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Regenerative therapy to treat knee joint damages gets boost in Japan

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Cell Therapy for Cartilage Regeneration Gets a Boost With Hyaluronic Acid Enriched Chondrocytes in a 3D Tissue Engineering Platform



Regenerative therapy to treat knee joint damages gets a boost with a breakthrough technology of growing ideal type of cartilage cells including chondroprogenitors and mesenchymal stem cells **enriched with hyaluronic acid (HA)**, reported by Dr Shojiro Katoh, President, Edogawa Hospital, Japan in “The KNEE” journal (https://doi.org/10.1016/j.knee.2021.02.019).

Edogawa Evolutionary Laboratory of Science (EELS) researchers accomplished this feat using a 3D tissue engineering scaffold, without externally added HA or growth factors. They hope this technology will improvise the clinical outcome of Autologous Chondrocyte Implantation (ACI) and Matrix Assisted Chondrocyte Implantation (MACI) treatments.

Regenerative medicine applications for articular cartilage repair require growing chondrocytes taken from patients’ own joint, in the lab, followed by transplantation to the disease affected portion, enable them restore, replace, rejuvenate or regenerate the cartilage in ACI or MACI procedures, practiced by orthopedicians and arthroscopy surgeons worldwide.

The lab environment makes the chondrocytes, many a time, grow as fibrocartilage, whereas, hyaline cartilage is the ideal type of tissue required, which contributes to weight bearing function of the joint. Having proven hyaline cartilage growth in vitro and their in vivo efficacy, EELS team has now proven that stem cell like progenitors and mesenchymal stem cells residing in the human cartilage could be grown without artificial reprogramming or animal proteins or feeder layers.