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Advances in Bio-Inspired Materials for Medical Applications

Guest Editors:

**Prof. Barbara Rothen-
Rutishauser**

Prof. Dr. Alke Petri-Fink

Dr. Barbara Drasler

Dr. Dedy Septiadi

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Message from the Guest Editors

From the shells of diatoms to the silks of spiders, from the wings and eyes of insects to the feathers of birds, nature has taught us its secrets and strategies to create and perfectly tailor functional materials with extraordinary physical, optical, chemical, mechanical, and biological properties. These so-called bio-inspired materials (i.e., synthetic materials mimicking natural materials) are found in many industrial and medical applications because of their unique features.

This Special Issue emphasizes the entire range of bio-inspired materials used in medical applications. It includes the synthetic approaches of formulating functional systems that can be used in drug and molecule (gene) delivery, bioimaging, and biosensing, regenerative medicine, and cancer treatment. In addition, the physico-chemical characterization strategy for bio-inspired materials, as well as (mathematical) modeling structure–property relationships, will be encompassed. Finally, the principles in developing safe-by-design bio-inspired nanomaterials for medical applications will be covered.





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Editors-in-Chief

Prof. Dr. Maryam Tabrizian

1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada

2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

Prof. Dr. Yuguang Ma

State Key Laboratory of Luminescent Materials and Devices, South China University of Technology, Guangzhou 510640, China

Message from the Editorial Board

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Contact Us

Materials Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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