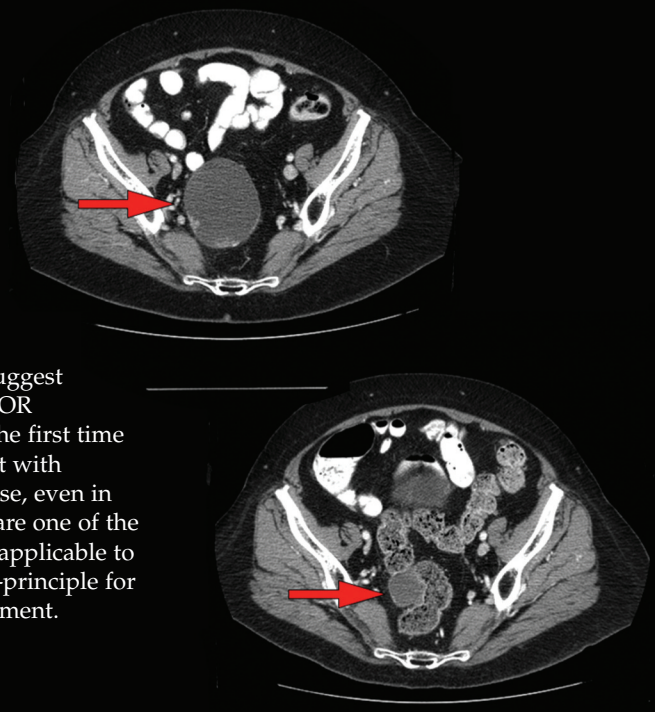
Molecular Cancer Therapeutics **Highlights**

March 2011 • Volume 10 • Number 3

Selected Articles from This Issue



PI3K/AKT/mTOR Inhibitors in Patients with PIK3CA Mutations

Janku *et al.* _____**Page 558**

Activating mutations of the p110 subunit of phosphatidylinositol-3-kinase (*PIK3CA*) have been identified in a broad spectrum of tumors. Preclinical data suggest that PIK3CA mutations predict response to PI3K/AKT/mTOR inhibitors. In a pilot study, Janku and colleagues show for the first time that selecting patients with PIK3CA mutations for treatment with PI3K/AKT/mTOR inhibitors results in high rates of response, even in the early clinical trials setting. Because *PIKC3A* mutations are one of the most common mutations in cancer, this work is potentially applicable to a large number of patients and also provides early proof-of-principle for the concept of personalized targeted therapy in cancer treatment.

NCI-60 miRNA Analysis ENMD-2076, an Aurora and Angiogenic Kinase Inhibitor

Søkilde *et al.* _____**Page 375**

The NCI-60 cell panel has been well characterized with respect to drug sensitivity, genomic, transcriptomic, and proteomic data. Here, Søkilde and colleagues provide a comprehensive analysis of the NCI-60 microRNA landscape by measuring the expression of 955 microRNAs (miRNA) by an LNA-enhanced microarray. The miRNA expression data were correlated to drug sensitivity, mRNA, and protein levels, as well as to tissue of origin. The analysis, which includes a large supplementary data set, may aid in investigation of miRNAs associated with tumor biology, drug resistance, and sensitivity, and thus help identification of new molecular targets and miRNA based biomarkers for personalized medication.

Second Generation of mTOR Inhibitors

Vilar *et al.* _____**Page 395**

Rapalogs have integrated the first wave of mTOR inhibitors developed for the treatment of different malignancies, presenting a relative lack of clinical activity. In this article, Vilar and colleagus review the most recent advances in the understanding of the molecular biology of this pathway, mainly the characterization of the dual nature of the mTOR complex and the intricate network of feedback loops that regulates it. These findings have allowed the development of a promising second generation of inhibitors that are currently in early stages of clinical development and whose results are summarized in this article.

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Mol Cancer Ther 2011;10:373.