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Joint Event



Thomas J Webster

Northeastern University
USA

Cardiovascular Nanomedicine: The Past, Present, and Future

Abstract:

Nanomedicine has already provided dozens of FDA approved products improving the lives of billions. Most notably, nanomaterials have been used to develop vaccines for COVID, improved spinal implants, anti-infection materials without using antibiotics, and numerous drug delivery vehicles. However, the use of nanomedicine in the cardiovascular system has remained largely uninvestigated and uncommercialized. This invited talk will provide a summary of in vitro and in vivo experiments in cardio nanomedicine which have demonstrated decreased thrombus formation on nanotextured vascular stents, improved cardiomyocyte function on heart patches composed of nanomaterials, and decreased paralysis from stroke using stem cell delivery with nanomaterials. Moreover, this presentation will provide how nanotechnology is driving cardiovascular medicine into the next century through the design of improved implantable sensors for the cardiovascular system. Throughout it will emphasize research which is now being commercialized into real products helping human health.

Biography

Thomas J. Webster's (H index: 122; Google Scholar) degrees are in chemical engineering from the University of Pittsburgh (B.S., 1995; USA) and in biomedical engineering from RPI (Ph.D., 2000; USA). He has served as a professor at Purdue (2000-2005), Brown (2005-2012), and Northeastern (2012-2021; serving as Chemical Engineering Department Chair from 2012 - 2019) Universities and has formed over a dozen companies who have numerous FDA approved medical products currently improving human health in over 20,000 patients. His technology is also being used in commercial products to improve sustainability and renewable energy. He is currently helping those companies and serves as a professor at Brown University, Saveetha University, Vellore Institute of Technology, UFPI, and others. Dr. Webster has numerous awards including: 2020, World Top 2% Scientist by Citations (PLOS); 2020, SCOPUS Highly Cited Research (Top 1% Materials Science and Mixed Fields); 2021, Clarivate Top 0.1% Most Influential Researchers (Pharmacology and Toxicology); 2022, Best Materials Science Scientist by Citations (Research.com); and is a fellow of over 8 societies. Prof. Webster is a former President of the U.S. Society For Biomaterials and has over 1,350 publications to his credit with over 55,000 citations. He was recently nominated for the Nobel Prize in Chemistry. Prof. Webster also recently formed a fund to support Nigerian student research opportunities in the U.S.