

TWO-PHOTON FLUORESCENCE AS TOOL FOR IMAGING IN CELLS

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Fluorescent probes are essential tools for studying biological systems. The last decade has witnessed particular interest in the development of two-photon excitable probes, due to their advantageous features in tissue imaging compared to one-photon probes [1]. Recently, we have designed and synthesized an aminonaphthalimide–BODIPY derivative as energy transfer cassette which was found to show very fast and efficient BODIPY fluorescence sensitization [2]. This was observed upon one- and two-photon excitation, which extends the application range of the investigated bichromophoric dyads in terms of accessible excitation wavelengths. In order to increase the two-photon absorption of the system the aminonaphthalimide fluorophore was replaced with a Prodan analogue, which presents a variety of applications as probes and labels in biology [3]. The two-photon absorption cross-section δ of the dyads is significantly incremented by the presence of the 6-acetyl-2-naphthylamine donor group.

We also explore in this communication the use of new fluorophores based on four-coordinate organoboron N,C-chelates containing an arylisoquinoline skeleton in confocal fluorescence microscopy that show significant two-photon absorption cross sections and allow the use of excitation wavelengths in the near-infrared region [4].

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