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Publication of Iron-Mediated Cell Cycle Regulation Related to PPMX-T003: Dr. Yanagiya et al. Report in Redox Biology

We are pleased to announce that the online publication in Redox Biology of a co-authored paper – with Dr. Ryo Yanagiya as first author-- elucidating the mechanism of action of our investigational anti-transferrin receptor (TfR) antibody PPMX-T003. Dr. Ryo Yanagiya (formerly of Department of Regulation of Infectious Cancers, Research Institute for Microbial Diseases, The University of Osaka; currently Assistant Professor, Department of Drug Discovery and Biomedical Sciences, Faculty of Medicine, Saga University), led this study in collaboration with investigators from other universities and our company.

PPMX-T003 is a drug that inhibits iron uptake by cells, and we have discovered that it effectively suppresses cancer cells specifically while having minimal Impact on normal cells.

For cell survival, proliferation, and growth, both nucleic acid replication (genetic information) and energy production are critical, and iron at the active centers of intracellular proteins is essential for both functions. Intracellular iron exists of two types: transport iron (transferrin) and storage iron (ferritin). Dr. Yanagiya demonstrated that nucleic acid replication depends on transport iron (transferrin), while energy production requires storage iron (ferritin).

PPMX-T003 suppresses cancer cell growth by inhibiting nucleic acid replication involving transport iron, without affecting energy production maintained by storage iron, thus ensuring safety for normal cells throughout the body. This mechanism was clarified using aggressive NK leukemia cells studied by Professor Kotani's group.

We are currently working in joint research with Professor Kotani's group on research and development of investigational drugs for hematological diseases such as ANKL.

[Paper Information]

Title: “Revised model for cell cycle regulation by iron: differential roles between transferrin and ferritin ”
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