MACS® NeuroBrew®-21 w/o Vitamin A (50×)

Order no. 130-097-263

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1. Description

This product is for research use only.

Components	10 mL MACS NeuroBrew-21 w/o Vitamin A (50×)
Quality control	Functionality assay: Satisfactory cultivation of neuronal cells from CD-1® mouse brain tissue (P1) when used in combination with MACS Neuro Medium.
Capacity	For the preparation of 500 mL MACS Neuro Medium (# 130-093-570).
Storage	MACS NeuroBrew-21 w/o Vitamin A (50×) should be stored upon arrival at –20 °C. The expiration date is indicated on the vial label. Avoid repeated freeze-thaw cycles. Protect from light.

1.1 Background information

MACS NeuroBrew-21 w/o Vitamin A (50×) is a serum-free supplement developed to support the growth of neuronal progenitor cells. MACS NeuroBrew-21 w/o Vitamin A (50×) can be used in combination with MACS Neuro Medium (# 130-093-570) and other factors, such as FGF-2 (also called FGF-b or bFGF), for the expansion and growth of different neural stem cells and neural precursor cells.

Vitamin A, and retinoid related compounds promote the differentiation of stem cells into mature neural cells. Removing vitamin A and related compounds from the standard MACS NeuroBrew-21, enables it to be used to promote expansion of neural stem cells, either as neurospheres in suspension, or in adherent monolayer culture, without inducing differentiation.

1.2 Applications

- MACS NeuroBrew-21 w/o Vitamin A (50×) enhances the ability of neural stem cells to remain in an undifferentiated state. This allows proliferation and controlled differentiation of cells from a number of different sources, for example:
  - adult-derived neural stem cells and neurospheres or
  - embryonic stem (ES)/induced pluripotent stem (iPS) cell–derived neural stem cells and neurospheres.

2. Protocol

For preparation of MACS Neuro Medium add 200 µL of MACS NeuroBrew-21 w/o Vitamin A (50×) to 10 mL of MACS Neuro Medium (or 10 mL of MACS NeuroBrew-21 w/o Vitamin A (50×) to 490 mL of MACS Neuro Medium).

3. References

1. Chen, Y. *et al.* (2008) NS21: re-defined and modified supplement B27 for neuronal cultures. J. Neurosci. Methods 171: 239–247.
2. Takahashi, J. *et al.* (1999) Retinoic acid and neurotrophins collaborate to regulate neurogenesis in adult-derived neural stem cell cultures. J. Neurobiology 38(1): 65–81.

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140-003-631.04

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