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Guest seminar

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Controlled NO and HNO Release from Metal Complexes: Chemical and Photochemical Triggers

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Nitric oxide (NO) and its reduced form, nitroxyl (HNO), play key roles in various physiological processes. Imbalances in their production or distribution are associated with several diseases, including atherosclerosis, hypertension, and angiogenesis-related disorders. Over the past years, our research group has developed a range of metal complexes designed to act as NO and/or HNO donors, either containing coordinated NO or not. These compounds exhibit selective NO and/or HNO release upon activation by different stimuli, such as light irradiation, chemical or electrochemical reduction, and chemical oxidation. The complexes have shown diverse biological activities, including antioxidant effects in ischemia/reperfusion models, antiparasitic activity, vasorelaxant properties, anti-inflammatory effects, and gastroprotective action. In this work, we present the results of several metal complexes activated by chemical and photochemical triggers, highlighting their potential as multifunctional therapeutic platforms.

Short Bio

Dr. Lopes holds a bachelor's degree in Chemistry from the Federal University of Rio Grande do Norte (1992) and a PhD in Physical Chemistry from the University of São Paulo (1997). He completed a postdoctoral fellowship in the United States, 1997-1998 at Boston College, and was a visiting researcher between 2010-2011 at the National Cancer Institute/NIH/United States. He is a full member of the Brazilian Chemical Society, where he served as director of the inorganic chemistry division (2012-2014), deputy secretary (2018-2020), vice president (2020-2022), and general secretary (2022-2024). He was associate editor of Química Nova (Publi SBQ) from 2014 to 2022 and Editor-in-Chief of the SBQ Electronic Bulletin (2022-2024). He was a member of the scientific technical advisory board of FUNCAP (2017-2021). He was coordinator of the Graduate Programs in Inorganic Chemistry (2003-2008) and Chemistry (2009-2010 and 2015-2020). He is currently a full professor at the Federal University of Ceará.

Leader of the Bioinorganic Research Group (CNPQ). Member of the INCT Tuberculosis Management Committee. Member of the BASis/INEP evaluator bank. He currently serves as Deputy Dean of Research and Graduate Studies and Research Coordinator of the Dean of Research and Graduate Studies at UFC. He is the general coordinator of UFC for proposals approved under FINEP 2023 (PROINFRA/INFRA). He is member of the CNPq Chemistry Advisory Committee (2025). He has experience in the field of chemistry, with an emphasis on bioinorganic chemistry, working mainly on the following topics: NO/HNO-releasing metal complexes, metal compounds as possible therapeutic agents, metallopharmaceuticals, etc.

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Webinar Host

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