

ABSTRACT

Nanoparticles are revolutionizing industries such as electronics, energy and health, with many of their applications still to be realized. However, while nanoparticle-based technologies continue to enter commercial markets, there remains incomplete understanding of the risks of human exposure and the consequences of environmental release. One approach to exploring the effects of nanoparticles in vivo while gaining insight into possible environmental effects is to use aquatic species as model systems. In this talk, I will present acute toxicity, particle distribution and biokinetics data for different polymer coated CdSe/ZnS quantum dots (QD) in two aquatic organisms, *Daphnia magna* (daphnia) and *Danio rerio* (zebrafish). Testing the acute toxicity of QDs coated with different polymers illustrates that surface coating can influence toxicity by altering the stability of the particles in solution. Direct imaging adds information on the mechanism of toxicity, which may not only be chemical but also physical in nature. And quantifying the dose during and after exposure can facilitate cross comparisons and may provide insight for testing prioritization.