CRC 1507

GÜNTER BLOBEL LECTURE SERIES

Prof. Dr. Malini Raghavan

University of Michigan

will give a lecture on

CALRETICULIN MUTATIONS IN MYELOPROLIFERATIVE NEOPLASMS

TUESDAY, APRIL 14, 2026
12:30
BIOCENTER, N / B3

FOR LINK TO REMOTE ACCESS, SCAN CODE BELOW

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Talk synopsis

Myeloproliferative neoplasms (MPN) can result from mutations in the calreticulin (CRT) gene (*CALR*), which encodes a calcium binding chaperone important for the assembly of many cellular glycoproteins. Mutant CRT drives MPNs via binding to the thrombopoietin receptor (MPL) and causing aberrant activation of the JAK/STAT pathway. Modes of mutant CRT-MPL binding and strategies to disrupt the MPL-mutant CRT complex via elucidation of their degradation pathways will be reviewed. Perturbations in ER calcium storage and signaling are reported for the MPN type I mutant, CRT_{Del52}, and are linked to disease pathogenesis. The calcium binding properties of mutant CRT and cellular calcium signaling in cells expressing the mutant or wild type CRT are being elucidated and will be discussed. CRT is a key chaperone important for the assembly of human leukocyte antigen (HLA) class I molecules, which mediate immune responses by $CD8^+$ T cells and natural killer (NK) cells. The impact of *CALR* mutations on HLA class I surface expression in engineered cell lines and primary cells from MPN patients and their influences on NK cell responses will be discussed, which have implications for immune responses in MPN patients.

Short bio

Malini Raghavan studied chemistry in Chennai and Kanpur (India) before she moved to Princeton University in New Jersey (USA) for her doctorate. She then changed to the California Institute of Technology in Pasadena (USA) as a postdoctoral researcher in the field of immunology. In 1996 she became a professor in the Department of Microbiology and Immunology at the University of Michigan Medical School in Ann Arbor (USA).

In her laboratory, Malini Raghavan's group studies immune responses mediated by $CD8^+$ T cells and Natural Killer (NK) cells, with a focus on major histocompatibility complex (MHC) class I molecules. They have been deeply engaged in questions related to the influences of the human MHC class I polymorphisms upon assembly characteristics of the MHC class I variants and upon the resulting immune responses to cancers and infectious diseases. They have also been studying calreticulin-mediated protein folding in health and disease. These projects are well suited for training of graduate students and postdoctoral fellows in immunology research, including in the design of experiments, and rigorous and quantitative data analysis and interpretation. Malini Raghavan is deeply committed to training future generation scientists, and to help provide scientific skill sets that will enable them to establish independent research and training programs.

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