NANO-BIOMATERIAL POTENTIAL IN REACTIVE OXYGEN SPECIES-MEDIATED MECHANOBIOLOGY AND REGENERATIVE NANOMEDICINE

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The emerging of nanobiotechnology have become current interest in medical field especially for biomaterial and regenerative nanomedicine. Biomaterial with nanosurface properties provides higher surface contacts with biological systems as an advantages for repair, replacement and therapeutic applications. The unique physicochemical properties of nanomaterial with cellular responses have been reported involved in generation of reactive oxygen species (ROS), free radicals, oxidative stress activities. These cellular responses are strongly associated with mechanotransduction from nanomaterial interactions. Noted that, the cellular homeostasis from nanoscaffold mechanostimulus are critical in controlling the potential toxicity risk for biological systems and human health. This phenomenon also is an indicative of regenerative nanomedicine aptitude from material's nano-scale dimension. Thus, present work discussed on the nanomaterial potential in cellular mechanobiological signalling, mechnaocompatibility and regenerative properties for advanced medical applications.

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