Donor-Acceptor-Substituted Squaraine Oligomers

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Building on an established synthetic strategy using protecting groups [1] we developed a method for the linear synthesis of energy donor-acceptor substituted squaraine oligomers. These donor-acceptor systems with up to four bridging squaraine units form a random coil or a helix superstructure depending on the solvent.[1] fs-Transient absorption spectroscopy prove ultrafast energy transfer from the energy donor to the acceptor on the order of several hundred femtoseconds. We are aiming to gain further insight into the energy transfer mechanisms between the respective moieties, by changing the oligo-squaraine bridge length, the type of the energy donor (perylene diimide vs. BODIPY), and the superstructure induced by the solvent.

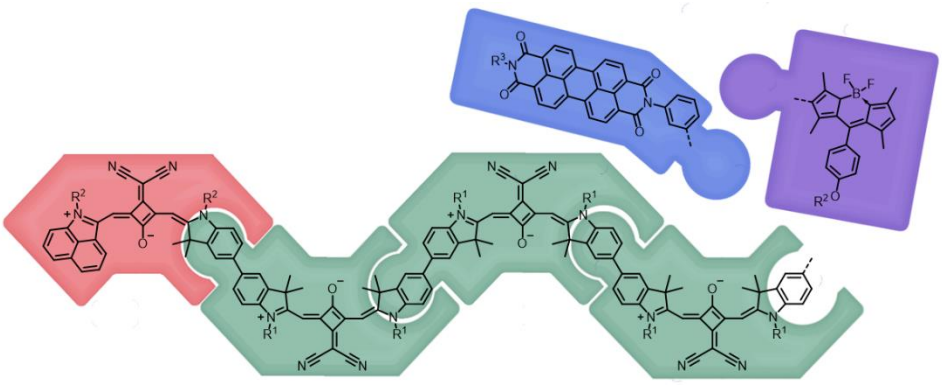

Figure 1: Heterosquaraine with acceptor (red), squaraine oligomer bridge (green) and different donor moieties, PDI (blue) and BODIPY (violet).

[1] Lambert *et al.*, *Chem. Eur. J.*, **2021**, 27, 8380-8389.