

SYNTHESIS OF BODIPY HETERODIMER FORMED BY HYDROGEN BONDING FOR ELECTRONIC TRANSFER INVESTIGATIONS

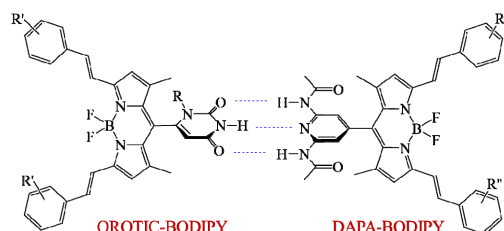
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The crucial step in the conversion of solar to chemical energy in photosynthesis takes place in the reaction center, where the absorbed excitation energy is converted into a stable charge-separated state by ultrafast electron transfer events. However, the fundamental mechanisms responsible for efficiency of these processes are still largely unknown. The development of 2D spectroscopic techniques has shown that coherent transfer of electronic wave-packets is an essential step [1]. These findings are raising questions also about the role of quantum coherence in artificial devices, but only few papers have been devoted to the investigation of not-biological complexes [2]. One of the key challenges for the future will be to learn how to construct artificial molecular materials enabling the harvesting of sunlight exploiting quantum effects. Here we will report the synthesis and experimental investigations on an innovative Bodipy-type multichromophoric self-assembled system. The synthetic strategies for Bodipy building blocks linked to peripheral complementary triple hydrogen bonding moieties, will be presented.



The spectroscopic characterization of the heterodimer and preliminary studies of electron transfer by 2D technique, will be also shown.

[1] (a) Collini, E. et al. *Science* 2009, 323, 369. (b) Collini, E. et al. *Nature* 2010, 463, 644

[2] Lienau, C. et al. *Nature Comm.* 2013, volume 4, Article number: 1602