

24th Global Organic & Inorganic Chemistry Conference

July 18-19, 2018 | Atlanta, USA



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Microwave assisted synthesis of a library of near-infrared molecular probes for *in-vivo* imaging

A microwave-assisted method for the synthesis of a library of Near-Infrared (NIR) molecular probes such as symmetrical Pentamethine cyanines and their corresponding precursors. This class of compounds is advantageous for *in vivo* imaging because of the low absorption of biological molecules in the NIR window. The microwave synthesis drastically reduced the reaction time for dye synthesis from days to min, as well as producing increased yields (89-98%) to the conventional heating method (18-64%). Also in this study, we demonstrate that it is possible to create tissue-specific (thyroid, salivary, and adrenal glands) near-infrared fluorophores using the inherent chemical structure. Thus, a single compact molecule performs both targeting and imaging.

Biography

In 1990, Maged Henary received his BSc. degree in chemistry from Alexandria University and in 2000 he received his Ph.D. degree in organic chemistry from Georgia State University (GSU) under the supervision of Professor Streckowski. Afterward, he joined Professor Fahnri's lab at Georgia Institute of Technology. Dr Henary developed sensors for imaging microscopy of labile zinc and copper pools in live cells. In 2005, he was appointed Lecturer at GSU instructing Undergraduate classes. In 2011, he accepted a position as Assistant Professor at GSU. His research focuses on the development of heterocyclic compounds, including NIR dyes for bioanalytical applications.

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