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Impact of nanobiotechnology on the future of medicine (nanomedicine): The road toward precision medicine

One of the major advantages of nanobiotechnology 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 and enable personalization for precision medicines. Additionally, multifunctional characteristics of the nano-carrier system would allow for simultaneous imaging, 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. Highlight the role of nanobiotechnology and other enabling technologies in the followings: Nano synthesis and assembly of various platforms for targeted delivery, nanobiotechnology in improving efficacy and safety and enabling precision treatment and personalization.

Speaker Biography

Shaker A Mousa 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 has held 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, antithrombotic, anti-integrin, anti-cancer, and non-invasive diagnostic imaging approaches employing various nanotechnology platforms. He has published more than 1,000 journal articles, book chapters, patents, and books as Editor and author. He is a Member of several NIH study sections, Editor-In-Chief, and on the Editorial Board 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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