Analysis of intrinsic neuronal transformation with aging and elucidation of anti-aging factors

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Supercentenarians are characterized by their resistance to aging-induced brain atrophy and cognitive decline after the age of 100. Although anti-aging studies have been conducted on supercentenarians, no analysis has focused on the interaction between glial cells or glial cells and neurons. Therefore, we induced microglia and astrocytes from iPS cells derived from supercentenarians, and we analyzed how microglia and astrocytes interact with neurons by co-culturing each of them. We prepared supercentenarian-derived iPS cells and control iPS cells, and started induction of microglia and astrocytes, respectively. We performed the experiment several times, but were unable to induce microglia in the supercentenarian strain. In addition, the induction efficiency of astrocytes differed greatly depending on the cell line. The reason may be that the epigenetic status of iPSCs derived from supercentenarians may be different from that of iPS cells established from young adults.