

# Biodegradable polymer and nanotechnology in protein delivery

**Vaishnavi Parikh**<sup>1, 2</sup>

<sup>1</sup>University of the Sciences, USA

<sup>2</sup>Genus Lifesciences, USA

In spite of rapidly growing peptide and protein drugs in the market, their limited therapeutic applications are due to the undesirable interaction between protein and solid surface. Several developments have occurred in the field of sustained delivery of proteins utilizing both biodegradable and non-biodegradable polymer. However, proteins are highly susceptible to adsorption on hydrophobic surfaces during manufacturing process which may lead to change in structure of the protein affecting safety and efficacy of the drug. Therefore, selecting the polymer surface suitable for specific protein delivery by investigating the adsorption behavior is crucial. Modified nanoprecipitation methods was developed for nanoparticle fabrication and equilibrium dialysis followed by fluorescence spectroscopy was employed for quantitative characterization of the adsorption of recombinant human growth hormone (r-hGH) onto Poly (lactico-glycolic) acid (PLGA) polymers with a different degree of hydrophobicity under varying conditions of pH. With the benefit of large surface area of nanoparticles to study surface interactions,

internal fluorescence and circular dichroism spectroscopy were utilized in order to characterize the physicochemical interactions that govern the adsorption process onto polymer nanoparticles. In addition, desorption of adsorbed r-hGH upon dilution was also studied. The study resulted in selection of PLGA grade that can prove to be suitable for sustained delivery of r-hGH.

## Biography

Vaishnavi Parikh has completed her PhD in Pharmaceutics from Philadelphia College of Pharmacy, University of the Sciences. She has more than eight years of experience in working as a Formulation Scientist in the pharmaceutical industry and currently manages Product Development Department at Genus Lifesciences Inc. She has published several papers in reputed journals; presented at several international conferences; has been serving as a reviewer on six reputed journals and also an Editor for the journal, *Insight- Automatic Control*.

vrshah1987@gmail.com