
A simplified method for generating oligodendrocyte progenitor cells from neural precursor cells isolated from the E16 rat spinal cord

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Abstract. Conditioned medium obtained from B104 neuroblastoma cells (B104CM) has been used widely for inducing oligodendrocyte progenitor cells (OPCs) from neural precursor cells (NPCs). Our previous studies have demonstrated that E16 rat spinal cord-derived NPCs could be induced to differentiate into OPCs using a combination of B104CM and basic fibroblast growth factor (bFGF). Here we report the development of a more efficient and reliable approach to generate large quantities of highly purified OPCs from spinal cord-derived NPCs using a combination of platelet derived growth factor (PDGF) and bFGF. We demonstrated that, after the two factors application, over 90% cells displayed typical bipolar or tripolar morphology and expressed markers for OPCs including A2B5 (90.36 ± 4.59%), NG2 (93.63 ± 3.37%) and platelet derived growth factor alpha receptor (PDGFR; 90.35 ± 1.95%). Our results indicated that the PDGF/bFGF combination is more efficient in generating OPCs than the B104CM/bFGF. And it is a more potent combination of factors in promoting proliferation of OPCs.

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