LOUISIANA TECH UNIVERSITY

Method for Preparing Nanoparticle Coated Drugs

(ROIs # 2008-24 and 2008-30)

Description

- This technology is based on the pioneering work of Dr. Yuri Lvov *Small Times* magazine Innovator of the Year
- Dr Lvov and his co-inventors has developed a convenient method for preparing uniform sized nanocolloidal (40-50 nm diameter) suspensions of poorly water soluble materials (in particular anticancer drugs) for the continuous slow release of these drugs
- Nanoparticle drugs are coated with polyelectrolyte polymer to give them a surface potential of ca 30-40 mV which aids in maintaining a stable aqueous suspension
- Coated polymer layer can be further functionalized for targeted delivery of the drug

Advantages

- Process is easily scalable
- Results in uniform size distribution of nanoparticles (40-50 nm diameter)
- Universal and efficient platform, amenable to many drugs
- Low material and equipment costs
- Higher drug loading than micellular or liposomal preparations

Areas of Application

- Drug delivery or controlled drug release
- Improving bioavailability of poorly water soluble drugs (e.g., anticancer drugs)
- Nanoparticlation of NMR contrast reagents

Patents

- US 8,685,538

Publications

- Zheng et al, “Sonication-Assisted Synthesis of Polyelectrolyte-Coated Curcumin Nanoparticles,” *Langmuir Letter*, (2010), **26**, 7679-7681.