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Comparison of TH Expression of PC12 by Treatment of Rat MSCS/ Feeder Cells Supernatant

Guang-Zhen Jin, Key-Young Park, Xi-Jun Yin, Sang-Suk Lee, Dong-Hwan Oh and Il-Keun Kong*

Department of Animal Science and Technology, College of Agriculture and Life Sciences, Sunchon National University, Suncheon, JeonNam Province 540-742, S. Korea

Mesenchymal stem cells (MSCs) and feeder cells which support ES cells growth are known to secrete a variety of trophic factors. In order to explore the mechanism of affecting TH expression of PC12 by MSCs co-culture, supernatant from rat MSCs was compared with one of rat feeder cells. Our experiment was divided into MSCs and feeder cells supernatant group. Each group was further subdivided into PC12 group (control), 2 : 1 (supernatant vs. DMEM), 1 : 1, and 1 : 2 groups. PC12 cells were seeded at the same density (400,000/60 mm dish) and cultured in corresponding media for 3 days. Thereafter, the cells were examined using western blot analysis. In the MSCs supernatant group, 2 : 1 and 1 : 1 showed higher TH expression than control ($p<0.01$), but 1 : 2 was not significant difference. Inversely, three conditional media groups decreased all TH protein compared with control in feeder cells group ($p<0.01$). It was partly dependent of leukaemia inhibitory factor (LIF). The study indicates that soluble factors from MSCs can up-regulate TH protein expression of PC12 cells, however, feeder cells-derived factors involving LIF down-regulate it.

Key words) *Tyrosine hydroxylase, PC12 cells, Rat, Mesenchymal stem cells, Conditional media*

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