

Cancer nanomedicine: the future of cancer treatment

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Abstract

Nanotechnology is a research field that aims to build materials and devices — on the scale of atoms and molecules. It is a multidisciplinary field that mainly covers the understanding from different branches of science, including physics, chemistry, biology and technology. Nanotechnology has had a significant effect on various industries, including energy systems, medicine, food packaging, nutrition, and auto-fabrication, in a brief period. The word “nanomedicine” refers to the application of nanotechnology principles to disease identification, management, prevention, and treatment.

Cancer is one of the significant causes of mortality worldwide; current therapies like surgery, radiation therapy, and chemotherapy, suffer from many limitations. Cancer nanomedicine refers to the application of these concepts to the treatment and diagnosis of cancer. Hyperthermia (delivering heat to tumour cells/tissue) has been recently introduced as adjuvant therapy for cancer and holds great promise for combating cancer. However, selecting an appropriate means for heat delivery to the tumour is an important and challenging issue in hyperthermia. Nanomedicine concepts have played a pivotal role in overcoming hyperthermia-associated drawbacks and strengthening this therapy’s roots to be translated into the clinical setting. More importantly, nanomedicine can be used for diagnosis and chemotherapeutic delivery.

The current presentation will seek to explain how nanomedicine has influenced the future of cancer care and research opportunities.

References

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About the presenter

Raghvendra A. Bohara is working as Science Foundation Postdoctoral Fellow at the CURAM SFI Research Centre for Medical Devices, NUI Galway, Ireland. He was also the recipient of the prestigious Irish Research Council Fellowship. His research interests

include targeted drug delivery, cancer nanomedicine, and hyperthermia therapy applications. He has published more than 50 peer-reviewed articles, six book chapters, two books, and two patents. He has supervised successfully three postgraduate students and one doctoral student. He is an Associate Editor for five journals and has served actively as a Guest Editor and Reviewer for more than 70 high impact journals.