

Polymeric nanoparticles– a versatile delivery system in medicine and agriculture

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Abstract

Poor drug stability, low water solubility, and limited bioavailability are some of the drug delivery challenges faced by pharmaceutical companies. Similar challenges are encountered in agriculture, calling for new formulations to enhance efficacy of agrochemicals while decreasing their environmental impact. Polymeric nanoparticles are versatile delivery systems offering distinct advantages over traditional methods for delivery of bioactives in medicine and agriculture. This presentation will cover functionality of nanodelivered bioactive (e.g. release, bioavailability, antioxidant activity), nanoparticle biodistribution and toxicity, as well as environmental fate of the nanoparticles of importance to medical and agricultural applications.



Biography

Cristina Sabliov, Ph.D. is the Richard R & Betty S. Fenton Alumni Professor in the Biological and Agricultural Engineering Department at Louisiana State University and LSU Agricultural Center. Dr. Sabliov is leading an international renowned research program in the field of nanotechnology, specifically focused on polymeric nanoparticles designed for delivery of bioactive components for improved food quality and human health. Projects pursued in her laboratory range from design and synthesis of multifunctional polymeric nanoparticles of controlled properties (size, surface charge, controlled-release profile and targeting properties) for delivery of bioactives, to *in-vitro* and *in-vivo* evaluation of the nanoparticle functionality, biodistribution, and toxicity under conditions of use. She collaborates extensively across disciplines with colleagues from the US and abroad to pursue these projects. Dr. Sabliov is a recognized leader in polymeric nanodelivery systems as indicated by her funding record and by her presence at major events sponsored by the FDA, NIH, and USDA. She organized a number of nanotechnology focused-sessions at the Institute of Food Technologists and the International Union of Food Science and Technology (IUFoST), and served as Chair of the 2018 Nanoscale Science & Engineering for Agriculture & Food Systems Gordon Conference and chair of the International Society for Food Applications of Nanoscale Sciences. For her significant contributions to the field, Dr. Sabliov has been named Fellow of the American Institute for Medical and Biological Engineering and has received numerous awards including the ASABE New Holland Research Award (2011), LSU Ag Center Rogers Award (2010), LSU Gamma Sigma Delta Research Award of Merit (2010), and the Tiger Athletic Foundation Undergraduate Teaching Awards (2007, 2013). Through her research and teaching, Dr. Sabliov is determined to inspire generations of students to develop efficacious delivery systems to feed and tend to the health issues of a growing population, and to contribute significantly to the responsible application of organic nanoparticles in medicine and agriculture.

This seminar counts towards the ME 600 seminar requirement for Mechanical Engineering graduate students.

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