

GS04-3 **Printer ink which is suitable for 3D printing of nanomedicine-embedded Depot**

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3D bioprinter is a semi-solid extrusion type 3D printer which is suitable for the use of paste and hydrogel. It has been utilized for the preparation of organs composed of cell-based bioink in the field of tissue engineering. We are attempting to prepare nanomedicine-embedded depot, and the depot is aimed for the use of implant for surgical tumor removal region. GelMA which is a semi-synthesized and gelatin-based photo-polymerizable polymer is focused on as the component of printer ink in this study. As GelMA is a promising material, its low viscosity and fast polymerization is a challenging issue in 3D printing. We mixed GelMA with medical excipients polymer to adjust the viscosity of ink. The medical excipients have advantage in the point of safety. Then doxorubicin-loaded PEGylated liposome was included into the novel hybrid ink. The various shape of object is 3D-printed and the characteristic was investigated. The sustained release of liposome from the 3D printed depot was confirmed. The composition of ink and the irradiation time affected the release behavior.