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Editorial

Cell signaling review series

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Signal transduction is pivotal for many, if not all, fundamental cellular functions including proliferation, differentiation, transformation and programmed cell death. Deregulation of cell signaling may result in certain types of cancers and other human diseases. In three consecutive issues of *Cell Research*, starting from the current one, we are pleased to present a series of up-to-date and in-depth reviews about recent advances in many important frontiers in the field of signal transduction in the context of stem cell self-renewal and differentiation, cancer and other human diseases, authored by a group of leading experts in the field.

In the current issue, Michael Karin discusses the role of the IκB kinase (IKK) complex in bridging inflammation and cancer. By analyzing genetically manipulated mouse models, the author presents a comprehensive review on how IKKβ plays a critical role in tumor promotion through activation of NF-κB while IKKα is involved in metastatogenesis independently of NF-κB. Next, Zheng-gang Liu and colleagues discuss the role of Nox-1, one of the NADPH oxidases in the generation of superoxide/reactive oxygen species (ROS), in TNFα-induced necrotic cell death. The authors present an in-depth review on the regulation of membrane ROS production and necrosis by the novel Nox-1-NOXO-1-Rac1 signaling complex in response to TNFα and its implications in the clearance of viral-infected cells.

In the coming April issue, Jinbo Yang and George R Stark discuss the role of unphosphorylated STATs (U-STATs) in transcription and the regulation of gene expression. The authors present a comprehensive review on the novel mechanisms by which U-STATs, which are up-regulated by phosphorylated STATs in response to various extracellular stimuli, drive gene expression. Next, Melanie H Cobb and her colleagues discuss the contribution of MAP kinases to the etiology of certain human diseases. The authors present an in-depth and up-to-date review on how aberrant or inappropriate functions of MAP kinases result in certain type of cancers, polycystic kidney disease, and other serious developmental disorders like cardio-facio-cutaneous syndrome, obesity and diabetes. Marsha R Rosner and Alexey E Granovsky then discuss the biological functions of Raf kinase inhibitory protein (RKIP). The authors present a comprehensive review on how RKIP integrates the signaling network, how RKIP regulates cell spindle checkpoint, and the role of RKIP as a suppressor of metastasis.

In the May issue, Roel Nusse discusses the role of Wnt signaling in controlling differentiation and self-renewal of stem cells. The author presents an up-to-date review on Wnt signaling and how Wnt proteins act as stem cell factors that determine the fate of stem cells in embryonic development and nervous system. Next, Kathleen Kelly and Juan Juan Yin discuss the role of cancer stem cells in prostate cancer and metastasis. The authors present a comprehensive review on current evidence and concepts regarding the identification and properties of normal prostate stem or progenitor cells and their transformed counterparts. Michael J Birrer and colleagues then discuss our current understanding of the molecular pathogenesis of ovarian cancer, which may hold the key to the earlier detection and treatment of this deadly disease. The authors present a comprehensive review on global gene expression profiling of epithelial ovarian cancer and how identification of potential therapeutic targets/pathways relevant to the specific tumor histotype and grade may provide future individualized therapy for ovarian cancer patients.

It is our hope that the readers will find these reviews insightful and helpful for their research.