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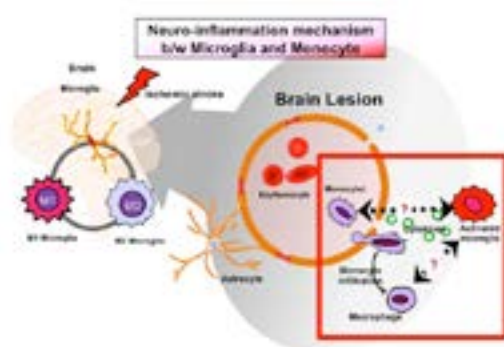
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Activated M2 phenotype microglia induce differentiation and polarization of monocyte and chemoattraction in *in vitro* system

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The inflammatory response following acute ischemic stroke is a well-known and widely studied phenomenon. However, the mechanism of neuro-inflammation is still unknown. Microglia and monocyte are now recognized to play a major role in neuro-inflammation after ischemic stroke. Microglia is the resident macrophages of brain. Macrophages originated from monocyte also have a highly phagocytic capacity after ischemic stroke. In this study, we explored the activated microglia by ischemic stroke affecting differentiation of monocyte. BV-2 cells (microglia cell line) were treated with lipopolysaccharides (LPS; 10 ng/mL) for polarization to M1 phenotype and treated with interleukin-4 (IL-4; 20 ng/mL) for polarization to M2 phenotype. After BV2 cells were activated with LPS and IL-4 for 1 day, cells were washed and M1 and M2 phenotype conditioned media were harvested at 3rd day. THP-1 cells (monocyte cell line) were cultured in M1 and M2 phenotype conditioned media of BV2 cells. THP-1 cells were also treated with each of the following substances; IL-10, IL-1 beta, TGF-alpha and TGF-beta. It is well known that CD11b positive cells are considered as M0 macrophage, CD86 positive cells as M1 macrophage and CD206 positive cells as M2 macrophage. THP-1 cells treated with M2 phenotype conditioned media expressed CD206 immunoreactivity in condition with and without phorbol-12-myristate-13-acetate (PMA; 10 ng/mL). And, CD11b immunopositive cells were significantly high in the IL-1 beta and TGF-beta treated group. CD206 positive cells were also highly observed in the TGF-beta treated group but less than M2 phenotype conditioned media treated group. Our data supports that the cytokine secreted from M2 phenotype microglia might induce differentiation of monocyte into M2 phenotype macrophage in *in vitro* system.



Biography

Yeonseung Han is a Student in Yonsei University, College of Medicine. His experience of research forum started from Gwangju-Science High School. He studied about Korean traditional preserving method; blackening wood surface of furniture or structure. Then he participated in an oral presentation in 2011-year-held CASTIC as a Korean Representative with this research. He studied Biological Science in KAIST (Korean Advanced Institute of Science and Technology) and KIT (Karlsruhe Institute of Technology) as an Exchange Student. To study and perform research on human disease, in particularly brain field, he is studying Ischemic Stroke Part in Yonsei University.

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