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Bioprinting the future

The "Bioprinting the Future" special issue of the SLAS Technology journal comes at a critical time when the field of bioprinting is advancing rapidly. With the continuous development of novel materials, fabrication techniques, and bio-ink compositions, bioprinting is poised to revolutionize many aspects of medicine, from drug development to organ transplantation. The issue builds upon the momentum generated by last year's review of low-cost 3D bioprinters, which examined the state of the market and future trends [1].

The current special issue's collection of research papers showcases the latest developments in bioprinting technology and demonstrates its enormous potential to transform the field of medicine. The papers present a range of topics that cover the use of light in bioprinting, the potential of 4D printing in cancer therapy, advances in tissue engineering of cancer microenvironments, and fabrication methods for peripheral nerve conduits, including:

- Additive Manufacturing of Peripheral Nerve Conduits – Fabrication Methods, Design Considerations and Clinical Challenges: This paper explores the fabrication methods, design considerations, and clinical challenges involved in the additive manufacturing of peripheral nerve conduits [2].
- Recent Progress of 4D Printing in Cancer Therapeutics Studies: This paper discusses the potential of 4D printing technology, which enables printed structures to change shape or function over time, in cancer therapy [3].
- Bioprinting the future using light: A review on photocrosslinking reactions, photoreactive groups, and photoinitiators: This paper provides a comprehensive overview of the use of light in bioprinting, including photocrosslinking reactions, photoreactive groups, and photoinitiators [4].
- Advances in Tissue Engineering of Cancer Microenvironment-from Three-Dimensional Culture to Three-Dimensional Printing: This paper discusses the advances in tissue engineering of cancer microenvironments, focusing on the transition from three-dimensional culture to three-dimensional printing [5].
- Biomimetic Scaffolds Using Triply Periodic Minimal Surface-Based Porous Structures for Biomedical Applications: This paper describes the use of triply periodic minimal surface-based porous structures to create biomimetic scaffolds for biomedical applications [6].

- Carboxymethyl Cellulose-Agarose-Gelatin: A Thermoresponsive Triad Bioink Composition to Fabricate Volumetric Soft Tissue Constructs: This paper presents a new thermoresponsive triad bioink composition for the fabrication of volumetric soft tissue constructs [7].
- Salivary gland regeneration: from salivary gland stem cells to three-dimensional bioprinting: This paper explores the use of three-dimensional bioprinting to regenerate salivary glands, focusing on the potential of salivary gland stem cells [8].

Together, these papers showcase the potential of bioprinting technology to revolutionize the field of medicine and improve patient outcomes. By highlighting these areas of research, the special issue provides a comprehensive overview of the current state of bioprinting and sets the stage for future advances in the field.

Roman Voronov
Murat Guvendiren

New Jersey Institute of Technology, Otto H. York Department of Chemical and Materials Engineering, Department of Biomedical Engineering

E-mail addresses: rvoronov@njit.edu (R. Voronov), muratg@njit.edu (M. Guvendiren)

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