NT-4 functions, a distinction that is likely due to differences in expression patterns (8-10). NT-4 induced TrkB signaling augments NMDA receptor activity and increases neuronal sensitivity to excitotoxic cell death (11). It also promotes the proliferation of keratinocytes and accelerates hair follicle regression during the follicular cycle (12, 13). NT-4 is secreted by activated T cells and granulocytes at sites of inflammation where it contributes to tissue regeneration (14-16).

References:

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MANUFACTURING SPECIFICATIONS

GMP Proteins

R&D Systems, a Bio-Techne Brand's GMP proteins are produced according to relevant sections of the following documents: WHO TRS, No. 822, 1992 Annex 1, Good Manufacturing Practices for Biological Products; USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and USP Chapter 92, Growth Factors and Cytokines Used in Cell Therapy Manufacturing.

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- Personnel training programs
- Raw material testing and vendor qualification/monitoring
- Fully validated equipment, processes and test methods
- Equipment calibration schedules using a computerized calibration program
- Facility maintenance, safety programs and pest control
- Material review process for variances
- Monitoring of stability over product shelf-life

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- N-terminal amino acid analysis, SDS-PAGE analysis, and endotoxin level (as determined by LAL assay) performed on each bulk QC lot, not on individual bottlings of each QC lot
- Post-bottling lot-specific bioassay results (compliance with an established range) and results of microbial bioburden testing (using broth culture, Sabourand's dextrose and blood agar plates with results reported at 3 days and at 7 days)
- Mycoplasma testing by ribosomal RNA hybridization assay

Additional testing and documentation requested by the customer can be arranged at an additional cost. Testing may include, but is not limited to, USP <61> bioburden testing, positive identity testing, testing for adventitious agents and testing for residual host cell content.

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