

New Generation 3D Tumor Models for Cancer Theranostics

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Abstract - Next generation three dimensional (3D) tumor models could recreate a tumor microenvironment (TME) in the laboratory and industrial scale. Recently 3D bioprinting technologies are developed as a important tools for the fabrication of artificial living-tissue constructs that are able to mimic all properties of native tissues of cancerous tumor. Bioinks a novel technology of the 3D tumor model development is now most commonly made by incorporating live cells of interest within a natural or synthetic biocompatible polymeric matrix. In oncology research, using by 3D bioprinting, constitutes a promising approach for drug development, screening, and in vitro cancer modelling. Here, we present the different types of bioink used for 3D tumor models, with a focus on its application in cancer management. In addition, we consider the fabrication of bioink using customized materials/cells and their properties in the field of cancer drug discovery.