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SBI Holdings, Inc.
SBI Pharmaceuticals Co., Ltd.
ReproCELL Inc.

ReproCELL and SBI Pharmaceuticals Develop Selective Removal Technology of Residual iPS Cells from iPS Derived-differentiated Cells for Regenerative Medicine Through Technological Application of SBI Pharmaceuticals' 5-ALA

SBI Pharmaceuticals Co., Ltd. (Head office: Minato-ku, Tokyo; Representative Director and CEO: Yoshitaka Kitao; "SBI Pharmaceuticals"), a subsidiary of SBI Holdings, Inc. engaging in research and development of pharmaceuticals, health foods and cosmetics using 5-aminolevulinic acid ("5-ALA")* and ReproCELL Inc. (Head office: Kohoku-ku, Yokohama, Kanagawa; Chief Executive Officer: Chikafumi Yokoyama, Ph.D.; " ReproCELL"), engaging in sales of ES/iPS cells-related R&D reagent, iPS-derived cells, and clinical diagnostics, announced that they developed selective removal technology of residual iPS cells from iPS derived-differentiated cells through the joint research using 5-ALA, safe amino acids, suitable for regenerative medicine, while residual iPS cells have safety concerns in terms of regenerative medicine.

Until now, when myocardium, nerve, liver, and other types of cells have been created from iPS cells, there have been occasions where some iPS cells do not change and instead remain as iPS cells (at a rate of one cell out of every 10,000). When transplanted into the body, there is a possibility that these residual iPS cells will develop into cancer. For this reason, from the viewpoint of quality control of regenerative medicine, it has been requested to develop a technology that will selectively remove these residual iPS cells from within colonies of somatic cells at an efficient rate. This time they have made note of a common characteristic between cancer cells and iPS cells, and under special conditions have exposed somatic cells (derived from iPS cells cultured in a medium containing 5-ALA) to light. By doing this, they have succeeded in easily and selectively removing only residual iPS cells.

In normal tissue 5-ALA becomes a substance known as heme, a protein which serves various functions in the body. However in cancerous tissue, 5-ALA becomes a substance known as protoporphyrin IX, a protein which has a special characteristic to accumulate. This substance protoporphyrin IX, when exposed to a special wavelength of light, becomes a substance that destroys cells. Because of this property, 5-ALA is being acknowledged overseas as a drug for cancer treatment (Photodynamic Therapy: PDT).

This technology is very groundbreaking in overcoming the large challenge of putting iPS cell technology into practical use for regenerative medicine. In the future, without being limited to research and development with aims of regenerative medicine, it carries hope of being applied as the wide standard in industrial use.

From here on, SBI Pharmaceuticals and ReproCELL will contribute to the further development of medical treatment through the application of this technology.

* About 5-Amino Levulinic acid (5-ALA): This is an amino acid created by mitochondria within the body. It is an important substance that serves as a precursor of heme and cytochrome, proteins which are related to the production of energy. It is known that this function declines in efficiency with age. 5-ALA is contained within food such as shochu distillation remnants and red wine, and is also known as a precursor material of chloroplasts in plants.

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