



NANOMEDICINE: THE CHANGING SCENARIO IN MEDICAL SCIENCE

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ABSTRACT

Nanotechnology is one of the most exciting and dynamic fields which have been emerged as major subject over the last two decades in various Governments, industry and academia sectors. The interdisciplinary nature of nanotechnology brings people together from various disciplines, facilities and regions with the common objective of improving lives of everyone regardless of their background, culture and geographical location. The majority of studies have focused on materials sciences with some applications emerging in the biomedical field. New insights have emerged in various fields by developing various promising tools for the advancements in medical sciences in diagnostic, drug/gene therapy, biomedical imaging for their unique physicochemical and biological properties etc. The various properties of nanomaterials such as size, shape, chemical composition, surface structure, surface charge, aggregation, agglomeration, and solubility greatly influence their interactions with biomolecules and cells. It provides not only great scientific potential in terms of output but also provides a framework through which we can shape some of the most dynamic and exciting multidisciplinary research currently in practice. The nanomedicine and nano- biomaterials will revolutionise medical treatments and healthcare when interfaced with appropriate control of electronics. The application is clear and promising; however, the basics of nanoscience in drug delivery are poorly understood. The sound investigations in the basic properties of nanomaterials with having great scope in nanomedicine within the invisible nano world which seems poised to result in a revolution in medical world, is widely expected to have a massive impact on commercial applications in the near future.

Key words: *Drug Delivery, Biomaterials, Nanobiotechnology, Nanomedicines, Metal Nanoparticles*