Cancer Signaling: From Molecular Biology to Targeted Therapy

Cancer, which has become the second-most prevalent health issue globally, is essentially a malfunction of cell signaling. Understanding how the intricate signaling networks of cells and tissues allow cancer to thrive - and how they can be turned into potent weapons against it - is the key to managing cancer in the clinic and improving the outcome of cancer therapies. In their groundbreaking textbook, the authors provide a compelling story of how cancer works on the molecular level, and how targeted therapies using kinase inhibitors and other modulators of signaling pathways can contain and eventually cure it.

The first part of the book gives an introduction into the cell and molecular biology of cancer, focusing on the key mechanisms of cancer formation. The second part of the book introduces the main signaling transduction mechanisms responsible for carcinogenesis and compares their function in healthy versus cancer cells. In contrast to the complexity of its topic, the text is easy to read. 32 specially prepared teaching videos on key concepts and pathways in cancer signaling are available online for users of the print edition and have been integrated into the text in the enhanced e-book edition.

ABOUT THE AUTHOR

Christoph Wagener is Professor of Clinical Biochemistry and former director of the Institute of Clinical Chemistry at the University Medical Center Hamburg-Eppendorf, Germany. His areas of research are the interaction of tumor cells with their microenvironment, and molecular approaches to tumor diagnosis. Professor Wagener has authored more than 100 original scientific publications, 15 scientific reviews and 13 book chapters. Together with Oliver Müller, he published the text book
'Molekulare Onkologie' and the 'Onkoview Videos', which can be viewed on YouTube. Book and videos have received excellent reviews from readers and viewers.

Carol Stocking is Head of the Research Group Retroviral Pathogenesis at the Heinrich-Pette-Institute, Leibniz Institute for Experimental Virology in Hamburg, Germany. She is a highly regarded expert in the field of leukemogenesis and hematology. Her areas of research are gene regulation, molecular control of differentiation, and hematopoietic stem cells. Dr. Stocking has authored more than 120 original publications in top international journals and 20 book chapters.

Oliver Müller is Professor for Applied Life Sciences at the University for Applied Sciences Kaiserslautern, Germany. He holds academic degrees in both biochemistry and medicine. His areas of research are the intracellular signal transduction and the genes and proteins involved in carcinogenesis. Professor Müller is author of more than 80 original articles, 11 patents, 15 scientific reviews and 4 book chapters. His work was honoured by several science awards.

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