

POSTER PRESENTATION

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Use of quantum dots of sizes magic in biological systems

Samantha Deus^{1*}, Felipe Luz², Anielle Silva³, Noelio Dantas³, Marcelo Silva²

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QDs are inorganic semiconductor nanocrystals with quantum confinement and physical and chemical properties different from their counterparts. These properties are controlled depending on the size, shape and structure of nanocrystals, which can absorb and emit a pre-determined range of the electromagnetic spectrum. QDs measure 2-10 nm but was recently created the MSNs QDs (nanocrystals sizes magicians), measuring 1-2 nm with well-defined structures, high stability during and after the growth, the presence of a few unit cells in their composition, show strong quantum confinement and different thermodynamically stable structures. In biomarkers, MSNs QDs have several advantages over organic dyes: exhibit high molar absorption absorption spectrum continuous, high intensity luminance and high stability. Therefore QDs may be used in nanomedicine detection of cancers. Once injected into the body dialing UV indicate the location of the tumor devices that capture this fluorescence particle, greatly improving diagnostic procedures. Therefore, the objective is to improve the QDs MSNs for use in biological systems. Laboratory of New Insulating Materials and Semiconductors (LNMSIS) were synthesized, probably for the first time. These QDs were tested in HeLa cells and Ehrlich. The results showed that are stable after 4 years the synthesis. In vitro assays showed high fluorescence scattered throughout the cytoplasm, demonstrated by double-labeling with DAPI, up to 20 hours after incorporation by the cell. Thus, incorporation of these QDs by tumor cells and their stability allows them to be used in studies of tumor cell migration in vivo.

Authors' details

¹Instituto de Genética e Bioquímica (INGEB), Universidade Federal de Uberlândia, Santa Mônica, Uberlândia, MG, Brazil. ²Instituto de Ciências Biomédicas (ICBIM), Universidade Federal de Uberlândia, Santa Mônica, Uberlândia, MG, Brazil. ³Instituto de Física (INFIS), Universidade Federal de Uberlândia, Santa Mônica, Uberlândia, MG, Brazil.

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¹Instituto de Genética e Bioquímica (INGEB), Universidade Federal de Uberlândia, Santa Mônica, Uberlândia, MG, Brazil
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