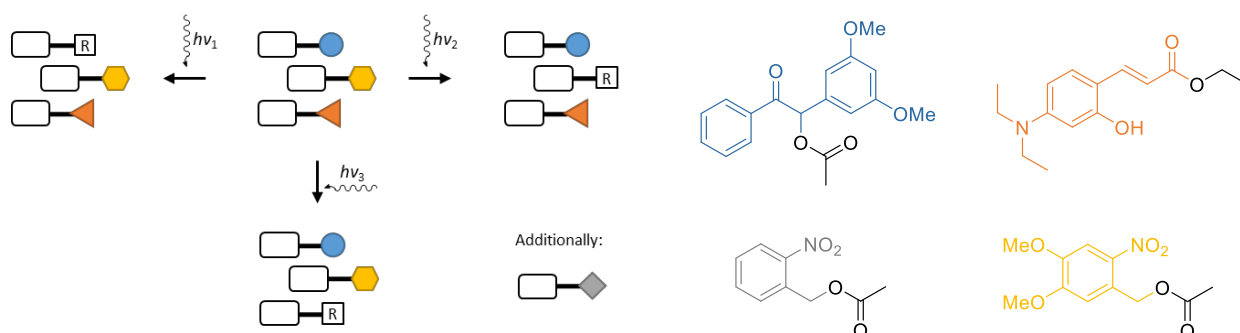


## Evaluation of 4 photoremovable protecting groups for selective photolysis and chromatic orthogonality

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The principle of selectively addressing several photolabile moieties in presence of each other by applying light of different wavelengths is called chromatic orthogonality and it found use in different research areas including solid state chemistry and chemical biology. In this work the known chromatical orthogonal dimethoxybenzoin/nitroveratryl pair in combination with *o*-hydroxycinnamic and *o*-nitrobenzyl groups were used to investigate the feasibility and limitations of higher level chromatic orthogonal systems in solution.



In this study unlinked derivatives of these photolabile protecting groups (PGGs) were synthesised and irradiated in different mixtures, what facilitated the investigation of the properties of the single moieties and study of the interactions between the different PGGs. Thereby, we showed that by irradiating at  $\lambda = 265$  nm the dimethoxybenzoin PGG and at  $\lambda = 405$  and  $800$  nm the *o*-hydroxycinnamic PGG could be selectively addressed in the presence of other PGG derivatives. Furthermore it was possible to identify several sequences, which could be used to remove the moieties one after the other by irradiating at  $\lambda = 265, 300, 405$  and  $800$  nm.

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