



Innovations in Regenerative Medicine

Monday, February 22nd, 13:00 – 14:00

For the Zoom link click [here](#)

Prof. Asuka Morizane

Center for iPS Cell Research and Application, Kyoto University

CELL THERAPY FOR PARKINSON'S DISEASE WITH INDUCED PLURIPOTENT STEM CELLS

The innovation of induced pluripotent stem cells (iPSCs) is drawing attention to their application for regenerative medicine. Parkinson's disease is one of the most promising target diseases based on the history of fetal nigral transplantation in clinics. Due to the shortage of donor supply of fetal tissue and ethical problems, fetal nigral transplantation has not been a standard treatment. The technology of iPSCs offers a limitless and more advantageous donor source. Our research aim is to apply the stem cell technology to the clinic in cell therapy for PD.

Our group has successfully established a protocol for donor induction with clinically compatible grade. The non-clinical studies transplanted these donor neurons into PD models of mice, rats, and cynomolgus monkeys.

These studies showed that the graft survives functionally without any tumorization or side effect. Based on these non-clinical results, Kyoto University has started a clinical trial for Parkinson's disease that transplants dopaminergic progenitors generated from iPSCs since 2018; Kyoto Trial to Evaluate the Safety and Efficacy of iPSC-derived dopaminergic progenitors in the treatment of Parkinson's Disease (Phase I/II). The study is ongoing without any serious adverse event.