GREEN NANOTECHNOLOGY—IMPLICATIONS IN NANOMEDICINE FOR THE CREATION OF HOLISTIC INTEGRATIVE MEDICINE (HIM)

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Resumo:
This lecture will discuss discoveries made in Dr. Katti’s laboratory of novel nanomaterials through Green Nanotechnology and their important applications in Holistic Medicine encompassing cancer therapy, tissue engineering and for the treatment of neuro degenerative diseases. As of March 20, 2016, over one million (1,351,134) people have died from cancer just in the first three months globally. The number of new cases is expected to rise by about 70% over the next 2 decades, most of those deaths occurring within Brazil, India, and in the African subcontinent. Therefore, the development of therapeutic modalities that address cancer risks and treatments that are relevant to living styles, health and hygiene conditions for various different populations are imperative. As part of our ongoing efforts toward the development of new, novel and relatively non-toxic antitumor agents (1, 2), we are currently interested in combination therapies that take advantage of cell signaling pathways such as the NF?B family of redox transcription factors. Our new Holistic-Integrative Medicine (HIM) approach (1,2) utilizes novel green nanotechnologies to encapsulate cellular redox system modifying phytochemicals-based antioxidants to afford effective delivery, enhance bioavailability and thus achieve modulation/deactivation of NF?B family of redox transcription factors—in order to control malignancies of breast, prostate, pancreas, colon, leukemia, lymphoma and various human tumors. In this lecture, discussions will focus on novel Green Nanotechnology approaches for (i) the development of tumor-specific nanoparticles derived from redox active phytochemicals from tea, grapes, and various herbs/roots; and (ii) Overall oncological implications of Green Nanotechnology within the Brazilian and the global context of reducing the burden of cancer in terms of cost, achieving enhanced efficacy and making phytochemical-based Holistic Integrative Medicine therapeutic agents available globally at affordable costs.