
Quantum dots: An effective Nanomedicine and their Role in Plasma Bioscience

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The quantum dots (QDs), which are having a special place in the family of nanoscience and nanotechnology because of their very small dimension ~2-10 nm, having about 10-50 atoms in diameter. These unique materials exhibit a larger surface area of the crystals, highest valence and lowest conduction band and release more energy, when the crystal returns to its resting state. Although, QDs are having various applications in electronics such as solar cells, LED, UV illuminator, screen televisions, has property to glow particular color after being illuminated by light. Very limited information is available to use of QDs as a nanomedicine. Due to their very small size, it provides various advantages and can be possible to enter in any types of biological identities/targets such as cells and microbes etc. Our previous study demonstrated the use of different types of QDs and nanoparticles as a nanomedicine and to check their efficacy against various cancer cells such as malignant cells of H-460 lung cancer, SNU-80 thyroid cancer, T98G glioma and non-malignant HEK, MRC-5 cells. Also, non-thermal atmospheric pressure plasma has been proposed as a new tool for various biological and medical applications. Recently, we have initiated an investigation on synergistic effect of plasma and nanostructure including quantum dots on cancers. Preliminary objective of our study is to measure viability, cell death and apoptosis in cancers at various combination doses of plasma and nanostructure.

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