

# Supramolecular control of light-driven alcohol oxidation with Ruthenium-Phenothiazine dyads

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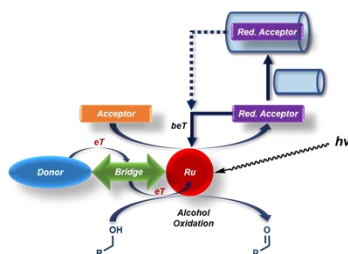
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## Abstract:

The covalent linkage between an electron donor as well as popular ruthenium-based photosensitizers with aromatic N-based spectator ligands can result in interesting donor-acceptor properties after photoexcitation.

Based on the type of linkage between the two moieties, different extent of electronic communication which influenced the efficiency of alcohol oxidation was investigated. Upon irradiation of the dyads, the presence of oxygen resulted in singlet-oxygen-driven oxidation of phenothiazine.

By implementation of macrocycles, host-guest complexes with an electron storage unit were formed and can be utilized to tune the turnover of the oxidative catalysis based on diminished back electron transfer rates.



**Figure 1:** Proposed mechanism for light-driven alcohol oxidation.

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