

Cancer Research

A Journal of the American Association for Cancer Research

Volume 69 • Number 10

May 15, 2009 • Pages 4093–4554

Reviews

Cell Cycle Regulation by MicroRNAs in Embryonic Stem Cells.
Yangming Wang and Robert Blelloch4093

A Three-Dimensional Osteogenic Tissue Model for the Study of Metastatic Tumor Cell Interactions with Bone.
Andrea M. Mastro and Erwin A. Vogler4097

Priority Reports

A Genetic Screen Identifies Topoisomerase 1 as a Regulator of Senescence. Nicolas Humbert, Sébastien Martien, Arnaud Augert, Marco Da Costa, Sébastien Mauen, Corinne Abbadie, Yvan de Launoit, Jesús Gil, and David Bernard4101

RIP1 Activates PI3K-Akt via a Dual Mechanism Involving NF- κ B-Mediated Inhibition of the mTOR-S6K-IRS1 Negative Feedback Loop and Down-regulation of PTEN. Seongmi Park, Dawen Zhao, Kimmo J. Hatanpaa, Bruce E. Mickey, Debabrata Saha, David A. Boothman, Michael D. Story, Eric T. Wong, Sandeep Burma, Maria-Magdalena Georgescu, Vivek M. Rangnekar, Sandili S. Chauncey, and Amyn A. Habib.....4107

A Multicenter, Double-Blinded Validation Study of Methylation Biomarkers for Progression Prediction in Barrett's Esophagus. Zhe Jin, Yulan Cheng, Wen Gu, Yingye Zheng, Fumiaki Sato, Yuri Mori, Alexandru V. Olaru, Bogdan C. Paun, Jian Yang, Takatsugu Kan, Tetsuo Ito, James P. Hamilton, Florin M. Selaru, Rachana Agarwal, Stefan David, John M. Abraham, Herbert C. Wolfsen, Michael B. Wallace, Nicholas J. Shaheen, Kay Washington, Jean Wang, Marcia Irene Canto, Achyut Bhattacharyya, Mark A. Nelson, Paul D. Wagner, Yvonne Romero, Kenneth K. Wang, Ziding Feng, Richard E. Sampliner, and Stephen J. Meltzer4112

Cell, Tumor, and Stem Cell Biology

Characterization of a Naturally Occurring Breast Cancer Subset Enriched in Epithelial-to-Mesenchymal Transition and Stem Cell Characteristics. Bryan T. Hennessy, Ana-Maria Gonzalez-Angulo, Katherine Stemke-Hale, Michael Z. Gilcrease, Savitri Krishnamurthy, Ju-Seog Lee, Jane Fridlyand, Aysegul Sahin, Roshan Agarwal, Corwin Joy, Wenbin Liu, David Stivers, Keith Baggerly, Mark Carey, Ana Lluch, Carlos Monteagudo, Xiaping He, Victor Weigman, Cheng Fan, Juan Palazzo, Gabriel N. Hortobagyi, Laura K. Nolden, Nicholas J. Wang, Vicente Valero, Joe W. Gray, Charles M. Perou, and Gordon B. Mills.....4116

Haploinsufficiency of Krüppel-Like Factor 5 Rescues the Tumor-Initiating Effect of the *Apc*^{Min} Mutation in the Intestine. Beth B. McConnell, Agnieszka B. Bialkowska, Mandayam O. Nandan, Amr M. Ghaleb, Frank J. Gordon, and Vincent W. Yang4125

Mesenchymal Stem Cell Delivery of TRAIL Can Eliminate Metastatic Cancer. Michael R. Loebinger, Ayad Eddaoudi, Derek Davies, and Sam M. Janes4134

Comparison of Primary Neuroblastoma Tumors and Derivative Early-Passage Cell Lines Using Genome-Wide Single Nucleotide Polymorphism Array Analysis. Samuel L. Volchenbom, Cheng Li, Shuli Li, Edward F. Attiye, C. Patrick Reynolds, John M. Maris, A. Thomas Look, and Rani E. George.....4143

AZD1152 Rapidly and Negatively Affects the Growth and Survival of Human Acute Myeloid Leukemia Cells *In vitro* and *In vivo*. Adedayo Oke, Daniel Pearce, Robert W. Wilkinson, Claire Crafter, Rajesh Odedra, Jamie Cavenagh, Jude Fitzgibbon, Andrew T. Lister, Simon Joel, and Dominique Bonnet4150

Rapamycin Prevents Early Onset of Tumorigenesis in an Oral-Specific *K-ras* and *p53* Two-Hit Carcinogenesis Model. Ana R. Raimondi, Alfredo Molinolo, and J. Silvio Gutkind4159

The Mechanical Rigidity of the Extracellular Matrix Regulates the Structure, Motility, and Proliferation of Glioma Cells. Theresa A. Ulrich, Elena M. de Juan Pardo, and Sanjay Kumar4167

Clinical Research

Lack of T-Cell Receptor-Induced Signaling Is Crucial for CD95 Ligand Up-regulation and Protects Cutaneous T-Cell Lymphoma Cells from Activation-Induced Cell Death. Claus-Detlev Klemke, Dirk Brenner, Eva-Maria Weiß, Marc Schmidt, Martin Leverkus, Karsten Gülow, and Peter H. Krammer4175

Host Genetic Variants in the *Interleukin-6* Promoter Predict Poor Outcome in Patients with Estrogen Receptor-Positive, Node-Positive Breast Cancer. Angela DeMichele, Robert Gray, Michelle Horn, Jinbo Chen, Richard Aplenc, William P. Vaughan, and Martin S. Tallman4184

Endocrinology

Loss of Phosphatase and Tensin Homologue Deleted on Chromosome 10 Engages ErbB3 and Insulin-Like Growth Factor-I Receptor Signaling to Promote Antiestrogen Resistance in Breast Cancer. Todd W. Miller, Mariana Pérez-Torres, Archana Narasanna, Marta Guix, Olle Stål, Gizeh Pérez-Tenorio, Ana M. Gonzalez-Angulo, Bryan T. Hennessy, Gordon B. Mills, J. Phillip Kennedy, Craig W. Lindsley, and Carlos L. Arteaga.....4192

Gonadotropin-Releasing Hormone Type II Induces Apoptosis of Human Endometrial Cancer Cells by Activating GADD45 α . Hsien-Ming Wu, Jung-Chien Cheng, Hsin-Shih Wang, Hong-Yuan Huang, Colin D. MacCalman, and Peter C.K. Leung.....4202

Heregulin Regulates Prolactinoma Gene Expression. George Vlotides, Odelia Cooper, Yen-Hao Chen, Song-Guang Ren, Yona Greenman, and Shlomo Melmed4209

Epidemiology

Genetic Variation in B-Cell-Activating Factor Is Associated with an Increased Risk of Developing B-Cell Non-Hodgkin Lymphoma. Anne J. Novak, Susan L. Slager, Zachary S. Fredericksen, Alice H. Wang, Michelle M. Manske, Steven Ziesmer, Mark Liebow, William R. Macon, Stacey R. Dillon, Thomas E. Witzig, James R. Cerhan, and Stephen M. Ansell4217

Contents (Continued)

Experimental Therapeutics, Molecular Targets, and Chemical Biology

Chemical Genomics Identifies the Unfolded Protein Response as a Target for Selective Cancer Cell Killing during Glucose Deprivation. Sakae Saito, Aki Furuno, Junko Sakurai, Asami Sakamoto, Hae-Ryong Park, Kazuo Shin-ya, Takashi Tsuruo, and Akihiro Tomida.....4225

Proteasome Inhibition Potentiates Antitumor Effects of Photodynamic Therapy in Mice through Induction of Endoplasmic Reticulum Stress and Unfolded Protein Response. Angelika Szokalska, Marcin Makowski, Dominika Nowis, Grzegorz M. Wilczyński, Marek Kujawa, Cezary Wójcik, Izabela Mlynarczuk-Biały, Paweł Salwa, Jacek Bil, Sylwia Janowska, Patrizia Agostinis, Tom Verfaillie, Marek Bugajski, Jan Gietka, Tadeusz Issat, Eliza Glodkowska, Piotr Mrówka, Tomasz Stoklosa, Michael R. Hamblin, Paweł Mróz, Marek Jakóbsiak, and Jakub Golab.....4235

RLIP76: A Target for Kidney Cancer Therapy. Sharad S. Singhal, Jyotsana Singhal, Sushma Yadav, Mukesh Sahu, Yogesh C. Awasthi, and Sanjay Awasthi.....4244

EGFRvIII and DNA Double-Strand Break Repair: A Molecular Mechanism for Radioresistance in Glioblastoma. Bipasha Mukherjee, Brian McEllin, Cristel V. Camacho, Nozomi Tomimatsu, Shyam Sirasanagandala, Suraj Nannepaga, Kimmo J. Hatanpaa, Bruce Mickey, Christopher Madden, Elizabeth Maher, David A. Boothman, Frank Furnari, Webster K. Cavenee, Robert M. Bachoo, and Sandeep Burma.....4252

Epithelial-to-Mesenchymal Transition and Resistance to Ingenol 3-Angelate, a Novel Protein Kinase C Modulator, in Colon Cancer Cells. Aïda Ghoul, Maria Serova, Lucile Astorgues-Xerri, Ivan Bieche, Guilhem Bousquet, Mariana Varna, Michel Vidaud, Edelmira Phillips, Sophie Weill, Karim A. Benhadji, François Lokiec, Esteban Cvitkovic, Sandrine Faivre, and Eric Raymond.....4260

The Trifunctional Antibody Ertumaxomab Destroys Tumor Cells That Express Low Levels of Human Epidermal Growth Factor Receptor 2. Michael Jäger, Alexandra Schoberth, Peter Ruf, Jürgen Hess, and Horst Lindhofer.....4270

A New Class of Quinoline-Based DNA Hypomethylating Agents Reactivates Tumor Suppressor Genes by Blocking DNA Methyltransferase 1 Activity and Inducing Its Degradation. Jharna Datta, Kalpana Ghoshal, William A. Denny, Swarna A. Gamage, Darby G. Brooke, Pasit Phiasivongsa, Sanjeev Redkar, and Samson T. Jacob.....4277

PI3K Pathway Activation Mediates Resistance to MEK Inhibitors in KRAS Mutant Cancers. Susan Wee, Zainab Jagani, Kay Xiaojin Xiang, Alice Loo, Marion Dorsch, Yung-Mae Yao, William R. Sellers, Christoph Lengauer, and Frank Stegmeier.....4286

Enhancing the Antitumor Activity of Adriamycin and Ionizing Radiation. Wenqing Sun, Amanda L. Kalen, Brian J. Smith, Joseph J. Cullen, and Larry W. Oberley.....4294

Immunology

Regulation of Secondary Antigen-Specific CD8⁺ T-Cell Responses by Natural Killer T Cells. Changwan Hong, Hyunji Lee, Yoon-Kyung Park, Junghoon Shin, Sundo Jung, Hoyeon Kim, Seokmann Hong, and Se-Ho Park.....4301

Cyclophosphamide Augments Antitumor Immunity: Studies in an Autochthonous Prostate Cancer Model. Satoshi Wada, Kiyoshi Yoshimura, Edward L. Hipkiss, Tim J. Harris, Hung-Rong Yen, Monica V. Goldberg, Joseph F. Grosso, Derese Getnet, Angelo M. Demarzo, George J. Netto, Robert Anders, Drew M. Pardoll, and Charles G. Drake.....4309

Costimulation as a Platform for the Development of Vaccines: A Peptide-Based Vaccine Containing a Novel Form of 4-1BB Ligand Eradicates Established Tumors. Rajesh K. Sharma, Kutlu G. Elpek, Esma S. Yolcu, Rich-Henry Schabowsky, Hong Zhao, Laura Bandura-Morgan, and Haval Shirwan.....4319

Intracellular Bacterial Vectors That Induce CD8⁺ T Cells with Similar Cytolytic Abilities but Disparate Memory Phenotypes Provide Contrasting Tumor Protection. Felicity C. Stark, Subash Sad, and Lakshmi Krishnan.....4327

The CD4⁺ T-Cell Response of Melanoma Patients to a MAGE-A3 Peptide Vaccine Involves Potential Regulatory T Cells. Violaine François, Sabrina Ottaviani, Nicolina Renkvist, Julie Stockis, Gerold Schuler, Kris Thielemans, Didier Colau, Marie Marchand, Thierry Boon, Sophie Lucas, and Pierre van der Bruggen.....4335

Cancer Vaccine Enhanced, Non-Tumor-Reactive CD8⁺ T Cells Exhibit a Distinct Molecular Program Associated with “Division Arrest Anergy”. Marc Beyer, Julia Karbach, Michael R. Mallmann, Thomas Zander, Daniela Eggle, Sabine Classen, Svenja Debey-Pascher, Michael Famulok, Elke Jäger, and Joachim L. Schultze.....4346

From Chronic Feed-Induced Intestinal Inflammation to Adenocarcinoma with Metastases in Salmonid Fish. Ole B. Dale, Brit Tørud, Agnar Kvellestad, Hanna S. Koppang, and Erling O. Koppang.....4355

Molecular Biology, Pathobiology, and Genetics

Ewing Sarcoma Fusion Protein EWSR1/FLI1 Interacts with EWSR1 Leading to Mitotic Defects in Zebrafish Embryos and Human Cell Lines. Lisa J. Embree, Mizuki Azuma, and Dennis D. Hickstein.....4363

Role of MUTYH and MSH2 in the Control of Oxidative DNA Damage, Genetic Instability, and Tumorigenesis. Maria Teresa Russo, Gabriele De Luca, Ida Casorelli, Paolo Degan, Sara Molatore, Flavia Barone, Filomena Mazzei, Tania Pannellini, Piero Musiani, and Margherita Bignami.....4372

Loss of the SMRT/NCoR2 Corepressor Correlates with JAG2 Overexpression in Multiple Myeloma. Pushpankur Ghoshal, Alain J. Nganga, Joseph Moran-Giuati, Angela Szafranek, Timothy R. Johnson, Ashley J. Bigelow, Christiane M. Houde, Herve Avet-Loiseau, Dominic J. Smiraglia, Noreen Erasing, Asher A. Chanan-Khan, and Lionel J. Coignet.....4380

Identification of PDEAD as a Proliferation Promoting Factor in Prostate Cancer Using a Sleeping Beauty Transposon-Based Somatic Mutagenesis Screen. Eric P. Rahrman, Lara S. Collier, Todd P. Knutson, Meghan E. Doyal, Sheri L. Kuslak, Laura E. Green, Rita L. Malinowski, Laura Roethe, Keiko Akagi, Michelle Waknitz, Wei Huang, David A. Largaespada, and Paul C. Marker.....4388

A Regulatory Mechanism for RSK2 NH₂-Terminal Kinase Activity. Yong-Yeon Cho, Ke Yao, Angelo Pugliese, Margarita L. Malakhova, Ann M. Bode, and Zigang Dong.....4398

Contents (Continued)

Persistence of High-Grade Cervical Dysplasia and Cervical Cancer Requires the Continuous Expression of the Human Papillomavirus Type 16 E7 Oncogene. Sean F. Jabbar, Linda Abrams, Adam Glick, and Paul F. Lambert4407

The Role of ATF4 Stabilization and Autophagy in Resistance of Breast Cancer Cells Treated with Bortezomib. Manuela Milani, Tomasz Rzymiski, Howard R. Mellor, Luke Pike, Alberto Bottini, Daniele Generali, and Adrian L. Harris4415

Association between Transcriptional Activity, Local Chromatin Structure, and the Efficiencies of Both Subpathways of Nucleotide Excision Repair of Melphalan Adducts. Hara Episkopou, Soterios A. Kyrtopoulos, Petros P. Sfikakis, Maria Fousteri, Meletios A. Dimopoulos, Leon H.F. Mullenders, and Vassilis L. Souliotis.....4424

Treatment-Dependent Androgen Receptor Mutations in Prostate Cancer Exploit Multiple Mechanisms to Evade Therapy. Mara P. Steinkamp, Orla A. O'Mahony, Michele Brogley, Haniya Rehman, Elizabeth W. LaPensee, Saravana Dhanasekaran, Matthias D. Hofer, Rainer Kuefer, Arul Chinnaiyan, Mark A. Rubin, Kenneth J. Pienta, and Diane M. Robins.....4434

Epigenetic Silencing of the Tumor Suppressor MicroRNA *Hsa-miR-124a* Regulates CDK6 Expression and Confers a Poor Prognosis in Acute Lymphoblastic Leukemia. Xabier Agirre, Amaia Vilas-Zornoza, Antonio Jiménez-Velasco, José Ignacio Martín-Subero, Lucia Cordeu, Leire Gárate, Edurne San José-Eneriz, Gloria Abizanda, Paula Rodríguez-Otero, Puri Fortes, José Rifón, Eva Bandrés, María José Calasanz, Vanesa Martín, Anabel Heiniger, Antonio Torres, Reiner Siebert, José Román-Gomez, and Felipe Prósper4443

Complex Oncogenic Translocations with Gene Amplification Are Initiated by Specific DNA Breaks in Lymphocytes. Sarah M. Wright, Yong H. Woo, Travis L. Alley, Bobbi-Jo Shirley, Ellen C. Akeson, Kathy J. Snow, Sarah A. Maas, Rachel L. Elwell, Oded Foreman, and Kevin D. Mills.....4454

Endoplasmic Reticulum Stress Triggers XBP-1–Mediated Up-regulation of an EBV Oncoprotein in Nasopharyngeal Carcinoma. Jenn-Ren Hsiao, Kung-Chao Chang, Chaio-Wei Chen, Shih-Yi Wu, Ih-Jen Su, Mei-Chi Hsu, Ying-Tai Jin, Sen-Tien Tsai, Kenzo Takada, and Yao Chang4461

Prevention

3,3'-Diindolylmethane Enhances Taxotere-Induced Apoptosis in Hormone-Refractory Prostate Cancer Cells through Survivin Down-regulation. KM Wahidur Rahman, Sanjeev Banerjee, Shadan Ali, Aamir Ahmad, Zhiwei Wang, Dejuan Kong, and Wael A. Sakr4468

Association between Rectal Optical Signatures and Colonic Neoplasia: Potential Applications for Screening. Hemant K. Roy, Vladimir Turzhitsky, Young Kim, Michael J. Goldberg, Patrice Watson, Jeremy D. Rogers, Andrew J. Gomes, Alexey Kromine, Randall E. Brand, Mohammed Jameel, Andrej Bogovejic, Prabhakar Pradhan, and Vadim Backman.....4476

Systems Biology and Emerging Technologies

Prediction of Drug Response in Breast Cancer Using Integrative Experimental/Computational Modeling. Hermann B. Frieboes, Mary E. Edgerton, John P. Fruehauf, Felicity R.A.J. Rose, Lisa K. Worrall, Robert A. Gatenby, Mauro Ferrari, and Vittorio Cristini4484

Multiparameter Computational Modeling of Tumor Invasion. Elaine L. Bearer, John S. Lowengrub, Hermann B. Frieboes, Yao-Li Chuang, Fang Jin, Steven M. Wise, Mauro Ferrari, David B. Agus, and Vittorio Cristini.....4493

Quantitative Metrics of Net Proliferation and Invasion Link Biological Aggressiveness Assessed by MRI with Hypoxia Assessed by FMISO-PET in Newly Diagnosed Glioblastomas. Mindy D. Szeto, Gargi Chakraborty, Jennifer Hadley, Russ Rockne, Mark Muzi, Ellsworth C. Alvord, Jr., Kenneth A. Krohn, Alexander M. Spence, and Kristin R. Swanson.....4502

A Novel Technology for the Imaging of Acidic Prostate Tumors by Positron Emission Tomography. Amy L. Vävere, Gráinne B. Biddlecombe, William M. Spees, Joel R. Garbow, Dayanjali Wijesinghe, Oleg A. Andreev, Donald M. Engelman, Yana K. Reshetnyak, and Jason S. Lewis4510

Tumor Microenvironment

Up-regulation of L1CAM in Pancreatic Duct Cells Is Transforming Growth Factor β 1– and Slug-Dependent: Role in Malignant Transformation of Pancreatic Cancer. Claudia Geismann, Mascha Morscheck, Dorothee Koch, Frank Bergmann, Hendrik Ungefroren, Alexander Arlt, Ming-Sound Tsao, Max G. Bachem, Peter Altevogt, Bence Sipos, Ulrich R. Fölsch, Heiner Schäfer, and Susanne Sebens Mürköster4517

Cellular Source and Amount of Vascular Endothelial Growth Factor and Platelet-Derived Growth Factor in Tumors Determine Response to Angiogenesis Inhibitors. Barbara Sennino, Frank Kuhnert, Sebastien P. Tabruyn, Michael R. Mancuso, Dana D. Hu-Lowe, Calvin J. Kuo, and Donald M. McDonald.....4527

VEGF-A Induces Angiogenesis by Perturbing the Cathepsin-Cysteine Protease Inhibitor Balance in Venules, Causing Basement Membrane Degradation and Mother Vessel Formation. Sung-Hee Chang, Keizo Kanasaki, Vasilena Gocheva, Galia Blum, Jay Harper, Marsha A. Moses, Shou-Ching Shih, Janice A. Nagy, Johanna Joyce, Matthew Bogyo, Raghu Kalluri, and Harold F. Dvorak.....4537

Interaction of E-cadherin and PTEN Regulates Morphogenesis and Growth Arrest in Human Mammary Epithelial Cells. Marcia V. Fournier, Jimmie E. Fata, Katherine J. Martin, Paul Yaswen, and Mina J. Bissell.....4545

Corrections

Correction: Article on IRF-9/STAT2 Drives the Expression of *RIG-G* Gene4553

Correction: Article on Vaccination Reveals a Long Dominant CTL Epitope4553

Correction: Article on EphB4 Is Up-regulated in Colorectal Cancer4554

Cancer Research

The Journal of Cancer Research (1916-1930) | The American Journal of Cancer (1931-1940)

69 (10)

Cancer Res 2009;69:4093-4554.

Updated version Access the most recent version of this article at:
<http://cancerres.aacrjournals.org/content/69/10>

E-mail alerts [Sign up to receive free email-alerts](#) related to this article or journal.

Reprints and Subscriptions To order reprints of this article or to subscribe to the journal, contact the AACR Publications Department at pubs@aacr.org.

Permissions To request permission to re-use all or part of this article, use this link <http://cancerres.aacrjournals.org/content/69/10>. Click on "Request Permissions" which will take you to the Copyright Clearance Center's (CCC) Rightslink site.