Blood-Based Analyses of Cancer: Circulating Tumor Cells and Circulating Tumor DNA

D.A. Haber and V.E. Velculescu

The ALK Inhibitor Ceritinib Overcomes Crizotinib Resistance in Non–Small Cell Lung Cancer


Précis: Ceritinib, a next-generation ALK inhibitor, has potent activity in preclinical models of crizotinib-naïve and crizotinib-resistant ALK-rearranged non–small cell lung cancer.

See commentary, p. 634

Immune Cell–Poor Melanomas Benefit from PD-1 Blockade after Targeted Type I IFN Activation


Précis: Type I IFN–associated inflammatory pathway activation combined with antibody blockade of the T-cell immunoinhibitory receptor PD-1 improves immune surveillance of melanomas.

Inflammation-Induced NFATc1–STAT3 Transcription Complex Promotes Pancreatic Cancer Initiation by Kras

X. Luo and G.-S. Feng

Précis: NFATC1 expression is induced by inflammation and cooperates with KRAS in pancreatic carcinogenesis by forming complexes with STAT3 at enhancer regions that regulate oncogenic gene networks.

REVIEW

RESEARCH ARTICLES
Friboulet and colleagues report that ceritinib, a next-generation ALK inhibitor that is more selective and potent than crizotinib, is active in preclinical models of both crizotinib-naïve and crizotinib-resistant non-small cell lung cancer (NSCLC). Ceritinib retained activity against the most common crizotinib-resistant ALK mutants, although some secondary ALK mutations did confer resistance to both crizotinib and ceritinib. Structural analyses provided a mechanistic basis for these findings, as the most common secondary ALK mutations that inhibit binding of crizotinib are not predicted to impair ceritinib binding, but other mutations, which the authors have identified in patients with acquired resistance to ceritinib, are predicted to reduce ceritinib binding through steric hindrance or conformational changes of the ALK catalytic domain. For details, please see the article by Friboulet and colleagues on page 662.

Epithelial-to-Mesenchymal Transition Activates PERK-eIF2α and Sensitizes Cells to Endoplasmic Reticulum Stress .......................... 702
Précis: Elevated ECM synthesis and secretion activates the PERK arm of the UPR and renders cells that have undergone EMT vulnerable to ER stress-inducing agents.

p38MAPK Plays a Crucial Role in Stromal-Mediated Tumorigenesis .... 716
Précis: The secretory phenotype of cancer-associated fibroblasts that promotes tumor growth is post-transcriptionally controlled by p38MAPK.

See commentary, p. 637

Human and Mouse VEGFA-Amplified Hepatocellular Carcinomas Are Highly Sensitive to Sorafenib Treatment ...................... 730
Précis: VEGFA amplifications frequently occur in mouse and human hepatocellular carcinomas and drive dependence on VEGFA signaling via manipulation of the tumor microenvironment.
See commentary, p. 640

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