The Torch
Vol. 3 (17)

In situ 3D bioprinting

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Bioprinters are now being upgraded in order to make them more advanced and accessible to the general public. Lately, in situ bioprinting has become the subject of research. If this technology is developed effectively, cell-laden bioink can be deposited precisely onto the desired region, in vivo. This would primarily benefit skin burns, tissue repairs, cartilage, and bone fractures. Few attempts have been made to construct in situ tissues in preclinical live models. The benefit of this technology is that it removes the need to artificially create a microenvironment. In this instance, the human body will operate as an in vivo bioreactor. Research states that in situ printed tissues have a significantly higher rate of vascularisation. They also resemble native tissues once regenerated. However, with atypical anatomy and the new cells failing to merge with the old tissues, the results are radically different. In situ bioprinting is still in its early phases and must overcome numerous obstacles before becoming a part of therapeutic practices. Therefore, in situ bioprinting has the ability to revolutionise organ development and tissue regeneration.

Keywords: in situ bioprinting, burns, wound healing, tissue regeneration

Citation:
Aleena S Kumar. In situ 3D bioprinting. The Torch. 2022. 3(17). Available from:
https://www.styvalley.com/pub/magazines/torch/read/in-situ-3d-bioprinting.