### CONTENTS

#### FEBRUARY 2014

**VOLUME 4**

### IN THIS ISSUE

- Highlighted research articles ................................ 131

### NEWS IN BRIEF

- Important news stories affecting the community ............... 136

### NEWS IN DEPTH

- Q&A: Muin Khoury on Cancer Epidemiology ............. 140

### RESEARCH WATCH

- Selected highlights of recent articles of exceptional significance from the cancer literature .................. 141

### ONLINE

- For more News and Research Watch, visit Cancer Discovery online at http://CDnews.aacrjournals.org.

### VIEWS

#### In The Spotlight

- Navigating the Challenge of Tumor Heterogeneity in Cancer Therapy .................. 146
  
  C. Fedele, R.W. Tothill, and G.A. McArthur
  
  *See article, p. 166*

- EMT Twists the Road to PI3K ........ 149
  
  M.J. Niederst and C.H. Benes
  
  *See article, p. 186*

- MYCxing It Up with FGFR1 in Squamous Cell Lung Cancer .... 152
  
  W. Lockwood and K. Politi
  
  *See article, p. 246*

### REVIEW

- Radiogenomics: Using Genetics to Identify Cancer Patients at Risk for Development of Adverse Effects Following Radiotherapy .............. 155
  
  S.L. Kerns, H. Ostrer, and B.S. Rosenstein

### RESEARCH BRIEFS

- Addressing Genetic Tumor Heterogeneity through Computationally Predictive Combination Therapy ............... 166
  
  B. Zhao, J.R. Pritchard, D.A. Lauffenburger, and M.T. Hemann
  
  *Précis*: Computational modeling enables design and optimization of chemotherapeutic drug combinations that minimize tumor cell subpopulation outgrowth in heterogeneous tumors.

  *See commentary, p. 146*

- Tolerance of Whole-Genome Doubling Propagates Chromosomal Instability and Accelerates Cancer Genome Evolution ............. 175
  
  
  *Précis*: Genome doubling is an early event in colorectal cancer development that is associated with an increased tolerance for chromosomal instability and poor prognosis.

### RESEARCH ARTICLES

- Epithelial-to-Mesenchymal Transition Rewires the Molecular Path to PI3K-Dependent Proliferation ................. 186
  
  M.B. Salt, S. Bandyopadhyay, and F. McCormick
  
  *Précis*: EMT removes an autocrine ERBB3 loop in NSCLC, leading to a reduction in proliferation that can be rescued by restoring PI3K signaling through divergent mechanisms.

  *See commentary, p. 149*

- MEK-Dependent Negative Feedback Underlies BCR-ABL-Mediated Oncogene Addiction .......... 200
  
  
  *Précis*: BCR-ABL activates a MEK-dependent negative feedback pathway that persistently inhibits growth factor receptor signaling and leads to apoptotic commitment upon BCR-ABL inhibition.
Patients with triple-negative breast cancer who do not experience a pathologic complete response following neoadjuvant chemotherapy have a poor prognosis due to a high rate of recurrence of metastatic disease. Balko and colleagues performed genomic analyses of residual triple-negative breast cancers after neoadjuvant chemotherapy to identify potential targets for adjuvant therapy and found that over 90% of residual triple-negative breast cancers harbored an actionable alteration in a targetable pathway. Molecular profiling of residual triple-negative breast cancers after neoadjuvant chemotherapy could thus potentially guide the use of adjuvant targeted therapies aimed at preventing disease recurrence. For details, please see the article by Balko and colleagues on page 232.

**Comprehensive Genomic Analysis of Rhabdomyosarcoma Reveals a Landscape of Alterations Affecting a Common Genetic Axis in Fusion-Positive and Fusion-Negative Tumors.**


**Précis:** Mutated genes in PAX fusion-negative rhabdomyosarcomas are enriched for PAX fusion protein targets.

**Molecular Profiling of the Residual Disease of Triple-Negative Breast Cancers after Neoadjuvant Chemotherapy Identifies Actionable Therapeutic Targets.**


**Précis:** Genomic analysis of chemotherapy-resistant triple-negative breast cancer cells may guide use of adjuvant targeted therapies to prevent recurrence of metastatic disease.