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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 E. 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
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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 Jefford, 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.
Immunotargeting of Antigen xCT Attenuates Stem-like Cell Behavior and Metastatic Progression in Breast Cancer
Stefania Lanzardo, Laura Conti, Ronald Rooke, Roberto Ruivo, Nathalie Accart, Elisabeta Bolli, Maddalena Arigoni, Marco Macagno, Giuseppina Barrera, Stefania Pizzimenti, Luigi Aurisicchio, Raffaele Adolfo Calogero, and Federica Cavallo

Precis: Immunotargeting of breast cancer stem-like cells can sensitize them to chemotherapy, offering an effective strategy to overcome drug resistance and to limit metastatic progression.

An Effective Immuno-PET Imaging Method to Monitor CD8-Dependent Responses to Immunotherapy
Richard Tavare, Helena Escuin-Ordinas, Stephen Mok, Melissa N. McCracken, Kirstin A. Zettlitz, Felix B. Salazar, Owen N. Witte, Antoni Ribas, and Anna M. Wu

Precis: A sensitive noninvasive method to detect endogenous CD8+ cytotoxic T cells offers a tool to evaluate the response to many cancer immunotherapies.

Ubiquitin-Specific Protease 4-Mediated Deubiquitination and Stabilization of PRL-3 Is Required for Potentiating Colorectal Oncogenesis
Cheng Xing, Xing-Xing Lu, Peng-Da Guo, Tong Shen, Sheng Zhang, Xiao-Shun He, Wen-Juan Gan, Xiu-Ming Li, Jing-Ru Wang, Yuan-Yuan Zhao, Hua Wu, and Jian-Ming Li

Precis: Proteolytic degradation pathways, which exert oncogenic effects in colorectal cancer, suggest a new class of therapeutic targets that are aberrantly expressed in that disease setting.

PLAC8 Localizes to the Inner Plasma Membrane of Pancreatic Cancer Cells and Regulates Cell Growth and Disease Progression through Critical Cell-Cycle Regulatory Pathways

Precis: A multifunctional protein absent from healthy or chronically inflamed pancreatic tissues, but widely expressed in most pancreatic cancers, is found to be a pivotal regulator of cell growth and progression in this disease.

Identification of Novel Fusion Genes in Testicular Germ Cell Tumors
Andreas M. Hoff, Sharmini Alagaratnam, Sen Zhao, Jarle Bruun, Peter W. Andrews, Ragnhild A. Lothe, and Rolf I. Skotheim

Precis: This study identifies genetic drivers of malignancy and biomarkers of disease progression in testicular tumors, specifically revealing fusion oncogenes that have not been described previously in this disease.

Identification and Characterization of Tyrosine Kinase Nonreceptor 2 Mutations in Leukemia through Integration of Kinase Inhibitor Screening and Genomic Analysis
Julia E. Maxson, Melissa L. Abel, Jinhua Wang, Xianming Deng, Sina Reckel, Samuel B. Luty, Huahang Sun, Julie Gorenstein, Seamus B. Hughes, Daniel Bottomly, Beth Wilmot, Shannon K. McWenney, Jared Radich, Oliver Hawkins, Richard E. Middleton, Nathanael S. Gray, Brian J. Druker, and Jeffrey W. Tyner

Precis: A new method to identify and prioritize functionally important genetic mutations in leukemia highlights TNK2 as an actionable therapeutic target.

Connexin 43 Inhibition Sensitizes Chemoresistant Glioblastoma Cells to Temozolomide

Precis: A cell-cell communication channel may offer a theranostic biomarker to predict survival of certain glioblastoma patients who are resistant to temozolomide, a standard-of-care drug used widely for treatment.
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