Nanobiomedical Technology

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GUEST EDITORIAL

IN THIS SPECIAL ISSUE OF *IEEE Nanotechnology Magazine*, two teams of leading experts in their respective fields discuss biomedical applications for nanobiomedical technology inspired by nanomaterials and nanotherapeutics. The topics presented are not meant to be a comprehensive overview of the field of biomedical technology. Rather, they are intended to highlight unique areas of research and their potential technological impacts.

ORGANIC NANOMATERIALS

The article "The Application of Organic Nanomaterials for Bioimaging, Drug Delivery, and Therapy," by Xu et al., presents the fundamental traits of organic nanomaterials for biomedical applications in bioimaging, drug delivery, and therapy. Organic nanomaterials are increasingly generating interest from diverse fields, spanning fundamental and clinical research, biotechnology, and nanomedicine. Organic nanomaterials are exceptionally versatile, with applications in several domains, including molecular imaging, pharmaceutical formulations, and image-guided therapies. Unlike inorganic nanomaterials, these materials offer distinct advantages, such as facile tunability in composition or surface functionalization, excellent biocompatibility, and controlled release, among others. The authors are motivated by the considerable development and application of organic nanomaterials in the life sciences. They summarize recent progress in using organic nanomaterials for bioimaging, drug delivery, and therapy.

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NANOTHERAPEUTICS

In their article "When Chemodynamic Therapy Meets Photodynamic Therapy," authors Blum et al. provide an overview of combination chemodynamic and photodynamic therapies for antitumor treatments. The review is broadly divided into two parts: a mechanism section and a materials section, which will help describe clearly the possible therapeutic synergies and the components responsible for those synergies, respectively. The authors have reviewed this relatively new area dedicated specifically to these technologies. They hope that this review can help provide guidance for future research in this exciting area. N

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