

# 3D Cell Printing Technology with Tissue Specific Bioinks

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*The research at the Intelligent Manufacturing Systems Laboratory is in the application of 3D printing technology to the field of biomedical engineering by fabricating complex 3D structures. Specifically, the 3D printing technology lies at the basis of the research for the development of tissue regeneration and in vitro testing platforms that relate to the big picture of tissue engineering and regenerative medicine. Beyond the fabrication of 3D scaffolds, the laboratory has now developed a 3D cell/tissue printing technology for the fabrication of live scaffolds of which the integrated pre-tissues can be fabricated in a single step with the use of multiple types of cells and biological materials. In addition, the laboratory has also developed tissue- and organ- derived extracellular matrix bioink that would optimize the mimicry of the native tissue's biochemical microenvironments and enhance pre-tissues functionalities. Taken together, the re-research done at the IMS laboratory includes the development of composite cell-based scaffolds for the treatment of areas of defects and hard-to-cure diseases through the help of cell/tissue printing technology and bioink. The lab also works on the development of in vitro testing models including organ-on-a-chip, and the lab is steered towards the actual clinical application and new drug discovery. The following presentation will demonstrate the role and significance of 3D cell printing rather than ordinary 3D printing in the biomedical field and provide us with a time for deep discussions on the aforementioned research topics.*

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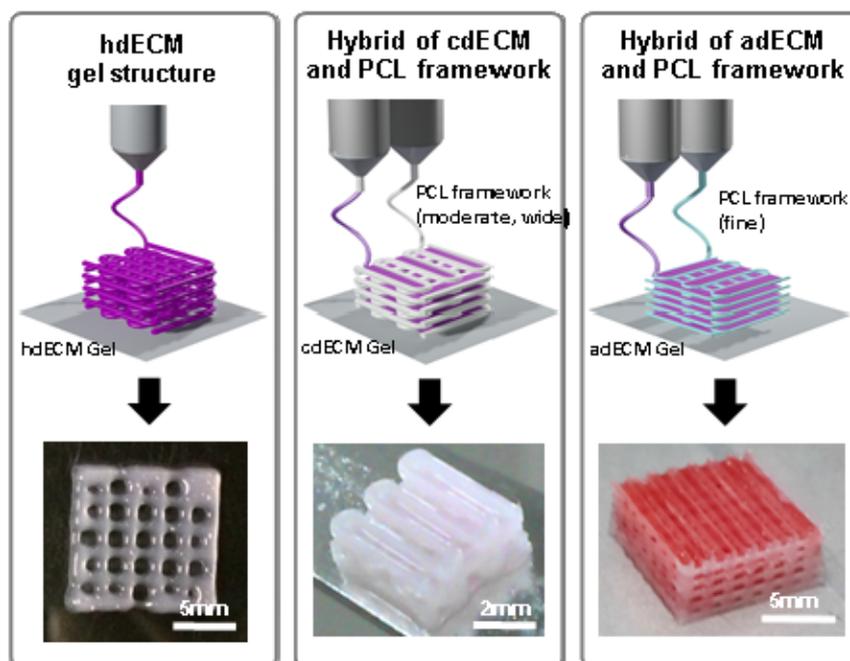


Fig. 1 Printed structures with various tissue specific dECM bioinks