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Synthesis and Applications of Near-Infrared (NIR) Organic Fluorophores

Guest Editors:

Dr. Yuanwei Zhang

Department of Chemistry and
Environmental Science, College
of Science and Liberal Arts, New
Jersey Institute of Technology,
323 Martin Luther King Jr. Blvd.,
Newark, NJ 07102, USA

Dr. Ling Huang

College of chemistry, Nankai
University, Tianjin, China

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Message from the Guest Editors

Dear Colleague,

Near-infrared (NIR) fluorophores are indispensable for applications in bioimaging, biosensing, and therapeutics. The long wavelengths allow deeper tissue penetration with minimal photon damage, both of which are urgently needed for biological studies and medical treatments. In the clinic, several NIR fluorophores have been approved or under trial by the US Food and Drug Administration (FDA), including indocyanine (ICG) and methylene blue (MB). In biological research, a variety of NIR fluorophores are commercially available and ready for conjugation with biomolecules for targeting purposes. With the imaging technique, NIR fluorophores and probes have been in a great position for high imaging resolution; however, challenges remain to the design and synthesis of optimized structures that meet the need of fast-revolving microscopy technology. To date, many NIR fluorophores have been designed and synthesized with spectacular properties, such as large Stokes shifts, high quantum yields, biocompatibility, water solubility, two-photon cross-sections, and energy transfer potentials.

Dr. Yuanwei Zhang

Dr. Ling Huang

Guest Editors



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Editor-in-Chief

Prof. Dr. Thomas J. Schmidt

Institute of Pharmaceutical
Biology and Phytochemistry,
University of Münster,
Corrensstrasse 48, D-48149
Münster, Germany

Message from the Editor-in-Chief

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Molecules Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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