

PH
580/il

THE JOURNAL OF IMMUNOLOGY

Volume 190 | No. 9 | May 1, 2013



www.jimmunol.org

4437 IN THIS ISSUE

LETTERS TO THE EDITOR

- 4439 Comment on “A20 and CYLD Do Not Share Significant Overlapping Functions during B Cell Development and Activation”
Jonghoon Kang, Adarsh Gopinath, and Iris Rivera
- 4439 Comment on “Helios⁺ and Helios⁻ Cells Coexist within the Natural FOXP3⁺ T Regulatory Cell Subset in Humans”
Maha Ayyoub, Caroline Raffin, and Danila Valmori
- 4440 Response to Comment on “Helios⁺ and Helios⁻ Cells Coexist within the Natural FOXP3⁺ T Regulatory Cell Subset in Humans”
Katherine G. MacDonald, Jonathan M. Han, Megan E. Himmel, Qing Huang, Bernard Kan, Andrew I. M. Campbell, Pascal M. Lavoie, and Megan K. Levings

PILLARS OF IMMUNOLOGY

- 4443 T Cell Memory: without Prompting
Stephen C. Jameson
- 4445 Pillars Article: Cytotoxic T-cell Memory without Antigen. *Nature*. 1994. 369: 648–652
Lisa. L. Lau, Beth D. Jamieson, T. Somasundaram, and Rafi Ahmed

BRIEF REVIEWS

- 4451 Integrin Regulation during Leukocyte Recruitment
Jan Herter and Alexander Zarbock
- 4458 Innate Immunity and Its Regulation by Mast Cells
Ashley L. St. John and Soman N. Abraham

On the cover: Residual cutaneous lymphatic capillary from VEGFR3 mutant *Chy* mouse that exhibits severe lymphatic hypoplasia. Vessels are covered by basement membrane (collagen IV; white). The small gaps in collagen IV expression represent portals, adjacent to CCL21 puncta (red), for dendritic cells to move through to gain access to the vessel. Platt, A. M., J. M. Rutkowski, C. Martel, E. L. Kuan, S. Ivanov, M. A. Swartz, and G. J. Randolph. 2013. Normal dendritic cell mobilization to lymph nodes under conditions of severe lymphatic hypoplasia. *J. Immunol.* 190: 4608–4620.

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 © 2013 by The American Association of Immunologists, Inc.

CUTTING EDGE

- 4465 Cutting Edge: Defective Follicular Exclusion of Apoptotic Antigens Due to Marginal Zone Macrophage Defects in Autoimmune BXD2 Mice
Hao Li, Qi Wu, Jun Li, PingAr Yang, Zilu Zhu, Bao Luo, Hui-Chen Hsu, and John D. Mountz
- 4470 Cutting Edge: A Novel, Human-Specific Interacting Protein Couples FOXP3 to a Chromatin-Remodeling Complex That Contains KAP1/TRIM28
Chunjian Huang, Sunil Martin, Christian Pflieger, Jianguang Du, Jane H. Buckner, Jeffrey A. Bluestone, James L. Riley, and Steven F. Ziegler
- 4474 Cutting Edge: Allergen-Specific CD4 T Cells Respond Indirectly to Thymic Stromal Lymphopoietin To Promote Allergic Responses in the Skin
Ryan P. Larson, Michael R. Comeau, and Steven F. Ziegler
- 4478 Cutting Edge: The Pathogenicity of IFN- γ -Producing Th17 Cells Is Independent of T-bet
Rebekka Duhon, Simon Glatigny, Carlos A. Arbelaez, Tiffany C. Blair, Mohamed Oukka, and Estelle Bettelli
- 4483 Cutting Edge: Memory Regulatory T Cells Require IL-7 and Not IL-2 for Their Maintenance in Peripheral Tissues
Iris K. Gratz, Hong-An Truong, Sara Hsin-Yi Yang, Megan M. Maurano, Karim Lee, Abul K. Abbas, and Michael D. Rosenblum

ALLERGY AND OTHER HYPERSENSITIVITIES

- 4489 IL-33-Mediated Innate Response and Adaptive Immune Cells Contribute to Maximum Responses of Protease Allergen-Induced Allergic Airway Inflammation
Seiji Kamijo, Haruna Takeda, Tomoko Tokura, Mayu Suzuki, Kyoko Inui, Mutsuko Hara, Hironori Matsuda, Akira Matsuda, Keisuke Oboki, Tatsukuni Ohno, Hirobisa Saito, Susumu Nakae, Katsuko Sudo, Hajime Suto, Saori Ichikawa, Hideoki Ogawa, Ko Okumura, and Toshiro Takai
- 4500 Mast Cell Fc ϵ RI-Induced Early Growth Response 2 Regulates CC Chemokine Ligand 1-Dependent CD4⁺ T Cell Migration
Zhengli Wu, Adam J. MacNeil, Robert Junkins, Bo Li, Jason N. Berman, and Tong-Jun Lin

ANTIGEN RECOGNITION AND RESPONSES

- 4508 Transition from Heterotypic to Homotypic PDK1 Homodimerization Is Essential for TCR-Mediated NF- κ B Activation
Jung-Ah Kang, Sang Phil Jeong, Daeho Park, Matthew S. Hayden, Sankar Ghosh, and Sung-Gyoo Park

AUTOIMMUNITY

- 4516 Differential Binding of Pyruvate Dehydrogenase Complex-E2 Epitopes by DRB1*08:01 and DRB1*11:01 Is Predicted by Their Structural Motifs and Correlates with Disease Risk
I-Ting Chow, Eddie A. James, Theresa J. Gates, Venus Tan, Antonis K. Moustakas, George K. Papadopoulos, and William W. Kwok
- 4525 IL7R α Contributes to Experimental Autoimmune Encephalomyelitis through Altered T Cell Responses and Nonhematopoietic Cell Lineages
Jessica J. Ashbaugh, Roberta Brambilla, Shaffiat A. Karmally, Cecilia Cabello, Thomas R. Malek, and John R. Bethea

CLINICAL AND HUMAN IMMUNOLOGY

- 4535 Intravenous Gammaglobulin Inhibits Encephalitogenic Potential of Pathogenic T Cells and Interferes with their Trafficking to the Central Nervous System, Implicating Sphingosine-1 Phosphate Receptor 1-Mammalian Target of Rapamycin Axis
Shivashankar Othy, Pushpa Hegde, Selma Topçu, Meenu Sharma, Mohan S. Maddur, Sebastien Lacroix-Desmazes, Jagadeesh Bayry, and Srini V. Kaveri
- 4542 Clinical-Grade Multipotent Adult Progenitor Cells Durably Control Pathogenic T Cell Responses in Human Models of Transplantation and Autoimmunity
James L. Reading, Jennie H. M. Yang, Shereen Sabbah, Ania Skowera, Robin R. Knight, Jef Pinxteren, Bart Vaes, Timothy Allsopp, Anthony E. Ting, Sarah Busch, Amy Raber, Robert Deans, and Timothy I. M. Tree

IMMUNE REGULATION

- 4553 IL-27 Receptor Signaling Regulates CD4⁺ T Cell Chemotactic Responses during Infection
Emily Gwyer Findlay, Ana Villegas-Mendez, J. Brian de Souza, Colette A. Inkson, Tovah N. Shaw, Christiaan J. Saris, Christopher A. Hunter, Eleanor M. Riley, and Kevin N. Couper
- 4562 In Vivo Maturation of Allo-Specific CD8 CTL and Prevention of Lupus-like Graft-versus-Host Disease Is Critically Dependent on T Cell Signaling through the TNF p75 Receptor But Not the TNF p55 Receptor
Kateryna Soloviova, Maksym Puliaiev, Mark Haas, and Charles S. Via
- 4573 A Stimulation-Dependent Alternate Core Promoter Links Lymphotoxin α Expression with TGF- β 1 and Fibroblast Growth Factor-7 Signaling in Primary Human T Cells
Brian H. Yokley, Sandra T. Selby, and Phillip E. Posch
- 4585 Id2-Mediated Inhibition of E2A Represses Memory CD8⁺ T Cell Differentiation
Frederick Masson, Martina Minnich, Moshe Olshansky, Ivan Bilic, Adele M. Mount, Axel Kallies, Terence P. Speed, Meinrad Busslinger, Stephen L. Nutt, and Gabrielle T. Belz
- 4595 Overexpression of SIRT1 Protein in Neurons Protects against Experimental Autoimmune Encephalomyelitis through Activation of Multiple SIRT1 Targets
Vamshi K. Nimmagadda, Christopher T. Bever, Narasimha R. Vattikunta, Saifi Talat, Vakas Ahmad, Naveen K. Nagalla, David Trisler, Susan I. V. Judge, Walter Royal, III, Krish Chandrasekaran, James W. Russell, and Tapas K. Makar
- 4608 Normal Dendritic Cell Mobilization to Lymph Nodes under Conditions of Severe Lymphatic Hypoplasia
Andrew M. Platt, Joseph M. Rutkowski, Catherine Martel, Emma L. Kuan, Stoyan Ivanov, Melody A. Swartz, and Gwendalyn J. Randolph
- 4621 TAK1–JNK Axis Mediates Survival Signal through Mcl1 Stabilization in Activated T Cells
Yasuko Hirata, Ayano Sugie, Akio Matsuda, Satoshi Matsuda, and Shigeo Koyasu
- 4627 GITR-Dependent Regulation of 4-1BB Expression: Implications for T Cell Memory and Anti-4-1BB–Induced Pathology
Gloria H. Y. Lin, Laura M. Snell, Michael E. Wortzman, Derek L. Clouthier, and Tania H. Watts
- 4640 Role of Fatty-Acid Synthesis in Dendritic Cell Generation and Function
Adeel Rehman, Keith C. Hemmert, Atsuo Ochi, Mohsin Jamal, Justin R. Henning, Rocky Barilla, Juan P. Quesada, Constantinos P. Zambirinis, Kerry Tang, Melvin Ego-Osuala, Raghavendra S. Rao, Stephanie Greco, Michael Deutsch, Suchithra Narayan, H. Leon Pachter, Christopher S. Graffeo, Devrim Acehan, and George Miller
- 4650 NK Cell Tolerance of Self-Specific Activating Receptor KIR2DS1 in Individuals with Cognate HLA-C2 Ligand
Gianfranco Pittari, Xiao-Rong Liu, Annamalai Selvakumar, Zeguo Zhao, Ernesto Merino, Morgan Huse, Joseph H. Chewing, Katharine C. Hsu, and Bo Dupont

IMMUNOGENETICS

- 4661 B Cell Activation Is Regulated by the Stiffness Properties of the Substrate Presenting the Antigens
Zhengpeng Wan, Shaosen Zhang, Yilin Fan, Kai Liu, Feng Du, Angel M. Davey, Huiyuan Zhang, Weidong Han, Chunyang Xiong, and Wanli Liu

INFECTIOUS DISEASE AND HOST RESPONSE

- 4676 Inflammatory Response of Mast Cells during Influenza A Virus Infection Is Mediated by Active Infection and RIG-I Signaling
Amy C. Graham, Kimberly M. Hilmer, Julianne M. Zickovich, and Joshua J. Obar
- 4685 Platelet Induction of the Acute-Phase Response Is Protective in Murine Experimental Cerebral Malaria
Angela A. Aggrey, Kalyan Srivastava, Sara Ture, David J. Field, and Craig N. Morrell
- 4692 Impaired Neutrophil Function in 24p3 Null Mice Contributes to Enhanced Susceptibility to Bacterial Infections
Zhuoming Liu, Robert Petersen, and Laxminarayana Devireddy

- 4707 Inoculation Dose of *Mycobacterium tuberculosis* Does Not Influence Priming of T Cell Responses in Lymph Nodes
Amy J. Myers, Simeone Marino, Denise E. Kirschner, and JoAnne L. Flynn
- 4717 Noradrenergic Neurons Regulate Monocyte Trafficking and Mortality during Gram-Negative Peritonitis in Mice
Eric J. Seeley, Sophia S. Barry, Saisindhu Narala, Michael A. Matthay, and Paul J. Wolters
- 4725 MyD88 Signaling in CD4 T Cells Promotes IFN- γ Production and Hematopoietic Progenitor Cell Expansion in Response to Intracellular Bacterial Infection
Yubin Zhang, Maura Jones, Amanda McCabe, Gary M. Winslow, Dorina Avram, and Katherine C. MacNamara

- 4736 Restriction of HIV-1 Replication in Primary Macrophages by IL-12 and IL-18 through the Upregulation of SAMHD1
Eduardo Pauls, Esther Jimenez, Alba Ruiz, Marc Permanyer, Ester Ballana, Helena Costa, Rute Nascimento, R. Michael Parkhouse, Ruth Peña, Eva Riveiro-Muñoz, Miguel A. Martinez, Bonaventura Clotet, José A. Esté, and Margarida Bofill

INNATE IMMUNITY AND INFLAMMATION

- 4742 Prenatally Acquired Vitamin A Deficiency Alters Innate Immune Responses to Human Rotavirus in a Gnotobiotic Pig Model
Anastasia N. Vlasova, Kuldeep S. Chattha, Sukumar Kandasamy, Christine S. Siegismund, and Linda J. Saif
- 4754 Murine NK Cell Intrinsic Cytokine-Induced Memory-like Responses Are Maintained following Homeostatic Proliferation
Molly P. Keppel, Liping Yang, and Megan A. Cooper
- 4763 Dissociation of Endotoxin Tolerance and Differentiation of Alternatively Activated Macrophages
Rajesh Rajaiab, Darren J. Perkins, Swamy Kumar Polumuri, Aiping Zhao, Achsah D. Keegan, and Stefanie N. Vogel
- 4773 Intestinal CCL11 and Eosinophilic Inflammation Is Regulated by Myeloid Cell-Specific RelA/p65 in Mice
Amanda Waddell, Richard Ahrens, Yi-Ting Tsai, Joseph D. Sherrill, Lee A. Denson, Kris A. Steinbrecher, and Simon P. Hogan
- 4786 NADPH Oxidase Limits Lipopolysaccharide-Induced Lung Inflammation and Injury in Mice through Reduction-Oxidation Regulation of NF- κ B Activity
Wei Han, Hui Li, Jiyang Cai, Linda A. Gleaves, Vasilij V. Polosukhin, Brahm H. Segal, Fiona E. Yull, and Timothy S. Blackwell
- 4795 Targeted Inhibition of Serotonin Type 7 (5-HT $_7$) Receptor Function Modulates Immune Responses and Reduces the Severity of Intestinal Inflammation
Janice J. Kim, Byram W. Bridle, Jean-Eric Ghia, Huaqing Wang, Shahzad N. Syed, Marcus M. Manocha, Palanivel Rengasamy, Mohammad Sharif Shajib, Yonghong Wan, Peter B. Hedlund, and Waliul I. Khan
- 4805 Cathepsin K Is Involved in Development of Psoriasis-like Skin Lesions through TLR-Dependent Th17 Activation
Toshitake Hirai, Takashi Kanda, Kenji Sato, Mikiro Takaishi, Kimiko Nakajima, Mayuko Yamamoto, Reiko Kamijima, John DiGiovanni, and Shigetoshi Sano
- 4812 I κ B ζ Is a Transcriptional Key Regulator of CCL2/MCP-1
Dominic G. Hildebrand, Eva Alexander, Sebastian Hörber, Simon Lehle, Kerstin Obermayer, Niels-Arne Münck, Oliver Rothfuss, Julia-Stefanie Frick, Masami Morimatsu, Ingo Schmitz, Johannes Roth, Jan M. Ehrchen, Frank Essmann, and Klaus Schulze-Osthoff
- 4821 Efficient Attenuation of NK Cell-Mediated Liver Injury through Genetically Manipulating Multiple Immunogenes by Using a Liver-Directed Vector
Jianlin Geng, Xuefu Wang, Haiming Wei, Rui Sun, and Zbigang Tian
- 4830 Connexin43 Is Dispensable for Phagocytosis
Aaron M. Glass, Benjamin J. Wolf, Karin M. Schneider, Michael F. Princiotta, and Steven M. Taffet

MUCOSAL IMMUNOLOGY

- 4836 Intrarectal Immunization and IgA Antibody-Secreting Cell Homing to the Small Intestine
Davide Agnello, Damien Denimal, Amandine Lavaux, Leslie Blondeau-Germe, Bao Lu, Norma P. Gerard, Craig Gerard, and Pierre Pothier

TRANSPLANTATION

- 4848 Tolerogenic Donor-Derived Dendritic Cells Risk Sensitization In Vivo owing to Processing and Presentation by Recipient APCs
Lesley A. Smyth, Kulachelvy Ratnasothy, Aurelie Moreau, Sally Alcock, Pervinder Sagoo, Lucy Meader, Yakup Tanriver, Matthew Buckland, Robert Lechler, and Giovanna Lombardi

TUMOR IMMUNOLOGY

- 4861 Circulating Fibrocytes Prepare the Lung for Cancer Metastasis by Recruiting Ly-6C⁺ Monocytes Via CCL2
Hendrik W. van Deventer, Daniela A. Palmieri, Qing Ping Wu, Everett C. McCook, and Jonathan S. Serody
- 4868 CRTAM Receptor Engagement by Necl-2 on Tumor Cells Triggers Cell Death of Activated V γ 9V δ 2 T Cells
Benoît Dessarthe, Aurélie Thedrez, Jean-Baptiste Latouche, Florian Cabillie, Aurélie Drouet, Pascale Daniel, Cécile Thomas de La Pintièrre, Véronique Catros, and Olivier Toutirais
- 4877 Adiponectin Deficiency Suppresses Lymphoma Growth in Mice by Modulating NK Cells, CD8 T Cells, and Myeloid-Derived Suppressor Cells
Sora Han, Ae Lee Jeong, Sunyi Lee, Jeong Su Park, Kwang Dong Kim, Inpyo Choi, Suk Ran Yoon, Myung Sok Lee, Jong-Seok Lim, Seung Hyun Han, Do Young Yoon, and Young Yang
- 4887 Nonstereotyped Lymphoma B Cell Receptors Recognize Vimentin as a Shared Autoantigen
Soung-Chul Cha, Hong Qin, Shibichakravarthy Kannan, Seema Rawal, Leticia S. Watkins, Flavio E. Baio, Weiguo Wu, Juliana Ong, Jinsong Wei, Benjamin Kwak, Sang Kim, Michael S. Popescu, Daniel S. Paick, Kunhwa Kim, Amber Luong, Richard E. Davis, Harry W. Schroeder, Jr., Larry W. Kwak, and Sattva S. Neelapu
- 4899 Restoring Immune Function of Tumor-Specific CD4⁺ T Cells during Recurrence of Melanoma
Stephen R. Goding, Kyle A. Wilson, Ying Xie, Kristina M. Harris, Aparna Baxi, Akgul Akpınarlı, Amy Fulton, Koji Tamada, Scott E. Strome, and Paul Andrew Antony

CORRECTIONS

- 4910 Correction: Crystal Structure of IL-17 Receptor B SEFIR Domain
Bing Zhang, Caini Liu, Wen Qian, Yue Han, Xiaoxia Li, and Junpeng Deng

- 4911 AUTHOR INDEX