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Impact of Nanobiotechnology on the future of Medicines: The Road toward precision Medicines –Case Studies

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Over the past decade, evidence from the scientific and medical communities has demonstrated that nanobiotechnology and nanomedicine have tremendous potential to affect numerous aspects of cancer and other disorders in term of early diagnosis and targeted therapy. The utilization of nanotechnology for the development of new Nano-carrier systems has the potential to offer improved targeted delivery through increased solubility and sustained retention and more importantly active targeting. One of the major advantages of this innovative technology is its unique multifunctional characteristics. Targeted delivery of drug incorporated nanoparticles, through conjugation of site-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 for simultaneous imaging of tumor mass, targeted drug delivery and monitoring (Theranostics). A summary of recent progress in nanotechnology as it relates to nanoparticles and 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. Additionally, novel Ligand-Drug Conjugates and Ligand conjugated Nano loaded with active Pharmaceuticals versus Antibody-Drug Conjugates will be briefly highlighted.

Biography

DR. MOUSA is a tenured professor of Pharmacology at Albany College of Pharmacy and Endowed Chair of Nanomedicine, Executive VP and chair of PRI at Albany, NY. Dr. Mousa is the president of vascular Vision Pharmaceuticals and founders of several spin-off Pharmaceutical and biotechnology companies focusing on the treatment of various blood, vascular disorders, hematological and Oncological diseases. He held a senior scientist and a research fellow at DuPont Pharmaceuticals and DuPont Merck for two decades. He is also a Visiting Scholar at the Johns Hopkins University and holds academic appointments of Adjunct Professor in the State University of New York at Buffalo/Albany, and Rensselaer Polytechnic Institute. Awarded the 2017 Kuwait Foundation for Advancement in Sciences (KFAS) Laureate for Applied Sciences in Medicine. Elected and inducted in 2018, a fellow of the National Academy of Inventors (FNAI). In 2020, Dr. Mousa ranked by Stanford ranking to be among the top 1% of globally impactful scientist. His current googles scholar citation ~over 33,000; h-index 90; and i10-Index 500.

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