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Précis: Genetic and functional studies demonstrate that loss of chromosome 14q is a critical event in the etiology of clear cell renal carcinoma and identify HIF1α as a tumor suppressor gene in this disease.
Response and Resistance to NF-κB Inhibitors in Mouse Models of Lung Adenocarcinoma

W. Xue, E. Meylan, T.G. Oliver, D.M. Feldser, M.M. Winslow, R. Bronson, and T. Jacks

Précis: This study provides preclinical evidence that the NF-κB pathway is a potential therapeutic target in a subset of lung adenocarcinomas that have activation of the NF-κB pathway.

mTOR Kinase Inhibition Causes Feedback-Dependent Biphasic Regulation of AKT Signaling


Précis: Inhibition of mTOR kinase causes biphasic regulation of AKT signaling involving receptor tyrosine kinases. Rodrik–Outmezguine and colleagues identify an adaptive mechanism in the AKT signaling pathway. AKT signaling becomes reactivated through feedback-induced phosphorylation of AKT on T308 but not on S473. The addition of RTK inhibitors prevented reactivation, causing cell death and tumor regression in vivo, highlighting the possible need for combinatorial approaches to block feedback-regulated pathways. For details, please see the article by Rodrik–Outmezguine and colleagues on page 248.

Functional Viability Profiles of Breast Cancer


Précis: Functional RNAi screen exploiting synthetic lethality identifies genes critical for growth and survival of breast cancer cells as well as potential therapeutic targets.

ON THE COVER

Rodrik-Outmezguine and colleagues identify an adaptive mechanism in the AKT signaling pathway. AKT signaling becomes reactivated through feedback-induced phosphorylation of AKT on T308 but not on S473. The addition of RTK inhibitors prevented reactivation, causing cell death and tumor regression in vivo, highlighting the possible need for combinatorial approaches to block feedback-regulated pathways. For details, please see the article by Rodrik–Outmezguine and colleagues on page 248.