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Title: Will the real bad cholesterol please stand up

Abstract: Cholesterol has traditionally been regarded as a major contributor to cardiovascular disease and metabolic dysfunction. However, emerging evidence suggests that it is not cholesterol itself, but its oxidized derivatives that play pivotal roles in modulating cellular signalling pathways, particularly in aging cells. In this seminar, Prof. Deepak Kumar Saini will present his laboratory's work on the regulation of G protein-coupled receptor (GPCR) signalling in the context of aging and inflammation. Using advanced live-cell imaging, pharmacological perturbations, gene inactivation strategies, and multi-omics approaches, his group has identified cholesterol oxidation as a critical early molecular event that disrupts GPCR signalling networks in senescent cells– the BHARAT study.

Brief Bio: Prof. Deepak Kumar Saini is a Professor in the Department of Developmental Biology & Genetics at the Indian Institute of Science. He is also affiliated with the Department of Bioengineering and the Centre for Infectious Diseases Research at IISc. He obtained his Ph.D. in Biotechnology from AIIMS, New Delhi, followed by postdoctoral training at the University of Arkansas for Medical Sciences and Washington University School of Medicine (USA). His research spans signalling in aging, inflammation, and infection, GPCR cross-talk, Host–pathogen interactions and antimicrobial resistance. He has publications in leading journals including Nature Communications, ACS Nano, and Analytical Chemistry. Prof. Saini's work bridges molecular signalling, infectious disease biology, and translational aging research.