

## CARBON QUANTUM DOTS AS THERANOSTIC AGENTS FOR PHOTOTHERMAL THERAPY AND SIMULTANEOUS FLUORESCENT IMAGING

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Theranostic agents are biomaterials that are characterized by having dual functionality to diagnose, monitor and treat diseases simultaneously. One of these applications is diagnosis to obtain fluorescent images both in vitro and in vivo and the other application is the treatment against different diseases, one of them, cancer. Recent research is focusing on improving the efficiencies of these agents with just one application through chemical modifications and bioconjugation selectively and specifically at the tumor site, eliminating and/or reducing the side effects of conventional treatments. That is why CQDs were synthesized by microwaves and characterized using DLS, XRD, IR, UV-Vis and photoluminescence methods. It is desired to continue research by functionalizing this material with the PSG1 antibody, to explore its diagnostic capabilities by producing fluorescent bioimages and its therapeutic property by converting NIR light into thermal energy to generate localized heat (phototherapy). All this to assess the specificity and effectiveness of the PSG1-CQDs bioconjugate as a theranostic agent in cells with expression of the carcinoembryonic antigen in vitro and photoirradiate it at a specific length to induce a phototherapeutic.

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