

Cyclopentadienone–Norbornadiene Adducts for Photoinduced Diels–Alder Click Chemistry

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What was achieved?

Adducts of cyclopentadienone–norbornadiene (CPD–NBD) have been developed and utilized in Diels–Alder based photopatterning of soft materials. Masked irradiation of CPD–NBD polymer networks followed by treatment with dyes or biomolecules enabled the production of precise patterns in the material by Diels–Alder cycloaddition.

Why is it important?

The ability to incorporate commercially available, biologically relevant species into polymer networks with spatial control provides new opportunities to develop novel synthetic and bioderived materials for applications in soft robotics, cell culture and more! In comparison to previously established methods for photopatterning soft materials, this platform provides a highly-flexible, two-step approach in which a vast array of patterning agents can be introduced post-irradiation. This new approach will also support the construction of diverse biomaterial libraries to be made available to the research community through the BioPACIFIC MIP.

How did BioPACIFIC MIP enable this?

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