

Korea gives new hope to patients suffering from chronic shoulder pain

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It is particularly beneficial for those patients who cannot use autologous tissues to regenerate rotator cuffs by providing a customized treatment option



A research team at Pohang University of Science and Technology, South Korea has developed a complex tissue platform that can restore damaged rotator cuffs through a joint study with Harvard Medical School. Tissue-specific extracellular matrix bioink is used to 3D-bioprint this platform, which can accurately mimic the complex structure of rotator cuffs.

This research outcome, which can give new hope to patients suffering from chronic shoulder pain, was recently published in the international journal *Bioactive Materials*.

The research team transplanted this platform to rats with full-thickness tears of the rotator cuffs, and observed regeneration of their tissues and shoulder function recovery. As a result, it was confirmed that this platform, which includes stem cells, can indeed regenerate rotator cuffs.

Notably, the team succeeded in visualizing this process by using near-infrared fluorescence imaging coupled with tissue-specific bioimaging agents. With this, the researchers were able to monitor anatomic change and regeneration processes in the animal model in real time in a non-invasive manner.

This platform offers a microenvironment and components similar to those of the actual tissue. Therefore, once applied to patients, it is expected to have high treatment benefits and eventual recovery of shoulder function.