C_{60}-Based Switchable Fluorescent Probes

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C_{60} is an excellent acceptor molecule in both electron- and energy-transfer reactions. A number of fullerene-based donor-acceptor systems have been reported in the few last decades, especially aimed towards the development of electronic devices. However, only few studies on biocompatible fullerenes donor-acceptor system have been reported, mainly due to the extremely low solubility of C_{60} in either water or water-miscible solvents.
In this study, we synthesized water-soluble C60-fluorophore conjugates as donor-acceptor systems. The donor and acceptor molecules are connected with an enzyme-reactive peptide linker, are highly water-soluble, and form small aggregates (60, indicating successful intermolecular quenching. Upon addition of an enzyme, which is known to react with the peptide linker, the fluorescence intensity increased both dramatically and time-dependently. Currently, preparation of in vitro cell assays using this probe are in progress.
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