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1 Highlights from Recent Cancer Literature

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PRIORITY REPORTS

24 A Sucrose-Enriched Diet Promotes Tumorigenesis in Mammary Gland in Part through the 12-Lipoxygenase Pathway
Yan Jiang, Yong Pan, Patrea R. Rhea, Lin Tan, Mihai Gagea, Lorenzo Cohen, Susan M. Fischer, and Peiyang Yang

Précis: Results offer preclinical evidence that fructose derived from dietary sugar increases risks of breast cancer development and metastasis via production of pro-inflammatory lipids.

30 Mitochondrial DNA Repair through OGG1 Activity Attenuates Breast Cancer Progression and Metastasis
Larysa V. Yuzefovych, Andrea G. Kahn, Michele A. Schuler, Lars Eide, Ritu Arora, Glenn L. Wilson, Ming Tan, and Lyudmila I. Rachek

Précis: These findings show that DNA damage in mitochondria promotes breast cancer progression and metastasis, offering a preclinical rationale to promote DNA repair in this organelle.

35 M-CSF and GM-CSF Receptor Signaling Differentially Regulate Monocyte Maturation and Macrophage Polarization in the Tumor Microenvironment
Eva Van Overmeire, Benoît Stijlemans, Felix Heymann, Jiri Reisse, Yannick Moris, Yvon Elkin, Lea Brey, Chloë Abels, Qods Lhamar, Can Ergen, Lars Vereecke, Frank Tacke, Patrick De Baetselier, Jo A. Van Ginderachter, and Damya Laoui

Précis: Myeloid colony-stimulating factors exert opposing effects in regulating the phenotype of tumor-associated macrophages, with potentially important implications for the development of cancer immunotherapies targeting innate immune cells.

43 Noninvasive Quantification of 2-Hydroxyglutarate in Human Gliomas with IDH1 and IDH2 Mutations
Uzay E. Emir, Sarah J. Larkin, Nick de Pennington, Natalie Voets, Puneri Plaha, Richard Stacey, Khalid Al-Qahtani, James McCullagh, Christopher J. Schofield, Stuart Clare, Peter Jezzard, Tom Cadoux-Hudson, and Olaf Ansorge

Précis: A rapid, noninvasive, and quantitative detection method for 2-hydroxyglutarate in human glioblastomas can distinguish IDH1 and IDH2 mutations in vivo, with implications for improving diagnosis and therapeutic monitoring of this disease.

MICROENVIRONMENT AND IMMUNOLOGY

50 Radiotherapy Combined with Novel STING-Targeting Oligonucleotides Results in Regression of Established Tumors
Jason R. Baird, David Friedman, Benjamin Cottam, Thomas W. Dubensky, Jr., David B. Kanne, Shelly Bambina, Keith Bahjat, Marka R. Crittenden, and Michael J. Gough

Précis: These exciting findings offer a preclinical rationale to immediately investigate in clinic the powerful properties of a novel ligand of STING—one of the most provocative immunotherapeutic targets at present—in enhancing the efficacy of neoadjuvant or adjuvant radiotherapy for human cancers.
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TUMOR AND STEM CELL BIOLOGY

150 Establishment and Characterization of an In Vitro Model of Ovarian Cancer Stem-like Cells with an Enhanced Proliferative Capacity
Précis: These findings highlight a new method to culture human ovarian stem-like cells, defining a reciprocal relationship between established regulators, which impact malignant progression in this disease setting.

161 H3K27 Demethylase JMJD3 Employs the NF-κB and BMP Signaling Pathways to Modulate the Tumor Microenvironment and Promote Melanoma Progression and Metastasis
Woo-Yong Park, Beom-Jin Hong, Jungsul Lee, Chulhee Choi, and Mi-Young Kim
Précis: This study focuses on a histone demethylase that appears to be critical for shaping a favorable tumor microenvironment for invasion and metastasis, with implications for broadly undercutting local tissue supports for malignant progression in a disease-selective manner.

171 Eva1 Maintains the Stem-like Character of Glioblastoma-Initiating Cells by Activating the Noncanonical NF-κB Signaling Pathway
Naoki Ohtsu, Yuka Nakatani, Daisuke Yamashita, Shiro Ohue, Takanori Ohnishi, and Toru Kondo
Précis: These findings define a new theranostic marker of glioblastoma-initiating cells and offer a preclinical rationale for its further exploration in targeted therapeutic strategies.

CORRECTION

182 Correction: miR326 Maturation Is Crucial for VEGF-C–Driven Cortactin Expression and Esophageal Cancer Progression

ABOUT THE COVER

Cyclic dinucleotides injected into tumors result in rapid hemorrhagic necrosis by activating the sensor STING. To examine expression of STING in the tumor environment, Panc02 pancreatic adenocarcinoma tumors grown in immune competent mice were stained for the macrophage marker F4/80 (red), STING (green), and the DAPI nuclear counterstain (blue). Both the cancer cells and the tumor stroma, including F4/80+ tumor macrophages, expressed STING; however, in STING−/− mice, cyclic dinucleotides had no effect, indicating that it is the stromal rather than cancer expression of STING that mediates this effect. For details, see article by Baird and colleagues on page 50.

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