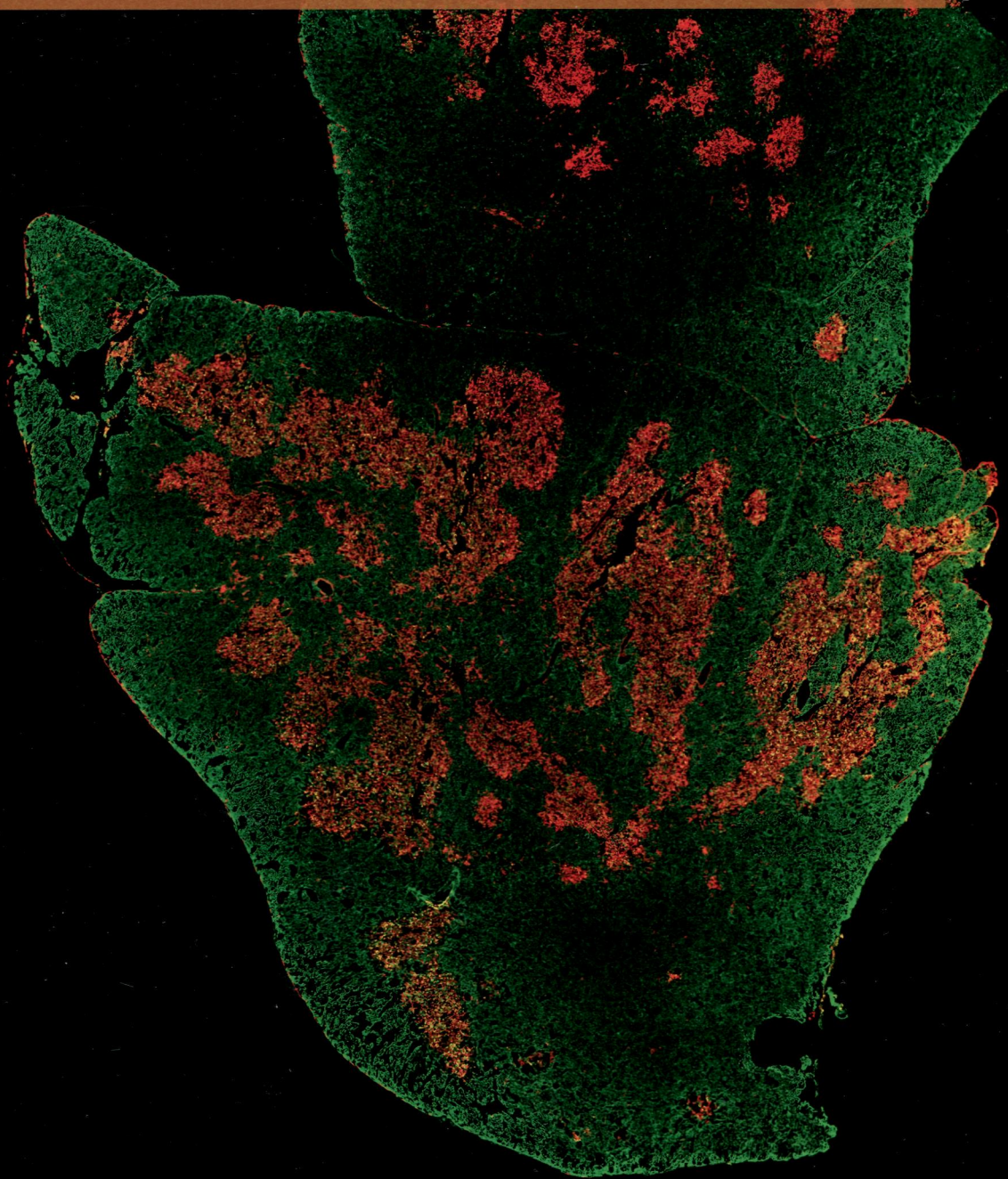




The Journal of Immunology

VOLUME 192, NUMBER 2 • JANUARY 15, 2014 • WWW.JIMMUNOL.ORG



IN THIS ISSUE

- 549 **Age and Infection Influence Immunity** *See article p. 603*
Insulin AKTs on Tregs *See article p. 623*
Cooperative Costimulation in Thymus *See article p. 630*
Tumor Ags Cross-Dress pDCs *See article p. 824*

CUTTING EDGE

- 553 Cutting Edge: DNAX Accessory Molecule 1–Deficient CD8⁺ T Cells Display Immunological Synapse Defects That Impair Antitumor Immunity
Kelly M. Ramsbottom, Edwin D. Hawkins, Raz Shimoni, Mairi McGrath, Christopher J. Chan, Sarah M. Russell, Mark J. Smyth, and Jane O'Liari

AUTOIMMUNITY

- 559 GM-CSF Modulates Autoantibody Production and Skin Blistering in Experimental Epidermolysis Bullosa Acquisita
Unni Krishna S. R. L. Samavedam, Hiroaki Iwata, Susen Müller, Franziska S. Schulze, Andreas Recke, Enno Schmidt, Detlef Zillikens, and Ralf J. Ludwig
- 572 Effector-Memory T Cells Develop in Islets and Report Islet Pathology in Type 1 Diabetes
Jonathan Chee, Hyun-Ja Ko, Ania Skowera, Gaurang Jhala, Tara Catterall, Kate L. Graham, Robyn M. Sutherland, Helen E. Thomas, Andrew M. Lew, Mark Peakman, Thomas W. H. Kay, and Balasubramanian Krishnamurthy
- 581 Lack of Galactosylation Enhances the Pathogenic Activity of IgG1 but Not IgG2a Anti-Erythrocyte Autoantibodies
Kiyoaki Ito, Jun-ichi Furukawa, Kazunori Yamada, Ngoc Lan Tran, Yasuro Shinohara, and Shozo Izui

On the cover: Cross-section of a thymus from a CD80/86-deficient mouse stained with Abs to keratin-8 (green) and keratin-14 (red). Anti-keratin-8 stains thymic cortical and medullary epithelium while anti-keratin-14 stains only medullary epithelium. Williams, J. A., J. Zhang, H. Jeon, T. Nitta, I. Ohigashi, D. Klug, M. J. Kruhlak, B. Choudhury, S. O. Sharrow, L. Granger, A. Adams, M. A. Eckhaus, S. R. Jenkinson, E. R. Richie, R. E. Gress, Y. Takahama, and R. J. Hodes. 2014. Thymic medullary epithelium and thymocyte self-tolerance require cooperation between CD28–CD80/86 and CD40–CD40L costimulatory pathways. *J. Immunol.* 192: 630–640.

The Journal of Immunology (ISSN 0022-1767) is published twice each month by The American Association of Immunologists, Inc., 9650 Rockville Pike, Bethesda, MD 20814-3994, Phone: 301-634-7197, Fax: 301-634-7829. Subscription terms: New subscriptions and renewals begin January 1 and expire one year later (see <http://www.jimmunol.org/subscriptions> for prices and details). A special rate is available to members of The American Association of Immunologists, Inc. (see <http://www.aai.org/membership>). The American Association of Immunologists, Inc., is not responsible for undeliverable issues. Replacement issues can be obtained, if available, at the regular price of single issues (see http://www.jimmunol.org/pdf/single_issue_purchase.pdf). Reprints of individual articles are available only from authors. Periodicals postage paid at Bethesda, MD 20814-3994, and at additional mailing offices. Country of origin U.S.A. Printed on acid-free recyclable paper. Postmaster: Send address changes 60 days in advance to *The Journal of Immunology*, Subscription Department, 9650 Rockville Pike, Bethesda, MD 20814-3994. Copyright © 2014 by The American Association of Immunologists, Inc.

CLINICAL AND HUMAN IMMUNOLOGY

- 589 IL-32 Promotes Angiogenesis
Claudia A. Nold-Petry, Ina Rudloff, Yvonne Baumer, Menotti Ruvo, Daniela Marasco, Paolo Botti, Laszlo Farkas, Steven X. Cho, Jarod A. Zepp, Tania Azam, Hannah Dinkel, Brent E. Palmer, William A. Boisvert, Carlyne D. Cool, Laima Taraseviciene-Stewart, Bas Heinhuis, Leo A. B. Joosten, Charles A. Dinarello, Norbert F. Voelkel, and Marcel F. Nold
- 603 Effects of Aging, Cytomegalovirus Infection, and EBV Infection on Human B Cell Repertoires
Chen Wang, Yi Liu, Lan T. Xu, Katherine J. L. Jackson, Krishna M. Roskin, Tho D. Pham, Jonathan Laserson, Eleanor L. Marshall, Katie Seo, Ji-Yeun Lee, David Furman, Daphne Koller, Cornelia L. Dekker, Mark M. Davis, Andrew Z. Fire, and Scott D. Boyd

IMMUNE REGULATION

- 612 Aged Mice Are Unable To Mount an Effective Myeloid Response to Sepsis
Dina C. Nacionales, Lori F. Gentile, Erin Vanzant, M. Cecilia Lopez, Angela Cuenca, Alex G. Cuenca, Ricardo Ungaro, Yi Li, Tezcan Ozrazgat Baslanti, Azra Bihorac, Frederick A. Moore, Henry V. Baker, Christiaan Leeuwenburgh, Lyle L. Moldawer, and Philip A. Efron
- 623 Insulin Inhibits IL-10–Mediated Regulatory T Cell Function: Implications for Obesity
Jonathan M. Han, Scott J. Patterson, Madeleine Speck, Jan A. Ehses, and Megan K. Levings

IMMUNE SYSTEM DEVELOPMENT

- 630 Thymic Medullary Epithelium and Thymocyte Self-Tolerance Require Cooperation between CD28–CD80/86 and CD40–CD40L Costimulatory Pathways
Joy A. Williams, Jingjing Zhang, Hyein Jeon, Takeshi Nitta, Izumi Ohigashi, David Klug, Michael J. Krublak, Baishakhi Choudhury, Susan O. Sharrow, Larry Granger, Anthony Adams, Michael A. Eckhaus, S. Rhiannon Jenkinson, Ellen R. Richie, Ronald E. Gress, Yousuke Takahama, and Richard J. Hodes

IMMUNOTHERAPY AND VACCINES

- 641 HLA Micropolymorphisms Strongly Affect Peptide–MHC Multimer–Based Monitoring of Antigen-Specific CD8⁺ T Cell Responses
Marit M. van Buuren, Feline E. Dijkgraaf, Carsten Linnemann, Mireille Toebes, Cynthia X. L. Chang, Juk Yee Mok, Melanie Nguyen, Wim J. E. van Esch, Pia Kvistborg, Gijsbert M. Grotenbreg, and Ton N. M. Schumacher
- 649 KLRG1 Impairs CD4⁺ T Cell Responses via p16^{ink4a} and p27^{kip1} Pathways: Role in Hepatitis B Vaccine Failure in Individuals with Hepatitis C Virus Infection
Lei Shi, Jia M. Wang, Jun P. Ren, Yong Q. Cheng, Ruo S. Ying, Xiao Y. Wu, Shu M. Lin, Jeddidiyah W. D. Griffin, Guang Y. Li, Jonathan P. Moorman, and Zhi Q. Yao
- 658 Novel Mechanisms Underlying the Immediate and Transient Global Tolerization of Splenic Dendritic Cells after Vaccination with a Self-Antigen
Adam M. Farkas and Olivera J. Finn

INFECTIOUS DISEASE AND HOST RESPONSE

- 666 Role for σ^{38} in Prolonged Survival of *Escherichia coli* in *Drosophila melanogaster*
Akiko Shiratsuchi, Naoto Shimamoto, Mao Nitta, Tran Quoc Tuan, Afwa Firdausi, Mitsuko Gawasawa, Kaneyoshi Yamamoto, Akira Ishihama, and Yoshinobu Nakanishi
- 676 Role of IL-6 in *Mycobacterium avium*–Associated Immune Reconstitution Inflammatory Syndrome
Daniel L. Barber, Bruno B. Andrade, Cortez McBerry, Irini Sereti, and Alan Sher
- 683 Regulatory T Cells Shape the Resident Memory T Cell Response to Virus Infection in the Tissues
Jessica B. Graham, Andreia Da Costa, and Jennifer M. Lund
- 691 IL-27, a Cytokine, and IFN- λ 1, a Type III IFN, Are Coordinated To Regulate Virus Replication through Type I IFN
Yanhua Cao, Rui Zhang, Wei Zhang, Chengliang Zhu, Yi Yu, Yu Song, Qing Wang, Lan Bai, Yingle Liu, Kailang Wu, and Jianguo Wu

- 704 IL-17A Produced by Neutrophils Protects against Pneumonic Plague through Orchestrating IFN- γ -Activated Macrophage Programming
Yujing Bi, Jiyuan Zhou, Hui Yang, Xiao Wang, Xuecan Zhang, Qiong Wang, Xiaohong Wu, Yanping Han, Yajun Song, Yafang Tan, Zongmin Du, Huiying Yang, Dongsheng Zhou, Yujun Cui, Lei Zhou, Yanfeng Yan, Pingping Zhang, Zhaobiao Guo, Xiaoyi Wang, Guangwei Liu, and Ruifu Yang

INNATE IMMUNITY AND INFLAMMATION

- 714 TNFR-Associated Factor 6 and TGF- β -Activated Kinase 1 Control Signals for a Senescence Response by an Endosomal NK Cell Receptor
Sumati Rajagopalan, Elizabeth C. Lee, Matthew L. DuPrie, and Eric O. Long
- 722 Smooth Muscle Cells Relay Acute Pulmonary Inflammation via Distinct ADAM17/ErbB Axes
Daniela Drey Mueller, Christian Martin, Julian Schumacher, Esther Groth, Julia Katharina Boehm, Lucy Kathleen Reiss, Stefan Uhlig, and Andreas Ludwig
- 732 Killer Ig-like Receptor 2DL4 Does Not Mediate NK Cell IFN- γ Responses to Soluble HLA-G Preparations
Michael E. L. Le Page, Jodie P. Goodridge, Elisabeth John, Frank T. Christiansen, and Campbell S. Witt
- 741 ADAM17-Mediated Shedding of Fc γ RIIIA on Human NK Cells: Identification of the Cleavage Site and Relationship with Activation
Laurie Lajoie, Nicolas Congy-Jolivet, Armelle Bolzec, Valérie Gouilleux-Gruart, Elodie Sicard, Hsueh Cheng Sung, Frank Peiretti, Thierry Moreau, Henri Vié, Béatrice Clémenceau, and Gilles Thibault
- 752 Cytosolic Group IVA and Calcium-Independent Group VIA Phospholipase A₂s Act on Distinct Phospholipid Pools in Zymosan-Stimulated Mouse Peritoneal Macrophages
Luis Gil-de-Gómez, Alma M. Astudillo, Carlos Guijas, Victoria Magrioti, George Kokotos, María A. Balboa, and Jesús Balsinde
- 763 Arsenic Trioxide and Other Arsenical Compounds Inhibit the NLRP1, NLRP3, and NAIP5/NLRC4 Inflammasomes
Nolan K. Maier, Deborah Crown, Jie Liu, Stephen H. Leppla, and Mahtab Moayeri

MOLECULAR AND STRUCTURAL IMMUNOLOGY

- 771 Guanylate Binding Protein 1-Mediated Interaction of T Cell Antigen Receptor Signaling with the Cytoskeleton
Florian Forster, Wolfgang Paster, Verena Supper, Philipp Schatzlmaier, Stefan Sunzenauer, Nicole Ostler, Anna Saliba, Paul Eckerstorfer, Nathalie Britzen-Laurent, Gerhard Schütz, Johannes A. Schmid, Gerhard J. Zlabinger, Elisabeth Naschberger, Michael Stürzl, and Hannes Stockinger
- 782 T Cell Ig and Mucin Domain-Containing Protein 3 Is Recruited to the Immune Synapse, Disrupts Stable Synapse Formation, and Associates with Receptor Phosphatases
Kiera L. Clayton, Matthew S. Haaland, Matthew B. Douglas-Vail, Shariq Mujib, Glen M. Chew, Lishomwa C. Ndhlovu, and Mario A. Ostrowski
- 792 Polymorphisms and Interspecies Differences of the Activating and Inhibitory Fc γ RII of *Macaca nemestrina* Influence the Binding of Human IgG Subclasses
Halina M. Trist, Peck Szee Tan, Bruce D. Wines, Paul A. Ramsland, Eva Orlowski, Janine Stubbs, Elizabeth E. Gardiner, Geoffrey A. Pietersz, Stephen J. Kent, Ivan Stratov, Dennis R. Burton, and P. Mark Hogarth

MUCOSAL IMMUNOLOGY

- 804 Oral *Escherichia coli* Colonization Factor Antigen I Fimbriae Ameliorate Arthritis via IL-35, Not IL-27
Irina Kochetkova, Theresa Thornburg, Gayle Callis, Kathryn Holderness, Massimo Maddaloni, and David W. Pascual

TRANSPLANTATION

- 817 CCL-21 Conditioned Regulatory T Cells Induce Allotolerance through Enhanced Homing to Lymphoid Tissue
Sunil K. Chauhan, Daniel R. Saban, Thomas H. Dohlgan, and Reza Dana

TUMOR IMMUNOLOGY

- 824 Membrane Transfer from Tumor Cells Overcomes Deficient Phagocytic Ability of Plasmacytoid Dendritic Cells for the Acquisition and Presentation of Tumor Antigens

Irene Bonaccorsi, Barbara Morandi, Olga Antsiferova, Gregorio Costa, Daniela Oliveri, Romana Conte, Gaetana Pezzino, Giovanna Vermiglio, Giuseppe Pio Anastasi, Giuseppe Navarra, Christian Münz, Emma Di Carlo, Maria Cristina Mingari, and Guido Ferlazzo

- 833 AUTHOR INDEX