MACS® NeuroBrew®-21
Supplements for serum-free neural cell cultivation

MACS® NeuroBrew®-21 Supplements are optimized for in vitro cultivation of mature neural cells of the central and peripheral nervous system, or neural stem cells of primary or ES/iPS cell origin. They come in two formulations, with or without Vitamin A.

- For neonatal and adult neural cells
- For maintenance and differentiation of neural progenitors and stem cells

miltenyibiotec.com/neurobrew
Improved performance
MACS® NeuroBrew®-21 provides essential nutrients for optimal growth and long-term viability of neural cells.

Culture iPSC-derived neural cells
Differentiate iPSCs into neural progenitors and neural cells and get pure and functional neural cell cultures.

Maintain neural stem cells or induce neural differentiation
MACS NeuroBrew-21 comes in two formulations, with and without Vitamin A (retinyl acetate), which induces the differentiation of neural stem cells.

Figure 1: Long-term cultivation of primary neurons and oligodendrocytes from neonatal mouse brain in MACS Neuro Medium and MACS NeuroBrew-21. Neurons were fixed after 1 week (A), 2 weeks (B), and 3 weeks (C) of culture and stained with MAP2 in green. Oligodendrocytes were fixed after 3 days (D), 1 week (E), and 2 weeks (F) of culture and stained with AN2 in red, DAPI in green, and DAPI in blue.

Figure 3: Human iPSC differentiation into neurons. iPSC monolayer in StemMACS™-iPS-Brew XF, human positive for TRA-1-60 (A). A homogeneous neuroepithelial layer was formed after neural induction with MACS Neuro Medium, MACS NeuroBrew-21, StemMACS A83-01, StemMACS LDN-193189, N2 Supplement, and DMEM-F12 (B). Immunofluorescence staining of iPSC-derived neurons differentiated for 8 weeks in MACS Neuro Medium, MACS NeuroBrew-21, N2 Supplement, and DMEM-F12 (synaptophysin, red; βIII tubulin, green) (C).

Data courtesy of Dr. Julia Ladewig, Neural Development Group, Institute of Reconstructive Neurobiology, University of Bonn, Germany.

Overview of neural cell culture applications and supplements

<table>
<thead>
<tr>
<th>Supplements</th>
<th>Human PSCs and PSC-derived cells</th>
<th>Primary neural cells</th>
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<tbody>
<tr>
<td>MACS NeuroBrew-21 w/o Vitamin A (#130-097-263)</td>
<td>• Differentiation of ES/iPSCs to neural progenitors</td>
<td>• Cultivation of neural stem or progenitor cells and neurospheres</td>
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<tr>
<td>MACS NeuroBrew-21 (#130-093-566)</td>
<td>• Cultivation of ES/iPSC-derived neural progenitors</td>
<td>• Cultivation of neurons, astrocytes*, oligodendrocyte precursor cells (OPCs), and oligodendrocytes</td>
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* For optimized culture results, AstroMACS Medium is recommended.