



Contribution ID: 52

Type: Poster

## **Biocompatible Functionalization of Semiconductor Quantum Dots towards Drug Delivery: A brief review**

In today's world, the quest of multitasking ability of nanoparticles, especially quantum dots (QDs), is profoundly envisioned due to their analogousness with the atoms/molecules leading to the generation of discrete energy level, which is preeminent to various parallel applications viz, solar cells, LEDs, drug delivery, biomarkers, tracers, antibiotics etc. Amongst all drug delivery is embraced by researchers as a substantially significant one. However, the journey from having potential significance to real time application is a tediously intricating one. The foremost interference has come from the poor biocompatibility of these meta materials inside a developed organism, resulting in the lysis of cells due to disintegration of cellular mechanism which finally causes death of the organism. Therefore to avoid such catastrophic condition several steps are required to be taken care of, which primarily includes the engineering of QDs with proper functionalization which can provide rich biocompatibility along with the minimization of entrapping reagents without perplexing their gilded luminescence behaviour. In this review the authors are addressing the root cause of distressed biocompatibility of quantum dots and how it can be mitigated without compromising their fluorescent emission, raised due to discrete energy levels as well as surface trap states, framing them as better drug delivery agents. The incorporation of Green Chemistry concept is another vital instrument which is to be incripted towards the perfection of utilizing such promising atom like structures in the field of biomedical domain.

Keywords: Quantum Dots, biocompatibility, functionalization, luminescence, Green Chemistry, drug delivery

**Authors:** Mr KALITA, Diganta (NORTH LAKHIMPUR COLLEGE, ASSAM); Dr BARUAH, Jejiron (North Lakhimpur College)

**Presenters:** Mr KALITA, Diganta (NORTH LAKHIMPUR COLLEGE, ASSAM); Dr BARUAH, Jejiron (North Lakhimpur College)

**Session Classification:** Technical Session 03

**Track Classification:** Track 02