Special Issue

Response of Pluripotent Stem Cells to Environmental Stresses

Message from the Guest Editors

In pluripotent stem cells (PSCs) as embryonic and induced pluripotent stem cells (iPSCs), the characteristics as epigenetic state, gene expression profiles, and the cellular localization of proteins are quite different from differentiated and somatic cells. Due to such differences, the response to environmental stimuli and stresses as hypoxic, heat, and oxidative stress and chemicals, some ligands of channels and receptors etc is also different between PSCs and differentiated cells. For example, PSCs are highly sensitive to proteotoxic stress by MG132 and the levels of stress-responsive transcription factors change during differentiation. In this special issue, we would like to focus on such difference and the mechanism of it. By clarifying it, we can know the characteristics of stress response of PSCs and set up the differentiation protocol to somatic tissues by considering it. Furthermore, it could serve an useful information for the research on toxicology of chemicals in embryos and on iPSC-derived stress-related disease model like neurodegenerative diseases.

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