—Photogravure—

Involvement of IGF-1/LARG Signaling in the Differentiation of Neural Stem Cells into Oligodendrocytes

Nobuchika Suzuki, Reiko Tokita and Shiro Minami
Department of Bioregulation, Nippon Medical School

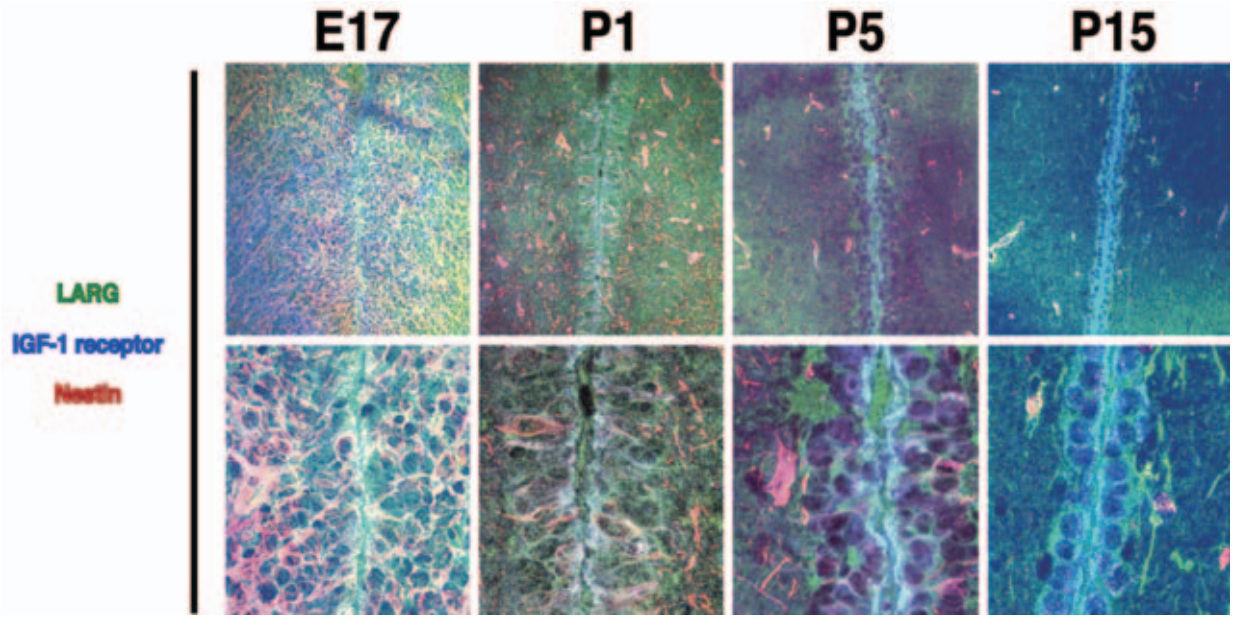

Fig. 1a

Abstract

Neural stem cells can differentiate into neurons, astrocytes, and oligodendrocytes in the mammalian central nervous system, but the molecular mechanisms that regulate the differentiation are not yet well understood. Insulin-like growth factor 1 (IGF-1) plays important roles during neuronal development. We examined the possibility that the IGF-1/leukemia-associated RhoGEF (LARG) pathway affects the differentiation of neural stem cells into oligodendrocytes. Characterization of cells positive for both IGF-1 receptor β and LARG in the subventricular zone during neuronal development suggests that IGF-1/LARG signaling is involved in oligodendrocyte differentiation from multipotent neural progenitor cells.

Correspondence to Nobuchika Suzuki, Department of Bioregulation, Institute of Gerontology, Nippon Medical School, 1–396 Kosugi-cho, Nakahara-ku, Kawasaki, Kanagawa 211–8533, Japan

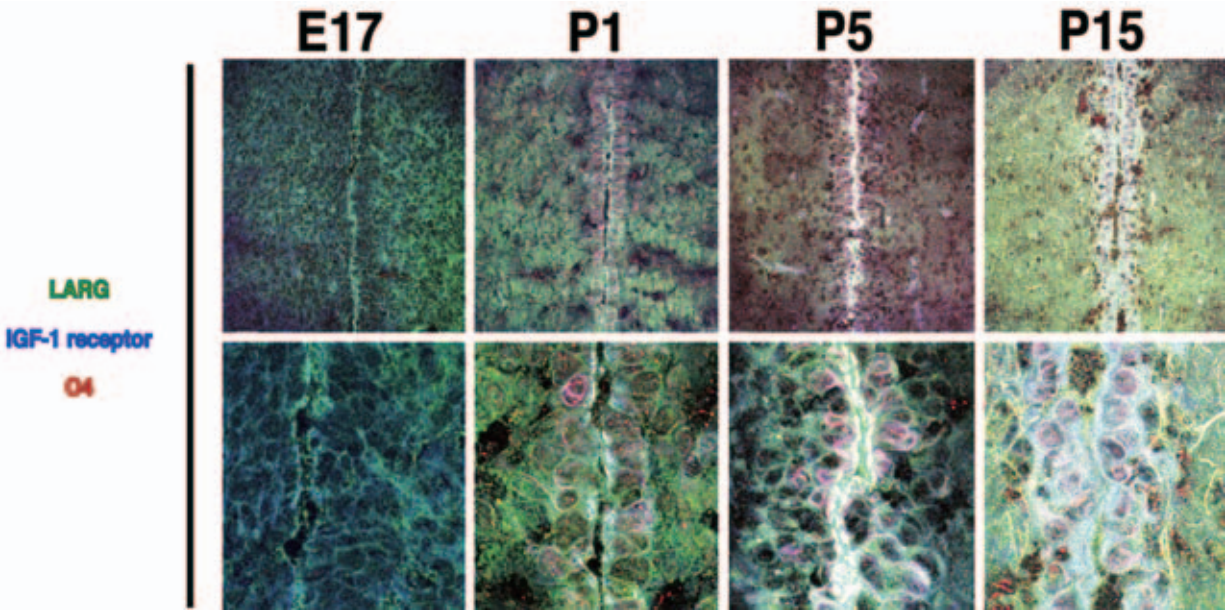

Fig. 1b

Fig. 1 Characterization of cells positive for both IGF-1 receptor β and LARG in the subventricular zone during neuronal development. Brain sections from rats from embryonic day 17 (E17) to postnatal day 15 (P15) were triple-labeled with antibodies to IGF-1 receptor β, LARG, and a neural stem cell marker, Nestin, or an oligodendrocyte marker, O4. Merged images of sections focusing on the periventricular region are shown; IGF-1 receptor β is in blue, LARG is in green, and Nestin or O4 is in red. Lower-magnification views (top panels) and higher-magnification views (bottom panels) are presented for each experiment. Bar, 100 μm.

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