

Biography—Ivan Robert Nabi

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Ivan Robert Nabi

Dr. Nabi is a Professor in the Department of Cellular and Physiological Sciences and School of Biomedical Engineering at the University of British Columbia in Vancouver, British Columbia, Canada. His research laboratory is located in UBC's Life Sciences Institute where he is Director of Imaging. He has over 30 years of research experience in the study of cancer cell biology and has published numerous research articles and reviews in the field of cellular domains and their role in cancer progression and metastasis. In acknowledgement of his contributions in support of cancer research, he was awarded the Ambassador's Circle Award by the Cancer Research Society Inc. in 2017.

Dr. Nabi received his Ph.D. from the Weizmann Institute of Science in Israel in 1989 on cancer metastasis with Dr. Avraham Raz (Editor-in-Chief of *Cancer Metastasis Reviews*) where he discovered the Gp78 E3 ubiquitin ligase, also known as autocrine motility factor receptor, a key component of the endoplasmic reticulum degradation pathway. He has since shown that Gp78 regulates endoplasmic reticulum

mitochondria contacts and mitophagy in cancer. He then worked as Postdoctoral Fellow with Dr. Enrique Rodriguez-Boulan at Cornell (Weill) Medical College in New York on epithelial polarity, work that sparked his interest in cell biology and domain organization of the cancer cell.

Subsequent work as an independent investigator, first at the Université de Montréal and then at the University of British Columbia, included studies in the late 1990's and early 2000's on lipid raft endocytosis and caveolin-1 where he showed that caveolin-1 is a negative regulator of raft endocytosis. This result challenged the accepted concept at the time of caveolae as robust endocytic portals and led to a better understanding of the diverse roles of caveolin-1 in tumor progression, many of which are detailed in articles in this volume. Subsequent work defined the role of non-caveolar scaffold domains as key regulatory signaling units and of tyrosine phosphorylation of caveolin-1 in focal adhesion dynamics, tumor cell migration, and cancer progression (see review article in this volume). Collaboration with James Dennis (University of Toronto) spanning many decades defined caveolin-1 interaction with galectin-3 and the galectin lattice and how these two membrane domain regulators interact to regulate cancer progression.

Dr. Nabi is Founding Director, since 2008, of UBC's Life Sciences Institute Imaging Facility (*LSI IMAGING*), a multi-disciplinary confocal and super-resolution microscopy facility that encompasses biologists, mathematicians, optical physicists, and computer scientists. Dr. Nabi's most recent work, with Ghassan Hamarneh at Simon Fraser University, developed machine learning-based network analysis of single molecule localization super-resolution microscopy defining the molecular architecture of caveolae and also three distinct scaffold domains, including a previously undescribed hemispherical scaffold. Continued development of artificial intelligence-based analysis of super resolution microscopy to membrane domains, cellular organelles, and their nanoscale interactions will lead to novel insight into the sub-cellular organization of the cancer cell.

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