Aquatic Ecotoxicology of Selenium: When a Good Nutrient Goes Bad

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Institute lecture hall

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Colloquium of the Institute for Medical Research and Occupational Medicine

Lecture title: Aquatic Ecotoxicology of Selenium: When a Good Nutrient Goes Bad

Lecturer: Prof David Janz, BSc MSc PhD, Veterinary Biomedical Sciences and Toxicology Centre, University of Saskatchewan, Saskatoon, Canada

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Abstract

Selenium (Se) is an essential micronutrient with important physiological roles in vertebrate animals that include antioxidant homeostasis. Paradoxically, Se can also be involved in producing oxidative stress at levels only slightly higher than those required for essentiality. Oviparous (yolk-bearing) vertebrates such as fishes, amphibians, and birds are especially sensitive to supraphysiological Se exposures, which cause a characteristic suite of developmental and reproductive toxicities. A variety of human activities cause increased loading of Se into aquatic ecosystems, where it poses a high ecotoxicological hazard to aquatic species. My research seminar will take the audience on a tour of our field and laboratory research over the past 20 years that has focused on understanding the movement of selenium through aquatic ecosystems and investigating mechanisms of aquatic Se toxicity in fishes and amphibians spanning molecular/cellular through to organism/population levels of biological organization.

Curriculum Vitae

David Janz is an aquatic ecotoxicologist investigating mechanisms of developmental and reproductive toxicities in vertebrate animals exposed to priority aquatic pollutants. His research combines molecular, cellular, and physiological approaches in the laboratory with ecological approaches in the field. In his career he has published research in all five vertebrate classes and at all levels of biological organization. Professor Janz holds a PhD in Pharmaceutical Sciences, a MSc in Environmental Resource Studies, and a BSc in Ecology.

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