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Impact of nanobiotechnology on the future of medicine (Nanomedicine): The road towards precision medicine

Over the past few years, evidence from the scientific and medical communities has demonstrated that nanotechnology and nanomedicine have tremendous potential to profoundly impact numerous aspects of cancer and other disorders in terms of early diagnosis and targeted therapy. The utilization of nanotechnology for the development of new nano-carrier systems has the potential to offer improved chemotherapeutic delivery through increased solubility and sustained retention. One of the major advantages of this cutting edge technology is its unique multifunctional characteristics. Targeted delivery of drug incorporated nanoparticles, through conjugation of tumor-specific cell surface markers, such as tumor-specific antibodies or ligands, which can enhance the efficacy of the anticancer drug and reduce the side effects. Additionally, multifunctional characteristics of the nano-carrier system would allow simultaneous imaging of tumor mass, targeted drug delivery and monitoring (theranostics). A summary of recent progress in nanotechnology as it relates specifically to nanoparticles and anticancer drug delivery will be reviewed. Nano nutraceuticals using combination of various natural products provide a great potential in diseases prevention. Additionally, various nanomedicine approaches for the detection and treatment of various types of organ specific delivery, vascular targeting, and vaccine will be briefly discussed.

Biography

Shaker A Mousa finished his PhD from Ohio State University, College of Medicine, Columbus, OH and Post-doctoral Fellowship, University of Kentucky, Lexington KY. He also received his MBA from Widener University, Chester, PA. He is currently an endowed tenure Professor and Executive Vice President and Chairman of the Pharmaceutical Research Institute and Vice Provost for Research at ACPHS. Prior to his academic career, he was a senior Scientist and fellow at The DuPont Pharmaceutical Company for 17 years, where he contributed to the discovery and development of several FDA approved and globally marketed diagnostics and therapeutics. He holds over 350 US and International Patents discovering novel anti-angiogenesis strategies, antithrombotics, anti-integrins, anti-cancer, and non-invasive diagnostic imaging approaches employing various nanotechnology platforms. He has published more than 1000 journal articles, book chapters, published patents, and books as editor and author. He is a member of several NIH study sections, and the Editorial Board Member of several high impact Journals. His research has focused on diagnostics and therapeutics of angiogenesis-related disorders, thrombosis, vascular and cardiovascular diseases.

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