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Stimulation of neuronal cells by culture supernatant of T lymphocytes triggered by anti-CD3 mAb followed by propagation in the presence of interleukin-2.

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Abstract

Performance status (PS) frequently improves occurs in cancer patients who have been infused with their own lymphokine-activated killer T cells (LAK-T). In the present study, a culture supernatant of LAK-T (LAK-T sup) administered to 8-week-old rats caused neurogenesis as evidenced by increased 5-ethynyl-2'-deoxyuridine staining of brain tissues. Intravenous injection of granulocyte-macrophage colony stimulating factor (GM-CSF), a major cytokine in LAK-T sup, had a similar effect. Furthermore, LAK-T sup induced Ca^{2+} increase in rat hippocampal brain slices that was detected in neuronal cells by emission of Fluo-8 NW at 520 nm. The same effect was observed with an rGM-CSF solution. It was shown in this study that GM-CSF included in the LAK-T culture supernatant stimulate on central nerve, but, besides, much cytokine is included in the LAK-T culture supernatant, a further study is necessary. We will push forward analysis of many materials secreted by LAK-T and inspect the effect to a central nervous system cells and want to connect it with the suggestion of the new therapy in future.