7th Euro-Global Summit on **TOXICOLOGY & Applied Pharmacology**

October 24-26, 2016 Rome, Italy

Reactive oxygen species (ROS), oxidative stress and antioxidants: Enzyme mimetic selenium compounds as redox regulators

Govindasamy Mugesh Indian Institute of Science, India

Oxidative stress is caused by an imbalance between the production of reactive oxygen species (ROS) and the biological system's ability to detoxify these reactive intermediates. It is well known that oxidative stress is responsible for several disease states. Both Type I and II diabetics display increased levels of ROS such as free radicals and the onset of diabetes is closely associated with oxidative stress. It has also been associated with diverse diseases, including cancer, renal disease and neurodegenerative disorders such as Alzheimer's and Parkinson's disease. Although plants and animals maintain the level of antioxidants, such as glutathione (GSH), vitamins C, A and E as well as enzymes such as catalase, superoxide dismutase and various peroxidases, insufficient levels of antioxidants, or inhibition of the antioxidant enzymes, cause oxidative stress. Our group focuses on the development of enzyme mimetic redox modulators that can be used as drugs for diseases associated with enhanced level of ROS and that can combat oxidative stress without affecting the cellular antioxidant systems. In this lecture, various selenium compounds and their effect on ROS in mammalian cells will be discussed.

Biography

Govindasamy Mugesh received his PhD in 1998 from the Indian Institute of Technology, Bombay. He is an author of more than 120 publications in international peer reviewed journals. He received several awards and recognitions. His research interests include the chemistry of thyroid hormone metabolism and development of novel therapeutics for endothelial dysfunction and neurodegenerative diseases. He serves in the editorial boards of *Organic & Biomolecular Chemistry*, ACS *Omega, Bioorganic Chemistry and Scientific Reports*.

mugesh@ipc.iisc.ernet.in

Notes: