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TITLE

Advances in targeted lung nanomedicine as inhalable multifunctional microparticles & nanoparticles for pulmonary disease treatment and prevention

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argeted pulmonary nanomedicine delivery as inhalable multifunctional I microparticulate/nanoparticulate delivery systems offer many advantages to address the current unmet medical needs in the treatment of several pulmonary diseases. These unique advantages include reducing systemic side-effects and bacterial resistance, delivering higher drug dose levels directly at the target site for bacterial killing or airway tumor killing, decreasing the viscosity of pulmonary mucus, reducing pulmonary inflammation, and restoring pulmonary immunity. Respirable microparticles and nanoparticles can specifically and efficiently target select lung regions by physical sedimentation and particle diffusion deposition mechanisms as advanced inhalation dry powder aerosols. Novel multifunctional formulations of respirable microparticles and nanoparticles of antibiotic drugs, chemotherapeutic drugs, immunosuppressant drugs, anti-inflammatory drugs, pulmonary immunomodulating phospholipids, a mucolytic agent, and dual-drug combinations suitable for targeted lung delivery to specific lung regions were successfully designed and developed. Using novel advanced spray drying particle engineering design, excellent control of essential particle properties for targeted l ung delivery nanomedicine was achieved.

Biography

Mansour currently holds faculty appointments and graduate appointments in the UK College of Pharmacy (UK COP), Graduate Faculty member at the University of North Carolina-Chapel Hill (UNC-Chapel Hill), Faculty Associate of the UK Membrane Center, faculty mentor in the NCI CNTC (National Cancer Institute Cancer Nanotechnology Training Center) at UK, UK Engineered Bioactive Interfaces and Devices Program funded through the National Science Foundation Integrative Graduate Education Research Training (NSF IGERT) Program and the NSF Research Education for Undergraduates (REU) Training Program joint with the UK College of Engineering. She leads a multi-disciplinary group of postdoctoral scholars, visiting scholars, graduate students, and undergraduate students.