

# 8<sup>th</sup> World Medical Nanotechnology Congress & Expo

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## Characterizing the nanobio interface of bio-metal or bio-metal oxide nanoparticles: Impact on the function and delivery of proteins and RNA

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Our group is studying the effect of nanomaterials on the structure, function and delivery of proteins and nucleic acids as potential nanomedicines against cancer and infectious diseases. In particular, we have focused on metal or metal oxide nanoparticles derived from bio-elements such as zinc, manganese and others which normally mediate biomolecular interactions and stability in cells and tissues. We are comparing traditional characterization methods to newer applications and developing methods utilizing UV, fluorescence and photoluminescence spectroscopy and microscopy to better elucidate the nanobio interface, biochemical activity and physiological consequences of nanoparticles. Our results till date support that factors such as biomolecular interactions, stabilization and delivery size, shape and material dependent affect the above methods and that certain nanoparticles exhibit some protein and RNA specificity. Overall the data suggest upscale synthesis of homogenous nanoparticle with these ideal compositions and properties. Better characterization methods will be required to completely analyze medical nanotechnology potential.

### Biography

Robert K DeLong received his Doctorate from Johns Hopkins University and did a Post-doc at the University of North Carolina in the School of Medicine. He began his career in Biopharma where his groups translated DNA vaccine particles from pre-clinical research into clinical development. During 2004-2005, he transitioned back into academia where he has taught undergraduate and graduate level biochemistry, molecular biology, research and nanomedicine courses. He has co-authored one textbook for biochemistry, molecular biology and biotechnology laboratory and published more than fifty book chapters, review or research articles on DNA, RNA and protein nanoparticles, their characterization, delivery and biological activity.

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