

Mallesh Kurakula

Biomedical Engineering Department, University of Memphis, TN 38152, USA

Nanocarriers loaded In-situ gels for Enhanced for Prolonged Release of Statins

The study aims to investigate and optimize Poly(lactic-co-glycolic) acid (PLGA) injectable in situ gel (ISG) system loaded atorvastatin nanoparticles. The effect of varied PLGA concentration and gelling solvents used in ISG to reduce the initial drug burst release and to enhance the hypolipidemic effect was evaluated. The prepared nanoparticles were characterized for physicochemical properties, solubility, surface morphology, drug-excipient compatibility studies, and in-vitro release profiles were assessed. Results showed that as the solubility of atorvastatin was enhanced and the addition of nanoparticles did not significantly alter the gelation property of the ISG system that showed acceptable syringeability. In-vitro dissolution study illustrated lower initial atorvastatin burst and prolonged drug release from nano carrier-based ISG when compared to plain atorvastatin ISG. The anti-hyperlipidemic performance in rats was even enhanced in comparison to the plain atorvastatin ISG. Therefore, developed ISG can be key to enhance solubility and prolong the release of other statin drugs.

Biography

Mallesh Kurakula is currently a Research Scientist working on an NIH project at the Biomedical Engineering department at the University of Memphis, TN, USA, and also a Consultant for Triad Life Sciences®, TN, industry for innovative projects. His area of expertise includes advanced drug delivery, medical devices, and gene delivery. He is from a multidisciplinary background having a Ph.D. in Chemistry (2015), Masters in Pharmaceutics (2011), and Bachelor in Pharmacy (2009). Earlier he worked on "Fabrication and Evaluation of Polymeric Nanoscaffolds as Implantable Medical Device in Spinal Cord Injuries" as a postdoctoral researcher at the University of Bologna, Italy (2016-18) and on "Use of Lipid Nanoparticles for Effective Delivery of siRNA against Chikungunya Virus" as a research associate at CSIR-Indian Institute of chemical technology (IICT), India (2018-19). To date, he has published research (22), reviews papers (07), book chapters (06) in high-impact factor ISI indexed journals. He has even disseminated research as Keynote Speaker and author in international arenas conducted across the United States, Europe & Middle East. Based on his international recognition in the area of expertise, he is serving as an Editorial board member, Review Editor, Guest Editor for book / special issues, and an ad-hoc peer reviewer in reputed journals, from different publishers such as Elsevier, Springer, MDPI, Frontiers, Bentham sciences. He has been a faculty judge panel member for research projects and abstract reviewer for OrDD session, Controlled release society (CRS) 2020, annual meeting at Vegas (July 2020).