

Role of ubiquitination in organismal physiology and pathology

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Ubiquitination, the covalent attachment of ubiquitin to target proteins, is a fundamental post-translational modification that governs a wide array of cellular processes essential to metazoan life. Beyond its classical role in proteasomal degradation, ubiquitination orchestrates protein localization, activity modulation, and dynamic signaling through protein-protein interactions. This seminar will discuss how a single ubiquitin ligase can exert broad regulatory control over multiple signaling components within intersecting homeostatic pathways, including those governing cell death, inflammation, and tissue integrity. Special emphasis will be placed on the kidney, highlighting how dysregulation of ubiquitin-mediated signaling contributes to pathophysiological outcomes in renal function. The Seminar should be of interest to a broad audience across biomedical sciences, biochemistry, cell biology, and physiology.



Date: 2025.11.4 (Tue) 16:00-17:30

Venue: G101 (Science Building G)

Profile: Dr. Sharad Kumar (AM PhD FAA FAHMS) is a Bradley Distinguished Professor at the University of South Australia and an Affiliate Professor of Medicine at Adelaide Medical School (the University of Adelaide). He is a co-founder of the Centre for Cancer Biology in Adelaide, which he co-directed for over 10 years. His laboratory has made several landmark discoveries, including the identification of the Nedd genes. The list includes one the first discovered mammalian caspases (NEDD2/CASP2), the first and the founding member of the WW-HECT type of ubiquitin-protein ligase family (NEDD4), and the ubiquitin-like protein NEDD8, involved in a protein modification pathway now widely known as neddylation. His team also elucidated key components of the Drosophila cell death machinery and defined a novel caspase-independent, autophagy-dependent cell death (ADCD) process. He is a Fellow of the Australian Academy of Science (FAA) and the Australian Academy of Health and Medical Sciences (FAHMS). His contributions have been recognised with prestigious honours, including: Ranbaxy Research Award, ASBMB Lemberg Medal, FAOBMB Research Excellence Award, ANZSCDB President's Medal, Appointment as a Member of the Order of Australia (AM) and as the 2020 South Australian Scientist of the Year. With over 300 publications, ~70,000 citations, and an h-index of 105, his work continues to influence biomedical science discovery.

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