HIGHLIGHTS FROM THE LITERATURE

What We’re Reading

PRIORITY BRIEFS

Photodynamic-Immune Checkpoint Therapy Eradicates Local and Distant Tumors by CD8\(^+\) T Cells
Jan Willem Kleinovink, Marieke F. Fransen, Clemens W. Löwik, and Ferry Ossendorp

Local tumor destruction by photodynamic therapy induces potent antitumor T-cell responses, which can be enhanced by systemic CTLA-4 blockade to eliminate local and distant tumors in mice. This provides an alternative approach to treating advanced multifocal cancer.

Extracellular S100A9 Protein in Bone Marrow Supports Multiple Myeloma Survival by Stimulating Angiogenesis and Cytokine Secretion
Kim De Veirman, Nathan De Beule, Ken Maes, Eline Menu, Elke De Bruyne, Hendrik De Raeve, Karel Fostier, Jérôme Moreaux, Alboukadel Kassambazra, Dirk Hose, Roy Heusschen, Helena Eriksson, Karin Vanderkerken, and Els Van Valckenborgh

In mouse multiple myeloma, treatment with the small molecule ABR-238901 interfered with calcium-binding protein S100A9, affected cytokine secretion and angiogenesis, and reduced tumor load. Results improved further when ABR-238901 was delivered in combination with the proteasome inhibitor bortezomib.

RESEARCH ARTICLES

Customized Viral Immunotherapy for HPV-Associated Cancer
Matthew J. Atherton, Kyle B. Stephenson, Jonathan Pol, Fuan Wang, Charles Lefebvre, David F. Stojdl, Jake K. Nikota, Anna Dvorkin-Gheva, Andrew Nguyen, Lan Chen, Stephanie Johnson-Obaseki, Patrick J. Villeneuve, Jean-Simon Diallo, Jim Dimitroulakos, Yonghong Wan, and Brian D. Lichty

Oncolytic Maraba virus can selectively infect HPV\(^+\) human cancers as well as generate substantial antitumor immunity. This resulted in complete destruction of advanced HPV\(^+\) tumors in mice, providing a promising immunological approach to combat HPV-associated cancer.

CD28 and 41BB Costimulation Enhances the Effector Function of CD19-Specific Engager T Cells
Mireya Paulina Velasquez, Arpad Szoor, Abishek Vaidya, Aarohi Thakkar, Phuong Nguyen, Meng-Fen Wu, Hao Liu, and Stephen Gottschalk

T cells expressing a bispecific linker coupling tumor-expressed CD19 to CD3 were more effective when also expressing CD80 and 41BB costimulatory molecules. Such T cells had increased IFN\(\gamma\) and IL2 production and enhanced antitumor activity in mouse models.

Neoadjuvant Interferons: Critical for Effective PD-1-Based Immunotherapy in TNBC
Natasha K. Brockwell, Katie L. Owen, Damien Zanker, Alex Spurling, Jai Rautela, Hendrika M. Duijvenvoorden, Nikola Baschuk, Franco Caramia, Sherene Loi, Phillip K. Darcy, Elgene Lim, and Belinda S. Parker

Combination therapy exploiting the interplay between type I IFN signaling and the PD-1/PD-L1 axis induced a tumor-specific cytotoxic response in mouse models of triple-negative breast cancer, extending survival specifically in the neoadjuvant setting.

Tumor-Associated Macrophages Promote Epigenetic Silencing of Gelsolin through DNA Methyltransferase 1 in Gastric Cancer Cells
Hao-Chen Wang, Chin-Wang Chen, Chia-Lung Yang, I-Min Tsai, Ya-Chin Hou, Chang-Jung Chen, and Yan-Shen Shan

Dysregulation of DNA methylation can promote tumor progression. In gastric cancer cells, M2 macrophages enhanced expression of DNMT1, which aberrantly methylated the promoter of the tumor suppressor gelsolin, reducing its expression. Interference with methylation could reduce tumor growth.

Antigen-Presenting Intratumoral B Cells Affect CD4\(^+\) TIL Phenotypes in Non–Small Cell Lung Cancer Patients

B cells in non–small cell lung cancer tumors can present antigen. Activated or exhausted B cells were associated with effector or regulatory CD4\(^+\) T cells, respectively, which may make intratumoral B cells a viable target for immunotherapy.
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### ABOUT THE COVER

Human papilloma virus (HPV) is associated with several malignancies, especially cervical and head and neck cancers. Vaccines are being used to treat various cancers, but with limited success. Atherton et al. demonstrate a promising approach that may provide more consistent antitumor responses. They infected mice with the oncolytic Maraba virus, which selectively infects and lyses tumor cells, while also acting as a vaccine, based on attenuated HPV16 and E7 transforming proteins. Antigen-specific CD8⁺ T cells were activated, HPV⁺ tumors eradicated, and memory induced. This one-two punch strategy may overcome the immunosuppression of advanced disease. Read more in this issue starting on page 847. The micrograph is a hematoxylin-eosin stain of a TC1 tumor harvested from a vaccine-treated mouse. Artwork by Lewis Long.