**WHAT WE'RE READING**

1289  A Sampling of Highlights from the Literature

**IN THE SPOTLIGHT**

1290  Of Microbes and Microsatellites

Chloe E. Atreya and Alan P. Venook
See related article, p. 1327.

**PRIORITY BRIEF**

1292  Restoration of Endogenous Retrovirus Infectivity Impacts Mouse Cancer Models

Eleonora Ottina, Prisca Levy, Urszula Eksmond, Julia Merkenschlager, George R. Young, Juliette Roels, Jonathan P. Stoyting, Dinis P. Calado, and George Kassiotis
Commonly used murine cancer models were affected by mouse-specific, reactivated endogenous retroviruses (ERVs). ERVs were shown to alter tumor progression and antitumor immunity, emphasizing that ERVs are a confounding variable and, if possible, should be avoided during investigations.

**RESEARCH ARTICLES**

1301  Nanoparticle Conjugation of Human Papillomavirus 16 E7-long Peptides Enhances Therapeutic Vaccine Efficacy against Solid Tumors in Mice

Gabriele Galliverti, Melanie Tichet, Sonia Domingos-Pereira, Sylvie Hauert, Denise Nardelli-Haefliger, Melody A. Swartz, Douglas Hanahan, and Stephan Wullschleger
A nanoparticle-based long peptide vaccine activates CD8+ T cells and improves therapeutic efficacy in mouse models of HPV-driven cancer. This strategy may be effective in enhancing responses in other solid tumors, suggesting its potential for clinical development.

1364  TLR Stimulation during T-cell Activation Lowers PD-1 Expression on CD8+ T Cells

Christopher D. Zahm, Viswa T. Colluru, Sean J. McIlwain, Irene M. Ong, and Douglas G. McNeel
Ligands for TLR1/2, TLR7, and TLR9 led to decreased expression of PD-1 on activated CD8+ T cells, an effect mediated by IL12 from professional antigen-presenting cells. This effect resulted in improved antitumor immunity when combined with antigen-specific vaccination.

1327  Fusobacterium nucleatum in Colorectal Cancer Relates to Immune Response Differentially by Tumor Microsatellite Instability Status

Tsuyoshi Hamada, Xuehong Zhang, Kosuke Miina, Susan Bullman, Yasutaka Sukawa, Jonathan A. Nowak, Keisuke Kosumi, Yohei Masugi, Tyler S. Twombly, Yin Cao, Mingyang Song, Li Liu, Annacarolina da Silva, Yan Shi, Mancang Gu, Wanwan Li, Hideo Koh, Katsuhiro Nishio, Kentaro Inamura, NaNa Keum, Kana Wu, Jeffrey A. Meyerhardt, Aleksandar D. Kostic, Curtis Huttenhower, Wendy S. Garrett, Matthew Meyerson, Edward L. Giovannucci, Andrew T. Chan, Charles S. Fuchs, Reiko Nishihara, Marios Giannakis, and Shuji Ogino
In patients with colorectal cancer, the presence of Fusobacterium nucleatum may suppress immune responses for microsatellite instability (MSI)-high tumors and encourage immune responses for non-MSI-high tumors. F. nucleatum and MSI status interact to affect antitumor immune reactions.

See related Spotlight, p. 1290.
1375 PPAR-Induced Fatty Acid Oxidation in T Cells Increases the Number of Tumor-Reactive CD8\(^+\) T Cells and Facilitates Anti–PD-1 Therapy
Partha S. Chowdhury, Kenji Chamoto, Alok Kumar, and Tasuku Honjo
PPAR signal activation enhanced the efficacy of PD-1 blockade cancer immunotherapy. The PPAR signal boosts fatty acid oxidation to rescue T cells from apoptosis by upregulating anti-apoptotic genes including bcl2, thus increasing the number of killer T cells.

1388 Immune Cell Gene Signatures for Profiling the Microenvironment of Solid Tumors
Ajit J. Nirmal, Tim Regan, Barbara B. Shihi, David A. Hume, Andrew H. Sims, and Tom C. Freeman
ImSig is a resource of gene signatures for the quantitative and qualitative assessment of immune cells in the tumor microenvironment. It can be used on other tissue pathologies and identifying the immune component of single-cell transcriptomics data.

1401 Somatic Mutations and Immune Alteration in Rectal Cancer Following Neoadjuvant Chemoradiotherapy
Dengbo Ji, Haizhao Yi, Dakui Zhang, Tiancheng Zhan, Zhaowei Li, Ming Li, Jinying Iia, Meng Qiao, Jinhong Xia, Zhiwei Zhai, Can Song, and Jin Gu
Patients with locally advanced rectal cancer treated with neoadjuvant chemoradiotherapy (nCRT) exhibited induced immune activation, which improved immune checkpoint blockade efficacy in an in vivo model. Patient tumor mutation burden and neoantigen landscape also associated with nCRT responses.

1417 Cripto-1 Plasmid DNA Vaccination Targets Metastasis and Cancer Stem Cells in Murine Mammary Carcinoma
Kristina Witt, Maarten A. Ligtenberg, Laura Conti, Stefania Lanzardo, Roberto Ruiu, Tatjana Wallmann, Helena Tufvesson-Stiller, Benedict J. Chambers, Charlotte Rolny, Alvaro Lladser, Andreas Lundqvist, Federica Cavallo, and Rolf Kiessling
A DNA vaccine targeting tumor-associated antigen Cripto-1 slowed tumor growth and reduced metastases in mouse models of breast cancer. The vaccine may have potential use as an immunotherapeutic for the treatment of metastatic breast cancer.

1426 Stromal Cell PD-L1 Inhibits CD8\(^+\) T-cell Antitumor Immune Responses and Promotes Colon Cancer
Mesenchymal stromal cells (MSCs) present in colorectal cancer (CRC) were found to suppress antitumor responses in vitro and in vivo via PD-1/PD-L1. The results emphasize that PD-L1 on tumor MSCs can impact the efficacy of treatments for CRC.