**Nanotechnology and the Environment: Future Friend, Potential Foe**

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As nanotechnology is experiencing rapid development and the benefits are widely reported, the discussions on its environmental applications and health impacts are just beginning to emerge. Nanomaterials exhibit special physical and chemical properties that make them useful for manufacturing novel products. They have certain environmental benefits by enhancing the efficiencies of monitoring, remediation of pollution, and in renewable energy production for a more sustainable environment. Nevertheless, recent studies have also shown that engineered nanomaterials can enter the human body more readily than larger particles and several types of nanoparticles have been reported to interfere with cellular and physiological functions. Thus holistic studies are needed to systematically establish the environmental benefit of the technology and also concurrently investigate the potential human health effect of exposure to nanomaterials. The answers to these questions are pivotal to demonstrate how nanotechnology could be useful as environmental materials, and have minimal ecological and human health effects. It is apparent that these challenges could best be addressed by a multidisciplinary approach, drawing on the expertise in engineering, science and medicine. This presentation attempts to provide an update on some recent research at NUS with regards to the use of nanomaterials for environmental remediation, and health effects of exposure to nanomaterials. The talk will also demonstrate how an integrated approach using cell lines and animal models, together with “Omics” technologies could offer a better understanding of the toxic mechanisms of some of the nanomaterials.