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Astellas and Osaka University to develop pluripotent stem cell-derived cartilage organoid cell therapy in Japan

July 22, 2024 | News

For intervertebral disc degenerative disease using Astellas' Universal Donor Cell technology



Japan-headquartered Astellas Pharma Inc. and Graduate School of Medicine / Faculty of Medicine, Osaka University have announced that Astellas Institute for Regenerative Medicine (a wholly owned subsidiary of Astellas, AIRM), Universal Cells (a wholly owned subsidiary of Astellas) and Osaka University have entered into a research collaboration to develop innovative pluripotent stem cell-derived cartilage organoid cell therapy for the treatment of intervertebral disc degenerative disease.

Universal Cells holds the rights to Universal Donor Cell (UDC) technology to create cell therapy products from pluripotent stem cells that have reduced risk of immune rejection by genetically modifying Human Leukocyte Antigen (HLA) using gene editing technology.

Under the terms of the agreement, the three parties aim to combine the cartilage tissue creation protocol established by Professor Noriyuki Tsumaki of (Graduate School of Frontier Biosciences / Premium Research Institute for Human Metaverse Medicine) the Department of Tissue Biochemistry and Molecular Biology, Graduate School of Medicine, Osaka University, a leading researcher in cartilage diseases, Universal Cells' UDC technology, and AIRM's exceptional R&D expertise in cell therapy, and jointly create an innovative cell therapy for intervertebral disc degenerative disease.

Professor Noriyuki Tsumaki, M.D., Ph.D., said “We believe that our cartilage-like tissue has the potential to regenerate intervertebral discs. We hope that combining our research with Astellas’ UDC technology and R&D cell therapy system will accelerate and realise the development of regenerative therapies to treat intervertebral disc degenerative disease.”