“Light sensitive polymer nanoparticles for Remote-drug-delivery applications”

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ABSTRACT

The development of effective drug delivery systems remains a cornerstone of modern pharmaceutical research, with a significant focus on enhancing the precision and efficacy of therapeutic interventions. Amongst various strategies, the use of polymer-based nanoparticle has shown considerable promise in achieving controlled and targeted drug delivery. Polymethyl methacrylate (PMMA) nanoparticles offer a versatile platform for drugs and capsulation due to their tunable properties.

This study explores the synthesis of light sensitive nanoparticles utilizing the nanoprecipitation technique. Nanoprecipitation is a method renowned for its ability to produce nanoparticles with controlled size and distribution. Our research involves the optimization of synthesis parameters to entrap dye molecule and show their release for remote-controlled delivery applications. Comprehensive characterization of the nanoparticles is conducted, including size distribution, morphology, and assessment of their potential for targeted drug delivery applications.

The findings from this study provide valuable insights into the practical applications of light sensitive nanoparticles in drug delivery, highlighting their potential to improve therapeutic outcomes through precise delivery and controlled release of the entrapped entities.