This information is current as of April 2, 2017.

198 (7)

*J Immunol* 2017; 198:2517-3000; ;
http://www.jimmunol.org/content/198/7

---

**Subscription**  Information about subscribing to *The Journal of Immunology* is online at: [http://jimmunol.org/subscription](http://jimmunol.org/subscription)

**Permissions**  Submit copyright permission requests at: [http://www.aai.org/About/Publications/JI/copyright.html](http://www.aai.org/About/Publications/JI/copyright.html)

**Email Alerts**  Receive free email-alerts when new articles cite this article. Sign up at: [http://jimmunol.org/alerts](http://jimmunol.org/alerts)

---

*The Journal of Immunology* is published twice each month by
The American Association of Immunologists, Inc.,
1451 Rockville Pike, Suite 650, Rockville, MD 20852
All rights reserved.
Print ISSN: 0022-1767 Online ISSN: 1550-6606.
IN THIS ISSUE
2517 Tracing tTreg Transitions See article p. 2612
The Shocking Truth about IL-17A See article p. 2805
Self Help for Arthritis See article p. 2876
Transformers Protect the Sea Urchin See article p. 2957
Virus-Specific TILs May Muddle Diagnostics See article p. 2979

PILLARS OF IMMUNOLOGY
2519 The Cloning of GM-CSF
Glenn Dranoff
Nicholas M. Gough, Jill Gough, Donald Metcalf, Anne Kelio, Dianne Grail, Nicos A. Nicola, Antony W. Burgess, and Ashley R. Dunn

BRIEF REVIEWS
2527 Relationship between CD4 Regulatory T Cells and Anergy In Vivo
Lokesh A. Kalekar and Daniel L. Mueller
2534 Two Strikes and You’re Out? The Pathogenic Interplay of Coinhibitor Deficiency and Lymphopenia-Induced Proliferation
Kristofor K. Ellestad and Colin C. Anderson

ALLERGY AND OTHER HYPERSENSITIVITIES
2543 Expression of IL-22 in the Skin Causes Th2-Biased Immunity, Epidermal Barrier Dysfunction, and Pruritus via Stimulating Epithelial Th2 Cytokines and the GRP Pathway
Hongfei Lou, Jingning Lu, Eun Byul Choi, Min Hee Oh, Mineum Jeong, Sara Barmettler, Zhou Zhu, and Tao Zheng

On the cover: Confocal microscopy of the thymus of wild-type mice reconstituted with G184S bone marrow previously immunostained for CD3 (blue), CD4 (green), CD8 (red), and UEA1 (white). The section shown is captured from the tiled entire thymus image. Hwang, I.-Y., C. Park, K. Harrison, and J. H. Kehrl. 2017. Normal thymocyte egress, T cell trafficking, and CD4+ T cell homeostasis require interactions between RGS proteins and Gras. J. Immunol. 198: 2721–2734.
ANTIGEN RECOGNITION AND RESPONSES

2556 The Activating Human NK Cell Receptor KIR2DS2 Recognizes a β2-Microglobulin–Independent Ligand on Cancer Cells
Lavanya Thiruchelvum-Kyle, Sigurd E. Hoelsbrekken, Per C. Saether, Elisabeth Gyllenstein Bjørnsen, Daniela Pende, Sigrún Fossum, Michael R. Daws, and Erik Dissen

AUTOIMMUNITY

2568 CD74 Deficiency Mitigates Systemic Lupus Erythematosus–like Autoimmunity and Pathological Findings in Mice
Yi Zhou, Huimei Chen, Li Liu, Xueqing Yu, Galina K. Sukhova, Min Yang, Liutan Zhang, Vasileios C. Kyttaris, George C. Tsokos, Isaac E. Stillman, Takaharu Ichimura, Joseph V. Bonventre, Peter Libby, and Guo-Ping Shi

2578 Disruption of Pathogenic Cellular Networks by IL-21 Blockade Leads to Disease Amelioration in Murine Lupus
Jin-Young Choi, Abhinav Seth, Michael Kashgarian, Sonia Terrillon, Emma Fung, Lili Huang, Li Chun Wang, and Joe Craft

2589 Dependence of Glomerulonephritis Induction on Novel Intraglomerular Alternatively Activated Bone Marrow–Derived Macrophages and Mac-1 and PD-L1 in Lupus-Prone NZM2328 Mice
Sun-sang J. Sung, Yan Ge, Chao Dai, Honggang Wang, Shu Man Fu, Rahul Sharma, Young S. Hahn, Jing Yu, Thu H. Le, Mark D. Okusa, Warren K. Bolon, and Jessica R. Lawler

2602 BAFF Induces Tertiary Lymphoid Structures and Positions T Cells within the Glomeruli during Lupus Nephritis
SunAh Kang, Yuri Fedoriw, Ethan K. Brenneman, Young K. Truong, Kristine Kihly, and Barbara J. Vilen

2612 Activation and Functional Specialization of Regulatory T Cells Lead to the Generation of Foxp3 Instability
Zhongmei Zhang, Wei Zhang, Jie Guo, Quanchong Gu, Xueping Zhu, and Xayu Zhou

CLINICAL AND HUMAN IMMUNOLOGY

2640 β2 Glycoprotein I Recognition Drives Th1 Inflammation in Atherosclerotic Plaques of Patients with Primary Antiphospholipid Syndrome
Marisa Benagiano, Maria Gerosa, Jacopo Romagnoli, Michael Mahler, Maria O. Borghi, Alessia Grassi, Chiara Della Bella, Giacomo Emmi, Amedeo Amedei, Elena Silvestri, Lorenzo Emml, Domenico Prisco, Pier Luigi Meroni, and Mario M. D’Elios

IMMUNE REGULATION

2649 The Bacterial Peptidoglycan-Sensing Molecules NOD1 and NOD2 Promote CD8+ Thymocyte Selection
Marianne M. Martinic, Irina Caminschi, Meredith O’Keeffe, Therese C. Thinnes, Raelene Grumont, Steve Gerondakis, Dianne B. McKay, David Nemazee, and Amanda L. Gavin

2661 Metformin Suppresses Systemic Autoimmunity in Roquin-/- Mice through Inhibiting B Cell Differentiation into Plasma Cells via Regulation of AMPK/mTOR/STAT3
Seon-Yeong Lee, Su-Jin Moon, Eun-Kyung Kim, Hyeon-Boem Seo, Eun-Ji Yang, Hye-Jin Son, Jae-Kyung Kim, Jun-Ki Min, Sung-Hwan Park, and Mi-La Cho

2671 Antigen Density Dictates Immune Responsiveness following Red Blood Cell Transfusion

2681 IL-13–Mediated Regulation of Learning and Memory
Tirayu M. Brombacher, Justin K. None, Krishna S. De Gouveia, Nokuthula Makena, Matthew Darby, Jacqueline Womersley, Osunam Tangle, and Frank Brombacher
Exopolysaccharide from *Bacillus subtilis* Induces Anti-Inflammatory M2 Macrophages That Prevent T Cell–Mediated Disease
Mallory L. Paynich, Sara E. Jones-Burrage, and Katherine L. Knight

Inducible T Cell Kinase Regulates the Acquisition of Cytolytic Capacity and Degranulation in CD8+ CTLs
Senta M. Kapnick, Jane C. Stinchcombe, Gillian M. Griffiths, and Pamela L. Schwartzberg

Epigenetic Component p66α Modulates Myeloid-Derived Suppressor Cells by Modifying STAT3
Jiaxuan Xin, Zhiqian Zhang, Xiaomin Su, Liyang Wang, Yuan Zhang, and Rongcun Yang

Normal Thymocyte Egress, T Cell Trafficking, and CD4+ T Cell Homeostasis Require Interactions between RGS Proteins and Gα12
Il-Young Hwang, Chung Park, Kathleen Harrison, and John H. Kehrl

Inhibiting Oxidative Phosphorylation In Vivo Restrains Th17 Effector Responses and Ameliorates Murine Colitis
Luigi Franchi, Ivan Monteleone, Ling-Yang Hao, Mark A. Spahr, Wenpu Zhao, Xikui Liu, Kellie Demock, Aditi Kulkarni, Chuck A. Lesch, Brian Sanchez, Laura Carter, Irene Marafini, Xiao Hu, Oksana Mashanova, Min Yuan, John M. Asara, Harinder Singh, Costas A. Lyssiotis, Giovanni Monteleone, Anthony W. Opipari, and Gary D. Glick

**IMMUNE SYSTEM DEVELOPMENT**

Roquin Paralogs Differentially Regulate Functional NKT Cell Subsets
Christoph Drees, J. Christoph Vahl, Sabrina Bortoluzzi, Klaus D. Heger, Julius C. Fischer, F. Thomas Wunderlich, Christian Peschel, and Marc Schmidt-Supprian

**IMMUNOTHERAPY AND VACCINES**

Peripherally Generated Foxp3+ Regulatory T Cells Mediate the Immunomodulatory Effects of IVIg in Allergic Airways Disease
Amir H. Massoud, Gabriel N. Kaufman, Di Xue, Marianne Bélard, Mariem Dembele, Ciriaco A. Piccirillo, Walid Mourad, and Bruce D. Mazer

Novel Adjuvant Based on the Pore-Forming Protein Sticholysin II Encapsulated into Liposomes Effectively Enhances the Antigen-Specific CTL-Mediated Immune Response

Targeting Influenza Virus Hemagglutinin to Xcr1+ Dendritic Cells in the Absence of Receptor-Mediated Endocytosis Enhances Protective Antibody Responses
Arnar Gudjónsson, Anna Lyssén, Sreekumar Balan, Íbíkeke Sundvold-Gjerstad, Catharina Arnold-Schrauf, Lisa Richter, Espen S. Bakkevold, Marc Dalod, Bjørne Bogen, and Even Fossum

**INFECTIOUS DISEASE AND HOST RESPONSE**

Monocytes Are the Predominant Cell Type Associated with *Listeria monocytogenes* in the Gut, but They Do Not Serve as an Intracellular Growth Niche
Grant S. Jones and Sarah E. F. D’Orazio

Rapid and Rigorous IL-17A Production by a Distinct Subpopulation of Effector Memory T Lymphocytes Constitutes a Novel Mechanism of Toxic Shock Syndrome Immunopathology
Peter A. Szabo, Ankur Goswami, Delfina M. Mazzuca, Kyoungok Kim, David B. O’Gorman, David A. Heis, Ian D. Welch, Howard A. Young, Bhagirath Singh, John K. McCormick, and S. M. Mansour Haeryfar

IL-6 Production by TLR-Activated APC Broadly Enhances Aged Cognate CD4 Helper and B Cell Antibody Responses In Vivo
Vinayak Brabhaishriya, Yi Kuang, Priyadarshini Devuraj, Jingyu Xia, Wenliang Zhang, Allen Minh Vong, and Susan L. Swain
INNATE IMMUNITY AND INFLAMMATION

2834 Monocyte Subsets Coregulate Inflammatory Responses by Integrated Signaling through TNF and IL-6 at the Endothelial Cell Interface

2844 DNA Repair Interacts with Autophagy To Regulate Inflammatory Responses to Pulmonary Hyperoxia
Yan Ye, Ping Lin, Weidong Zhang, Shirui Tan, Xikun Zhou, Rongpeng Li, Qingpu Jin, Jonathan L. Koff, Archana Dhatarabty, Feng Ma, Xin Deng, Jianxin Jiang, and Min Wu

2854 Reactive Oxygen Species–Producing Myeloid Cells Act as a Bone Marrow Niche for Sterile Inflammation–Induced Reactive Granulopoiesis

2865 Local TNFR1 Signaling Licenses Murine Neutrophils for Increased TLR-Dependent Cytokine and Eicosanoid Production
Jacques Dequing, Jessica Wei, Roman Barbalat, Karsten Gronert, and Gregory M. Barton

2876 Identification of Novel Chondroprotective Mediators in Resolving Inflammatory Exudates
Magdalena K. Kanerva, Karin V. Greco, Sarah E. Headland, Trinidad Montero-Melendez, Prashant Mori, Kevin Greenslade, Costantino Pittaluga, Adrian Moore, and Mauro Perretti

2886 Neutrophil Microparticles Deliver Active Myeloperoxidase to Injured Mucosa To Inhibit Epithelial Wound Healing
Thomas W. Slater, Ariel Finkelstein, Lorraine A. Maccarens, Lindsay C. Mehl, Veronika Butan-Israeli, and Ronen Sumagin

2898 Surfactant Protein A Inhibits Growth and Adherence of Uropathogenic Escherichia coli To Protect the Bladder from Infection
Jiro Hashimoto, Motoo Takahashi, Atsuhi Saito, Masaki Murata, Yuichihiro Kurimura, Chiaki Nishitani, Rina Takamiya, Yasuki Uehara, Yoibiiro Hasegawa, Yoshihiro Hiyama, Norimasa Sawada, Satoshi Takahashi, Naoya Masumori, Yoshio Kuroki, and Shigeru Ariki

2906 Inhibition of Inflammatory Gene Transcription by IL-10 Is Associated with Rapid Suppression of Lipopolysaccharide-Induced Enhancer Activation
Evan A. Conaway, Dalila C. de Oliveira, Christine M. McInnis, Scott B. Snapper, and Bruce H. Horwitz

2916 Deficiency in IL-1 Receptor Type 2 Aggravates K/BxN Serum Transfer-Induced Arthritis in Mice but Has No Impact on Systemic Inflammatory Responses

2927 IL-6 Regulates M2 Polarization and Local Proliferation of Adipose Tissue Macrophages in Obesity
Julia Braune, Ulrike Weyer, Constance Hobusch, Jan Mauer, Jens C. Brüning, Ingo Bechmann, and Martin Gericke

2935 An Infectious Disease–Associated Il12b Polymorphism Regulates IL-12/23 p40 Transcription Involving Poly(ADP-Ribose) Polymerase 1
Quanju Zhao, Qingqi Du, Fang Wei, Jianping Xie, and Xiaoqing Ma

MOLECULAR AND STRUCTURAL IMMUNOLOGY

2943 Immature Lymphocytes Inhibit Rag1 and Rag2 Transcription and V(D)J Recombination in Response to DNA Double-Strand Breaks
Megan R. Fisher, Adrian Rivera-Reyes, Noah B. Bloch, David G. Schatz, and Craig H. Basing

2957 Multitasking Immune Sp185/333 Protein, rSpTransformer-E1, and Its Recombinant Fragments Undergo Secondary Structural Transformation upon Binding Targets
Cheng Man Lun, Barney M. Bishop, and L. Courtney Smith
Rab11-FIP3 Regulation of Lck Endosomal Traffic Controls TCR Signal Transduction
Jéréme Bouchet, Iratxe del Río-Irigüez, Elena Vázquez-Chávez, Rémi Laserre, Sonia Agüera-González, Céline Cuche, Mary W. McCaffrey, Vincenzo Di Bartolo, and Andrés Alcover

TUMOR IMMUNOLOGY

Virus-Specific CD8+ T Cells Infiltrate Melanoma Lesions and Retain Function Independently of PD-1 Expression
Dan A. Erkes, Corinne J. Smith, Nicole A. Wilski, Sofia Caldeira-Dantas, Toktam Mohgbeli, and Christopher M. Snyder

The Ribosomal Protein S19 Suppresses Antitumor Immune Responses via the Complement C5a Receptor 1
Maciej M. Markiewski, Surya Kumari Vadrevu, Sharad K. Sharma, Navin Kumar Chintala, Shanawaz Ghouse, Jun-Hung Cho, David P. Fairlie, Yvonne Paterson, Aristotelis Astrinidis, and Magdalena Karbowiczek

CORRECTIONS

Correction: GM-CSF Induces Inflammatory Macrophages by Regulating Glycolysis and Lipid Metabolism
Yi Rang Na, Gyo Jeong Gu, Daun Jung, Young Won Kim, Juri Na, Jin Sun Woo, Joo Youn Cho, Hyewon Youn, and Seung Hyeok Seok

AUTHOR INDEX