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The effect of nanoparticle properties, detection method, delivery route and animal model on PLGA nanoparticles biodistribution in mice and rats

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The presentation is focused on poly(lactic-co-glycolic) acid (PLGA) nanoparticle (NP) biodistribution in mice and rats, based on a literature review. The nanoparticle presence expressed in % dose particles/g tissue in the liver, kidney, spleen, lung, heart, and brain were compared based on particle size, animal model, method of delivery and nanoparticle tracking method. The liver showed the highest uptake of particles in mice, and the lung showed the highest uptake in rats, with minimum amounts of nanoparticles in heart and brain. The concentration of particles decreased to 0% dose/g over 24 hours after a single dose of IV administered particles. Orally delivered nanoparticles showed little to no uptake within the first 24 hours. Particles with physically entrapped indicators were detected at higher concentrations than covalently labeled nanoparticles. It was concluded that more research is needed on oral delivery of PLGA NPs as well as detection beyond 24 hours to better understand fate of polymeric nanoparticles *in-vivo* required successful application of nanoparticles in drug delivery.

Biography

Cristina Sabliov, PhD is a Professor in the Biological and Agricultural Engineering Department at Louisiana State University and LSU Agricultural Center. She is leading an international renowned research program in the field of Nanotechnology, specifically focused on polymeric nanoparticles designed for delivery of bioactive components for improved food quality and human health.

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