SANTA CRUZ BIOTECHNOLOGY, INC.

NT-3 (N-20): sc-547

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Neurotrophins function to regulate naturally occurring cell death of neurons during development. The prototype neurotrophin is nerve growth factor (NGF), originally discovered in the 1950s as a soluble peptide promoting the survival of, and neurite outgrowth from, sympathetic ganglia. Three additional structurally homologous neurotrophic factors have been identified. These include brain-derived neurotrophic factor (BDNF), neurotrophin-3 (NT-3) and neurotrophin-4 (NT-4) (also designated NT-5). These various neurotrophins stimulate the *in vitro* survival of distinct, but partially overlapping, populations of neurons. The cell surface receptors through which neurotrophins mediate their activity have been identified. For instance, the Trk A receptor is the preferential receptor for NGF, but also binds NT-3 and NT-4. The Trk B receptor binds both BDNF and NT-4 equally well, and binds NT-3 to a lesser extent, while the Trk C receptor only binds NT-3.

REFERENCES

1. Oppenheim, R.W. 1991. Cell death during development of the nervous system. Annu. Rev. Neurosci. 14: 453-501.
2. Thoenen, H. 1991. The changing scene of neurotrophic factors. Trends Neurosci. 14: 165-170.

SOURCE

NT-3 (N-20) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping within an internal region of NT-3 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-547 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

NT-3 (N-20) is recommended for detection of NT-3 and, to a lesser extent, BDNF and NGF of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

NT-3 (N-20) is also recommended for detection of NT-3 and, to a lesser extent, BDNF and NGF in additional species, including equine, canine, bovine, porcine, avian and feline.

Molecular Weight of NT-3: 35 kDa.

Positive Controls: U-87 MG cell lysate: sc-2411 or Jurkat whole cell lysate: sc-2204

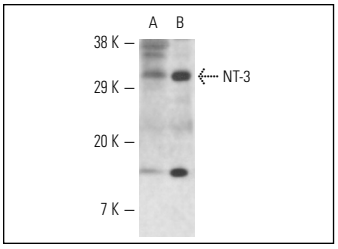
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

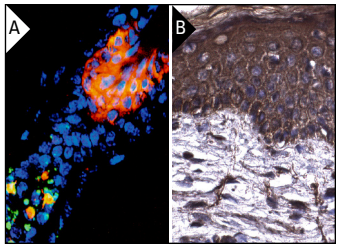
RESEARCH USE

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

DATA



NT-3 (N-20): sc-547. Western blot analysis of NT-3 expression in U-87 MG (**A**) and Jurkat (**B**) whole cell lysates.



NT-3 (N-20): sc-547. Cryostat sections of mouse skin showing hair follicle staining. Note red immunofluorescence staining, green TUNEL fluorescence staining marking apoptotic cells; and blue HOECHST 33342 nuclear counterstain. Kindly provided by Hair Research Group, Humboldt University, Berlin (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing cytoplasmic staining of epidermal cells (**B**).

SELECT PRODUCT CITATIONS

1. Murphy, D.D., et al. 1998. Brain-derived neurotrophic factor mediates estradiol-induced dendritic spine formation in hippocampal neurons. Proc. Natl. Acad. Sci. USA 95: 11412-11417.
2. Botchkarev, V., et al. 1998. A new role for neurotrophin-3: involvement in the regulation of hair follicle regression (catagen). Am. J. Pathol. 153: 785-799.
3. Wang, H.Y., et al. 2011. Repetitive transcranial magnetic stimulation enhances BDNF-TrkB signaling in both brain and lymphocyte. J. Neurosci. 31: 11044-11054.
4. Sippl, C., et al. 2011. Depletion of optineurin in RGC-5 cells derived from retinal neurons causes apoptosis and reduces the secretion of neurotrophins. Exp. Eye Res. 93: 669-680.
5. Esposito, E., et al. 2011. Effects of palmitoylethanolamide on release of mast cell peptidases and neurotrophic factors after spinal cord injury. Brain Behav. Immun. 25: 1099-1112.
6. Santos, E., et al. 2011. Expression of BDNF and NT-3 during the ontogeny and regeneration of the lacertidian *(Gallotia galloti)* visual system. Dev. Neurobiol. 71: 836-853.
7. Barcena de Arellano, M.L., et al. 2012. Neurotrophin expression is not affected in uteri of women with adenomyosis. J. Mol. Neurosci. 47: 495-504.