

WHAT WE'RE READING

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CANCER IMMUNOLOGY MINIATURES

- 182** **Macropinocytosis of Nab-paclitaxel Drives Macrophage Activation in Pancreatic Cancer**
Jane Cullis, Despina Siolas, Antonina Avanzi, Sugata Barui, Anirban Maitra, and Dafna Bar-Sagi
Nab-paclitaxel (Abraxane) is used to treat pancreatic ductal adenocarcinoma. Nab-paclitaxel is internalized by tumor-associated macrophages via macropinocytosis and activates them toward an immunostimulatory, M1 state. This mechanism of action may be applicable to other cancers exhibiting macrophage infiltration.

PRIORITY BRIEF

- 191** **Therapeutic Efficacy of 4-1BB Costimulation Is Abrogated by PD-1 Blockade in a Model of Spontaneous B-cell Lymphoma**
Sara J. McKee, Brianna L. Doff, Megan S.F. Soon, and Stephen R. Mattarollo
Treating cancers by combining approaches is thought to hold great promise. This study demonstrates that caution will be necessary in the selection of antibody therapies that target T cells when trying to enhance antitumor efficacy in B-cell lymphoma.

RESEARCH ARTICLES

- 198** **Differentiated State of Initiating Tumor Cells Is Key to Distinctive Immune Responses Seen in H-Ras^{G12V}-Induced Squamous Tumors**
Michael A. Podolsky, Jacob T. Bailey, Andrew J. Gunderson, Carrie J. Oakes, Kyle Breech, and Adam B. Glick
Immune therapies are usually successful in a fraction of patients. Squamous cell carcinomas originate in a stratified epithelium, and distinctly different immune responses were found to be driven by the state of differentiation of the tumor-initiating cell.

- 211** **NK-Cell Recruitment Is Necessary for Eradication of Peritoneal Carcinomatosis with an IL12-Expressing Maraba Virus Cellular Vaccine**
Almohanad A. Alkayyal, Lee-Hwa Tai, Michael A. Kennedy, Christiano Tanese de Souza, Jiqing Zhang, Charles Lefebvre, Shalini Sahi, Abhirami A. Ananth, Ahmad Bakur Mahmoud, Andrew P. Makriganis, Greg O. Cron, Blair Macdonald, E. Celia Marginean, David F. Stojdl, John C. Bell, and Rebecca C. Auer
Antitumor vaccines are still inefficient. However, when tumor cells were infected ex vivo with an IL12-expressing oncolytic virus and used as a vaccine, peritoneal carcinomatosis mouse models showed a 90% cure rate and protective immunity from rechallenge.

- 222** **Efficient Eradication of Established Tumors in Mice with Cationic Liposome-Based Synthetic Long-Peptide Vaccines**
Eleni Maria Varypataki, Naomi Benne, Joke Bouwstra, Wim Jiskoot, and Ferry Ossendorp
Effective antitumor vaccines have been elusive. Two tumor models were used to test vaccines comprising liposome-encapsulated synthetic long peptides and TLR-activating adjuvants. These could cure 75–100% of the mice of large established HPV-expressing tumors and showed immunological memory.

- 234** **Estradiol Promotes Breast Cancer Cell Migration via Recruitment and Activation of Neutrophils**
Gabriela Vazquez Rodriguez, Annelie Abrahamsson, Lasse Dahl Ejby Jensen, and Charlotta Dabrosin
Resistance to anti-estrogen therapy is common among metastatic breast cancer patients. Estradiol increased secretion of TGFβ1 from cancer cells and LFA-1 on neutrophils, which led to increased cancer cell dissemination. Targeting these pathways may enhance treatment efficacy.

- 248** **Tumor-Associated Monocytes/Macrophages Impair NK-Cell Function via TGFβ1 in Human Gastric Cancer**
Liu-sheng Peng, Jin-yu Zhang, Yong-sheng Teng, Yong-liang Zhao, Ting-ting Wang, Fang-yuan Mao, Yi-pin Lv, Ping Cheng, Wen-hua Li, Na Chen, Mubing Duan, Weisan Chen, Gang Guo, Quan-ming Zou, and Yuan Zhuang
Patients with gastric cancer had few NK cells infiltrating their tumors, a condition associated with tumor progression and poor survival. These intratumoral NK cells were functionally impaired, due to the presence of TGFβ1 derived from tumor-associated monocytes/macrophages.

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- 257** **Myeloid STAT3 Promotes Lung Tumorigenesis by Transforming Tumor Immunosurveillance into Tumor-Promoting Inflammation**
Jingjiao Zhou, Zhaoxia Qu, Fan Sun, Lei Han, Liwen Li, Shapei Yan, Laura P. Stabile, Lin-Feng Chen, Jill M. Siegfried, and Gutian Xiao
Lung cancer initially prompts an antitumor immune response, which devolves into a powerfully immunosuppressive environment. Myeloid STAT3 was found to be the culprit responsible for transforming tumor immunosurveillance into the tumor-promoting inflammation that nurtures tumorigenesis.

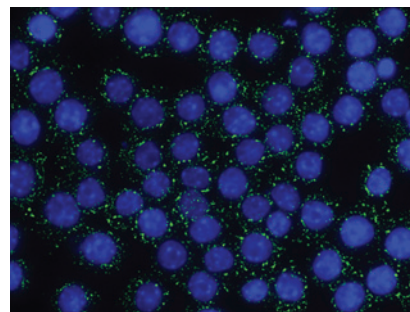
CORRECTION

- 269** **Correction: Deep Sequencing of T-cell Receptor DNA as a Biomarker of Clonally Expanded TILs in Breast Cancer after Immunotherapy**

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ABOUT THE COVER

Pancreatic cancer is a devastating disease that is refractory to most available treatment strategies. Nab-paclitaxel is a form of paclitaxel, a chemotherapeutic drug used against solid tumors, that is now a first-line treatment for pancreatic cancer. Nab-paclitaxel is actually a nanoparticle comprising paclitaxel bound to albumin. Cullis and colleagues examined the interaction of these particles with tumor-associated macrophages and found that the particles are ingested via macropinocytosis. This ingestion process influences the differentiation of the macrophages so that the number of antitumor macrophages is much increased. The fluorescence micrograph shows macrophages (blue nuclei) that have macropinocytosed nab-paclitaxel nanoparticles (green). Read more in the article by Cullis et al. in this issue of *Cancer Immunology Research*, starting on page 182. Micrograph is from Figure 1, and artwork is by Lewis Long.



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