

## Editorial

# Rheumatoid Arthritis (RA) Disease Treatment with Rutin Stabilized Nanoparticles

**D. Srinivasa Rao\***

Department of Biotechnology, Acharya Nagarjuna University, India

**\*Corresponding author:** D. Srinivasa Rao, Department of Biotechnology, Acharya Nagarjuna University, Guntur-522 510, A.P, India**Received:** May 15, 2015; **Accepted:** May 20, 2015;**Published:** May 22, 2015

## Editorial

Nanotechnology has become one of the promising research areas, bring a significant progress into material, device development and have many applications such as in the area of medicine, chemistry, environment, energy, agriculture, information and communication, heavy industry and consumer goods [1]. It can foray into individualization of medications either by designing a new drug or a new delivery technique with existing drug by increasing efficacy, specificity, tolerability and therapeutic index of corresponding drugs with a stable, non-toxic, non-thrombogenic, nonimmunogenic, non-inflammatory, biodegradable, avoid uptake by reticulo-endothelial system and can also applicable to various molecules such as small drugs, proteins, vaccines or nucleic acids [2]. The implication of nanotechnology main objective is to develop innovative nanodrug delivery in vivo and less cost-effective therapies by diseases repairing and without side effects, as well as to overcome many present bionic solutions research.

Rheumatoid arthritis (RA) disease characterizes by stiff, painful, and inflamed joints occur in many parts of the body. The autoimmune process that wreaks havoc on the joints can also affect the eyes, lungs, skin, heart and blood vessels, and other organs [3]. The medications you take for RA can have unwanted side effects as well. And, dealing with a chronic disease like RA day in and day out may cause emotional distress. To manage the complications of rheumatoid arthritis, it's important to recognize problems early and get appropriate treatment [4]. RA disease is highly prevalent throughout the world. Despite a staggering series of discoveries and innovations over the last five decades, RA disease remains the leading

cause of morbidity, disability, and mortality among the people [5]. The ability of my research work to beneficially impact on RA disease has grown exponentially. Taking the above point of view and given the importance and potential impact of nanotechnology in nano drug delivery system aims to produce Rutin stabilized silver nanoparticles for the treatment of CFA induced RA disease in wistar rats. Recent findings of my research team reveals that Rutin stabilized silver nanoparticles exhibited the increased level of anti-inflammatory activity in chronic inflammation by significant inhibition of the production of pro-inflammatory cytokines, namely tumour necrotic factor- $\alpha$  (TNF- $\alpha$ ) and interleukin-6 (IL-6), significant increased levels of antioxidant activity in RA induced models. These results concluded that Rutin stabilized silver nanoparticles can be used for the RA disease patients with free of side effects.

This suggest that more sophisticated nano-systems will be developed for the oral drug delivery, biopharmaceuticals and vaccines, based on the recent advances in the development of biocompatible polymers with tailored properties for oral drug delivery and formulation of nanocarriers, the understanding of cellular uptake mechanisms of polymeric nanocarriers, the novel techniques to study the fate of nanocarriers, polymers and drugs in the body. The application of nanoparticle technologies to drug delivery has demonstrated significant impact on many areas of medicine.

## References

1. Athar M, Jyoti Das A. Therapeutic nanoparticles: State-of-the-art of nanomedicine Advance. *Materials Reviews*. 2014; 1: 25-37.
2. Avalos A, Haza AI, Mateo D, Morales P. Cytotoxicity and ROS production of manufactured silver nanoparticles of different sizes in hepatoma and leukemia cells. *Journal of Applied Toxicology*. 2014; 34: 413-423.
3. Madaan K, Kumar S, Poonia N, Lather V, Pandita D. Dendrimers in drug delivery and targeting: Drug-dendrimer interactions and toxicity issues. *J Pharm Bioallied Sci*. 2014; 6: 139-150.
4. Lee BJ, Lin JS, Lin YC, Lin PT. Effects of L-carnitine supplementation on oxidative stress and antioxidant enzymes activities in patients with coronary artery disease: a randomized, placebo-controlled trial. *Nutr J*. 2014; 13: 79.
5. Matoba T, Egashira K. Nanoparticle-mediated drug delivery system for cardiovascular disease. *Int Heart J*. 2014; 55: 281-286.