

## WHAT WE'RE READING

- 995 What We're Reading

## MEETING REPORT

- 996 Translating Science into Survival: Report on the Second International Cancer Immunotherapy Conference  
Arthur N. Brodsky and Vanessa M. Hubbard-Lucey

## CANCER IMMUNOLOGY AT THE CROSSROADS


- 1001 Filling the Tank: Keeping Antitumor T Cells Metabolically Fit for the Long Haul  
Greg M. Delgoffe

## RESEARCH ARTICLES

- 1007 Endogenous Neoantigen-Specific CD8 T Cells Identified in Two Glioblastoma Models Using a Cancer Immunogenomics Approach  
Tanner M. Johanns, Jeffrey P. Ward, Christopher A. Miller, Courtney Wilson, Dale K. Kobayashi, Diane Bender, Yujie Fu, Anton Alexandrov, Elaine R. Mardis, Maxim N. Artyomov, Robert D. Schreiber, and Gavin P. Dunn  
*Immunogenomics were used to identify tumor-specific neoantigens in two well characterized models of glioblastoma. Endogenous immune responses harbored neoantigen-specific T cells within the brain and lymph nodes, providing a tractable system for additional preclinical immunotherapeutic studies in these systems.*
- 1016 Rescue of Tolerant CD8<sup>+</sup> T Cells during Cancer Immunotherapy with IL2:Antibody Complexes  
Lauryn E. Klevorn, Melissa M. Berrien-Elliott, Jinyun Yuan, Lindsey M. Kuehm, Gregory D. Felock, Sean A. Crowe, and Ryan M. Teague  
*Immunotherapy for cancer can be obstructed by immune tolerance, in which antitumor T cells are rendered dysfunctional in the tumor microenvironment. It is shown here that IL2:antibody complexes can reverse established T cell tolerance and restore antitumor immunity.*

- 1027 PD-1 Suppresses Development of Humoral Responses That Protect against Tn-Bearing Tumors  
Marcela A. Haro, Chad A. Littrell, Zhaojun Yin, Xuefei Huang, and Karen M. Haas  
*PD-1 regulates T-cell antitumor responses. PD-1 has now also been found to inhibit B-cell antitumor immunity that is based upon the recognition of tumor-specific glycans, revealing an alternative mechanism by which PD-1 blockade may elicit antitumor responses.*
- 1038 Cytotoxic T Cells in PD-L1–Positive Malignant Pleural Mesotheliomas Are Counterbalanced by Distinct Immunosuppressive Factors  
Mark M. Awad, Robert E. Jones, Hongye Liu, Patrick H. Lizotte, Elena V. Ivanova, Meghana Kulkarni, Grit S. Herter-Sprie, Xiaoyun Liao, Abigail A. Santos, Mark A. Bittinger, Lauren Keogh, Shohei Koyama, Christina Almonte, Jessie M. English, Julianne Barlow, William G. Richards, David A. Barbie, Adam J. Bass, Scott J. Rodig, F. Stephen Hodi, Kai W. Wucherpfennig, Pasi A. Jänne, Lynette M. Sholl, Peter S. Hammerman, Kwok-Kin Wong, and Raphael Bueno  
*In malignant pleural mesothelioma, immunohistochemical expression of PD-L1 does not accurately predict whether patients respond to treatment with PD-1 pathway inhibitors. Comprehensive immunoprofiling by flow cytometry uncovered immunophenotypes that improve our understanding of response and resistance to checkpoint blockade.*
- 1049 Survival of Lung Adenocarcinoma Patients Predicted from Expression of PD-L1, Galectin-9, and XAGE1 (GAGED2a) on Tumor Cells and Tumor-Infiltrating T Cells  
Yoshihiro Ohue, Koji Kurose, Ryohei Nozawa, Midori Isobe, Yumi Nishio, Tomonori Tanaka, Yoshinori Doki, Takashi Hori, Junya Fukuoka, Mikio Oka, and Eiichi Nakayama  
*The survival of lung adenocarcinoma patients could be predicted with the use of a discriminant function using as parameters tumor cell expression of PD-L1, Galectin-9, and XAGE1 (GAGED2a), and CD4 and CD8 T-cell infiltration.*
- 1061 Established T Cell–Inflamed Tumors Rejected after Adaptive Resistance Was Reversed by Combination STING Activation and PD-1 Pathway Blockade  
Ellen Moore, Paul E. Clavijo, Ruth Davis, Harrison Cash, Carter Van Waes, Young Kim, and Clint Allen  
*Many patients with head and neck squamous cell carcinomas do not respond to current immunotherapies. Antitumor responses, with protective memory and control of distant tumors, developed in mouse models after treatment with PD-L1 mAb and synthetic cyclic dinucleotides.*

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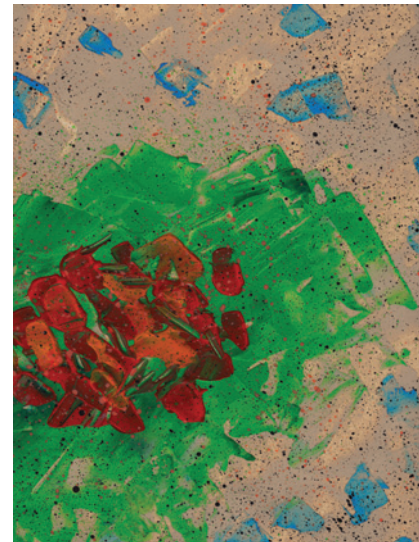
- 1072** **Eradication of Canine Diffuse Large B-Cell Lymphoma in a Murine Xenograft Model with CD47 Blockade and Anti-CD20**  
 Kipp Weiskopf, Katie L. Anderson, Daisuke Ito, Peter J. Schnorr, Hirotaka Tomiyasu, Aaron M. Ring, Kristin Bloink, Jem Efe, Sarah Rue, David Lowery, Amira Barkal, Susan Prohaska, Kelly M. McKenna, Ingrid Cornax, Timothy D. O'Brien, M. Gerard O'Sullivan, Irving L. Weissman, and Jaime F. Modiano  
*Targeting CD47 and CD20 to stimulate macrophage phagocytosis was effective in preclinical xenograft models of canine lymphoma in mice. This immunotherapeutic strategy has the potential to benefit companion animals and to inform future targeting studies in humans.*

- 1088** **ACKNOWLEDGMENT TO REVIEWERS**

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## ABOUT THE COVER

The tumor microenvironment is an inhospitable locale for T cells, particularly those that are activated and presumed functional. One of the recently recognized harsh conditions is that the tumor cells (red), having ramped up their metabolism, have extreme needs for glucose and other nutrients. Activated T cells (faded blue), having done a similar switch to their own metabolism, also have much higher energy requirements. Thus, activated T cells that migrate into tumors find themselves in a nutrient desert (tan area) and, being starved, alter their phenotype to require much less energy, becoming less functional with an “exhausted” phenotype. Artwork is by Lewis Long. Read more in the Cancer Immunology at the Crossroads article by Greg M. Delgoffe in this issue of *Cancer Immunology Research*, starting on page 1001.



# Cancer Immunology Research

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