

PRODUCT INFORMATION

NDiff® N2 & NDiff® N2-AF

Catalog Numbers: Y40100, Y40110

Size: NDiff N2 and NDiff N2-AF each consist of an ampoule containing 5 mL of 200X concentrated liquid supplement.

NDiff N2-AF is the animal component-free equivalent of the NDiff N2 formulation. NDiff N2-AF contains components of yeast recombinant, synthetic and human origin, and no components of animal origin.

Larger volumes and variants with either HOLO- or APO-transferrin are available upon request.

Applications: Demonstrated applications (with addition of further supplements) include:

- Derivation, maintenance and expansion of adherent mouse, rat and human neural stem (NS) cells
- Neural differentiation of mouse and human embryonic stem (ES) cells in monolayer culture
- Derivation of mouse, rat and human NS cells from sourced central nervous system (CNS) tissues and from ES cell lines
- Differentiation of mouse and human NS cells into functional neurons

Description: NDiff N2 and NDiff N2-AF are defined, serum-free cell culture supplements. Based on Bottenstein's formulation¹, NDiff N2 was originally developed and optimised for the *in vitro* monolayer differentiation of mouse embryonic stem cells into neurons^{2,3}. The product has subsequently been used to derive, expand and maintain mouse and human NS cells as well as mouse ES cells under serum- and feeder-free culture conditions⁴⁻⁷.

NDiff N2 and NDiff N2-AF contain insulin, APO-transferrin (iron poor), progesterone, putrescine and sodium selenite.

Storage: Upon receipt, store at -20°C in the dark until ready to use. **The product is light sensitive.** When stored under these conditions, the product is stable for 12 months from the date of manufacture (see label). Once combined with media, store at 2 to 8°C in the dark and use within 4 weeks.

The contents are sterile if the seal has not been tampered with or broken.

Preparation: Thaw the frozen 5 mL NDiff N2 or NDiff N2-AF supplement at room temperature; once thawed, the supplement can be aliquoted into smaller volumes and stored at -20°C in the dark until further use within the expiry date. Additional freeze-thaw cycles are not recommended.

Add aseptically to warmed medium and mix thoroughly to ensure the NDiff N2 or NDiff N2-AF supplement is thoroughly distributed. This supplement is supplied as a 200X concentrate and should be added at 5 mL/L of medium (i.e., 1X final working concentration). **However, it is highly recommended that for any specified application and cell type that a range of NDiff N2 and NDiff N2-AF dilutions between 1:400 and 1:40 (i.e., 0.5X - 5X) be evaluated to achieve optimal results.**

Additional reagents required:	NDiff N2 and NDiff N2-AF have been pre-screened for use with the SC Proven™ media product RHB-Basal™ (Cat. #Y40000) for optimal performance.
Quality control:	SC Proven media products undergo rigorous quality control procedures before release.
References:	<ol style="list-style-type: none"> 1. Bottenstein JE and Sato G. Cell Culture and the Neurosciences. <i>Plenum Press: New York and London</i>. (1985) 2. Ying QL and Smith AG. Defined conditions for neural commitment and differentiation. <i>Methods Enzymol</i>. (2003) 365: 327-341. 3. Ying QL, <i>et al</i>. Conversion of embryonic stem cells into neuroectodermal precursors in adherent monoculture. <i>Nat Biotechnol</i>. (2003) 21(2): 183-186. 4. Conti L, <i>et al</i>. Niche-independent symmetrical self-renewal of a mammalian tissue stem cell. <i>PLoS Biol</i>. (2005) 3(9): e283. 5. Pollard SM, <i>et al</i>. Adherent neural stem (NS) cells from fetal and adult forebrain. <i>Cereb Cortex</i>. (2006) 16 Suppl 1: 112-120. 6. Conti L, <i>et al</i>. Neural stem cell systems: diversities and properties after transplantation in animal models of diseases. <i>Brain Pathol</i>. (2006) 16(2): 143-154. 7. Nichols J and Ying QL. Derivation and propagation of embryonic stem cells in serum- and feeder-free culture. <i>Methods Mol Biol</i>. (2006) 329: 91-98.

Note

This product is for research use only. It is not intended for use in therapeutic or diagnostic procedures for humans or animals. Also, do not use this product as food, cosmetic, or household item, etc. Takara products may not be resold or transferred, modified for resale or transfer, or used to manufacture commercial products without written approval from TAKARA BIO INC. If you require licenses for other use, please contact us by phone at +81 77 565 6973 or from our website at www.takara-bio.com. Your use of this product is also subject to compliance with any applicable licensing requirements described on the product web page. It is your responsibility to review, understand and adhere to any restrictions imposed by such statements. All trademarks are the property of their respective owners. Certain trademarks may not be registered in all jurisdictions.