Vascular endothelial cell senescence and hypoxia-induced remodeling of gliovascular unit

Primary Researcher:
Kyoji Ohyama, Associate Professor, Tokyo Medical University

Co-researchers:
Hiroshi M Shinohara, Assistant Professor, Tokyo Medical University
Hideyuki Maeda, Professor, Yamagata University

Abstract

Here we first show that vascular senescence occurs in the developing hippocampus. Our data also show that in utero intermittent hypoxia (IH) induces both vascular senescence and angiogenesis, thereby turnover of vascular endothelial cells. Moreover, IH induces gliosis and facilitates gliovascular coupling without affecting vessel permeability. These data suggest that IH-induced gliovascular coupling is an adaptive response to the IH, thereby protecting the hippocampus. Future studies will be needed to uncover the mechanism of both the turnover of vascular endothelial cells and the remodeling of the gliovascular unit.