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Korea lays focus on developing clinically relevant human-scale living organs

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Research team develops light-activated decellularized extracellular matrix bioink



A team of researchers at the Pohang University of Science and Technology (POSTECH) in South Korea has developed decellularized extracellular matrix bioinks that can be applied to clinical trials.

Bioinks have been utilized for engineering tissues or organs through 3D or 4D printing. Creating an environment conducive to protecting cells and maintaining cell survival after printing is at the heart of bioprinting. Thus, a research team from POSTECH, in collaboration with researchers at the University of Otago in New Zealand, has proposed a method for fabricating human-scale organs by developing a bioink with reduced toxicity and improved cytocompatibility.

Unlike conventional materials, this bioink has the property to reduce cytotoxicity and retain the efficacy of the extracellular matrix even though it is capable of producing an alternative structure. When the cornea and heart were printed with this bioink, it was verified that living tissue constructs can be safely fabricated with excellent tissue regenerative capacity.

"This technology opens new avenues for applications in regenerative medicine," said Professor Jinah Jang of the Department of Convergence IT Engineering and Department of Mechanical Engineering, POSTECH.