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Nanoparticles affect *Xenopus laevis* embryogenesis

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Nanoparticles that are useful in a wide range of industrial applications have led to concerns regarding their potential impact on human and environmental health. Because of their properties, nanomaterials are attractive for basic science, technical or medical applications. Size, surface charge, geometry, and surface modifications contribute to nanoparticle toxicity. Presently there are insufficient evidence for environmental concentrations and derived harms for almost all NPs, in particular for the aquatic environment. This gap requires more standardized approaches for NPs hazard identification. We utilized *Xenopus laevis* as aquatic model organism. The possibility to relate the data obtained in *Xenopus* with higher vertebrates, including humans, makes it a convincing study model. Our aim is to evaluate the effects of three different nanoparticles: AgNPs, AuNPs and SiO_2NPs, 20 nm sized, on the embryogenesis of *Xenopus*. These commercial nanoparticles were used as model to understand the possible consequences of similar NPs utilized in medicine. We purchased NPs from MKnano (Canada). Dynamic Light Scattering was performed to measure NPs size and Z-potential. The embryos were reared starting from st. 4/8 in FETAX containing 0.01, 1 and 5 mg/L of NPs. Embryos were harvested at stage 47/48. As control, sibling embryos were used. The mortality, length, and pigment distribution were statistically analyzed. Our data show that all NPs aggregate in FETAX and do not cause mortality. AgNPs, AuNPs and SiO_2NPs affect length and pigment distribution of embryos. In conclusion, our studies indicate that the NPs we tested affect embryonic development. Then these NPs should be further studied.

Biography

Carotenuto Rosa has completed her PhD and Postdoctoral studies from University of Naples "Federico II" in 1994. She is a senior scientist in Developmental Biology. She has published more than 25 papers in reputed journals. She was reviewer of scientific journal "*Journal of Nanoparticles Research*".

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