京都大学 KYOTO UNIVERSITY

京都大学医学部附属病院 KYOTO UNIVERSITY HOSPITAL

“The First Patient in the Investigator-Initiated Clinical Trial of iPSC-Derived Pancreatic Islet Cell Sheet Transplantation

[Overview]

Kyoto University Hospital has successfully performed a transplant of an allogeneic iPSC-derived pancreatic islet cell sheet (OZTx-410) on the first case with type 1 diabetes, as part of an investigator-initiated clinical trial for iPSC-derived pancreatic islet cell sheet transplantation. The surgery was completed safely, and the postoperative course has been favorable. The case has already been discharged and will continue to be followed up regularly on an outpatient basis.

This case represents the first clinical application of OZTx-410. The primary aim of this investigator-initiated clinical trial is to evaluate the safety of OZTx-410 in humans. As there were no major safety concerns observed during the first month after surgery in this first case, preparations will now proceed toward the transplantation of a second case.

[About the Surgery]

Location: Kyoto University Hospital

Timing: February 2025

Surgeons: Dr. Takayuki Anazawa (Department of Hepato-Biliary-Pancreatic Surgery and Transplantation), and one additional surgeon

[Overview of the Cell Sheet Transplantation Process]

1) About OZTx-410

The iPICs[1)] used in OZTx-410 are a population of pancreatic endocrine cells identified through research under the "T-CiRA" joint program[2)] and are derived from the iPSC stock for regenerative medicine produced by the Center for iPS Cell Research and Application Foundation (CiRAF) at Kyoto University[3)]. These iPSCs are differentiated into islet cells.

OZTx-410, used in this clinical trial, is a thin sheet-form product in which iPICs are evenly distributed. It was developed by Orizuru Therapeutics Inc.

Once the surgery date was determined, Kyoto University Hospital requested delivery of OZTx-410 from Orizuru Therapeutics Inc., the clinical trial product provider. The product was transported to the Center for Cellular and Molecular Therapy (CCMT) at Kyoto University Hospital the day before surgery, in a temperature-controlled transport device. On the day of surgery, it was delivered from CCMT to the operating room.

2) Transplantation Procedure

On the day of surgery, the case underwent general anesthesia, and a midline abdominal incision was made

to access the deep abdominal wall. Spaces were created on both sides to accommodate the sheet insertion. The edges of the sheet were secured using synthetic absorbable sutures, and multiple sheets were transplanted. Hemostasis was confirmed after all sheets were transplanted, and the wound was closed.

[Postoperative Course of the First Case]

The postoperative course was observed during hospitalization. No safety concerns have been identified with OZTx-410 to date, and an independent third-party committee has confirmed that there are no major safety issues within the first month after surgery.

[Future Plans]

The clinical trial will continue to follow up on the case for up to five years. As no major safety issues have been found during the first month post-surgery, preparations will proceed for the second case's transplantation.

[Glossary]

1) iPICs: iPS cell-derived pancreatic islet cells

2) T-CiRA: A joint research program launched in 2015 between the Center for iPS Cell Research and Application (CiRA) at Kyoto University and Takeda Pharmaceutical Company Limited

3) iPS cells derived from healthy donors with HLA homozygosity, which reduces the risk of immune rejection in many recipients

[Clinical Trial Implementation System]

Principal Investigator: Prof. Daisuke Yabe (Department of Diabetes, Endocrinology and Nutrition)

Clinical Departments Involved: Department of Diabetes, Endocrinology and Nutrition; Department of Hepato-Biliary-Pancreatic Surgery and Transplantation

iPSC Provider: Center for iPS Cell Research and Application Foundation, Kyoto University

OZTx-410 Provider: Orizuru Therapeutics Inc.

Clinical Trial Registry: https://jrct.mhlw.go.jp/latest-detail/jRCT2053240146

[Support for This Clinical Trial]

This trial is supported by:

#Japan Agency for Medical Research and Development (AMED)

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