

CARBON QUANTUM DOTS (CQDS) AS THERANOSTIC AGENTS TO DETECT AND TREAT CANCER CELLS WITH CARCINOEMBRYONIC ANTIGEN EXPRESSION.

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When talking about a biocompatible theranostic agent, it should be known that these materials are characterized by having a dual function to diagnose, monitor and treat diseases simultaneously. Some of these applications are the diagnosis to obtain in vitro and in vivo fluorescent images and the treatment against different diseases, one of them, cancer. Recent research is focusing on improving the efficiencies of these agents with a single application through chemical and bioconjugation modifications in a selective and specific manner at the tumor site, eliminating and/or reducing the side effects of conventional treatments. For this reason, carbon quantum dots (CQDs) were synthesized by microwave and characterized using dynamic light scattering (DLS), X-ray diffraction (XRD) and infrared (IR), UV-Vis, and photoluminescence methods. It is desired to continue the research by functionalizing this material with the PSG1 antibody, to explore its diagnostic capabilities by producing fluorescent bioimages (specificity) and its therapeutic property (effectiveness) by converting NIR light into thermal energy to generate localized heat (phototherapy).

Keywords: Carbon quantum dots, Theranostic agents, Functionalization

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