

Advances in nanomedicine towards clinical application in oncology and immunology

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© 2014, Bentham Science Publishers. Recent advances in nanotechnology and nanobiotechnology have contributed to the development of nanomaterials, able to be used as drug carriers, probes, targets or cytostatic drugs by itself. Nanomedicine is now the leading area in nanotechnology where a large number and types of nanoparticles (NPs) has been developed and several are already in the clinical practice. Chemotherapy is one of the most widely used strategies to treat cancer. Most chemotherapeutic agents have poor solubility, low bioavailability, and are formulated with toxic solvents. NPs have been designed to overcome the lack of specificity of chemotherapeutic agents as well to improve circulation time in blood, taking advantages on tumor cells characteristics. In immunology, recent advances regarding the activation of the innate immune system artificially enhanced by NPs functionalized with immune-stimulators open a new window as novel methods in vaccines. Also, viruses and virus-like