



186 (11)

J Immunol 2011; 186:6069-6640; ;
<http://www.jimmunol.org/content/186/11>

This information is current as of September 23, 2021.

Why *The JI*? Submit online.

- **Rapid Reviews! 30 days*** from submission to initial decision
- **No Triage!** Every submission reviewed by practicing scientists
- **Fast Publication!** 4 weeks from acceptance to publication

**average*

Subscription Information about subscribing to *The Journal of Immunology* is online at:
<http://jimmunol.org/subscription>

Permissions Submit copyright permission requests at:
<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>

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.



6069 IN THIS ISSUE

LETTERS TO THE EDITOR

- 6071 Comment on “Cutting Edge: CD8⁺ T Cell Priming in the Absence of NK Cells Leads to Enhanced Memory Responses”
Masoud H. Manjili and Amir Toor
- 6071 Response to Comment on “Cutting Edge: CD8⁺ T Cell Priming in the Absence of NK Cells Leads to Enhanced Memory Responses”
Katrina Soderquest, Graham M. Lord, and Alfonso Martín-Fontecha

PILLARS OF IMMUNOLOGY

- 6073 Fusing HIV and Chemokine Receptors
Robert W. Doms
- 6076 Pillars Article: HIV-1 Entry Cofactor: Functional cDNA Cloning of a Seven-Transmembrane, G Protein–Coupled Receptor. *Science*. 1996. 272: 872–877
Yu Feng, Christopher C. Broder, Paul E. Kennedy, and Edward A. Berger

BRIEF REVIEWS

- 6083 Basophils, IgE, and Autoantibody-Mediated Kidney Disease
Xavier Bosch, Francisco Lozano, Ricard Cervera, Manuel Ramos-Casals, and Booki Min

CUTTING EDGE

- 6091 Cutting Edge: Identification of a Motile IL-17–Producing $\gamma\delta$ T Cell Population in the Dermis
Elizabeth E. Gray, Kazuhiro Suzuki, and Jason G. Cyster

On the cover: The SEM image depicts a *Staphylococcus aureus* biofilm surrounding a catheter in vivo and is pseudocolored to highlight biofilm growth (blue) at the interface between the catheter (gray) and surrounding host tissue (purple). Host cells can be seen at a distance from the biofilm proper (original magnification $\times 400$). Thurlow, L. R., M. L. Hanke, T. Fritz, A. Angle, A. Aldrich, S. H. Williams, I. L. Engebretsen, K. W. Bayles, A. R. Horswill, and T. Kielian. 2011. *Staphylococcus aureus* biofilms prevent macrophage phagocytosis and attenuate inflammation in vivo. *J. Immunol.* 186: 6585–6596.

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 © 2011 by The American Association of Immunologists, Inc.

CELLULAR IMMUNOLOGY AND IMMUNE REGULATION

- 6097 IL-33 Shifts the Balance from Osteoclast to Alternatively Activated Macrophage Differentiation and Protects from TNF- α -Mediated Bone Loss
Mario M. Zaiss, Mariola Kurowska-Stolarska, Christina Böhm, Regina Gary, Carina Scholtyssek, Bartosz Stolarski, James Reilly, Shauna Kerr, Neal L. Millar, Thomas Kamradt, Iain B. McInnes, Padraic G. Fallon, Jean-Pierre David, Foo Y. Liew, and Georg Schett
- 6106 CD4⁺CD25⁺Foxp3⁺ Regulatory T Cells Are Dispensable for Controlling CD8⁺ T Cell-Mediated Lung Inflammation
Milena J. Tosiek, Achim D. Gruber, Sophie R. Bader, Susanne Mauel, Heinz-Gerd Hoymann, Silvia Prettin, Thomas Tschernig, Jan Buer, Marcus Gereke, and Dunja Bruder
- 6119 Serum Amyloid A Activates the NLRP3 Inflammasome via P2X₇ Receptor and a Cathepsin B-Sensitive Pathway
Katri Niemi, Laura Teirilä, Jani Lappalainen, Kristiina Rajamäki, Marc H. Baumann, Katariina Öörni, Henrik Wolff, Petri T. Kovanen, Sampsa Matikainen, and Kari K. Eklund
- 6129 NK Cells Are Effectors for Resolvin E1 in the Timely Resolution of Allergic Airway Inflammation
Oliver Haworth, Manuela Cernadas, and Bruce D. Levy
- 6136 B Cell Maturation Antigen Deficiency Exacerbates Lymphoproliferation and Autoimmunity in Murine Lupus
Chao Jiang, William M. Loo, Erin J. Greenley, Kenneth S. Tung, and Loren D. Erickson
- 6148 Granzyme B Expression by CD8⁺ T Cells Is Required for the Development of Experimental Cerebral Malaria
Ashrafal Haque, Shannon E. Best, Klara Unosson, Fiona H. Amante, Fabian de Labastida, Nicholas M. Anstey, Gunasegaran Karupiah, Mark J. Smyth, William R. Heath, and Christian R. Engwerda
- 6157 TGF- β -Exposed Plasmacytoid Dendritic Cells Participate in Th17 Commitment
Francis Bonnefoy, Mélanie Couturier, Amandine Clauzon, Jean-Paul Rémy-Martin, Béatrice Gaugler, Pierre Tiberghien, Wanjun Chen, Philippe Saas, and Sylvain Perruche
- 6165 The C-Terminally Encoded, MHC Class II-Restricted T Cell Antigenicity of the *Helicobacter pylori* Virulence Factor CagA Promotes Gastric Preneoplasia
Isabelle C. Arnold, Iris Hitzler, Daniela Engler, Mathias Oertli, Else Marie Agger, and Anne Müller
- 6173 Upregulation of IL-21 Receptor on B Cells and IL-21 Secretion Distinguishes Novel 2009 H1N1 Vaccine Responders from Nonresponders among HIV-Infected Persons on Combination Antiretroviral Therapy
Suresh Pallikkuth, Sudheesh Pilakka Kanthikeel, Sandra Y. Silva, Margaret Fischl, Rajendra Pabwa, and Savita Pabwa
- 6182 IL-23 Receptor Regulation by Let-7f in Human CD4⁺ Memory T Cells
Zhaoxia Li, Feng Wu, Steven R. Brant, and John H. Kwon
- 6191 Participation of the Receptor for Advanced Glycation End Products in Efferocytosis
Arnaud Friggeri, Sami Banerjee, Subrata Biswas, Andressa de Freitas, Gang Liu, Angelika Bierhaus, and Edward Abraham
- 6199 Notch3 and Canonical NF- κ B Signaling Pathways Cooperatively Regulate Foxp3 Transcription
Alessandro Barbarulo, Paola Grazioli, Antonio F. Campese, Diana Bellavia, Giuseppina Di Mario, Maria Pelullo, Ambra Ciuffetta, Sara Colantoni, Alessandra Vacca, Luigi Frati, Alberto Gulino, Maria Pia Felli, and Isabella Screpanti
- 6207 Human Dendritic Cell Subsets from Spleen and Blood Are Similar in Phenotype and Function but Modified by Donor Health Status
Diana Mittag, Anna I. Proietto, Thomas Loudovaris, Stuart I. Mannering, David Vremec, Ken Shortman, Li Wu, and Leonard C. Harrison
- 6218 Suppressive CD8⁺ T Cells Arise in the Absence of CD4 Help and Compromise Control of Persistent Virus
Michael J. Molloy, Weijun Zhang, and Edward J. Usherwood

- 6227 The Pleckstrin Homology Domain in the SKAP55 Adapter Protein Defines the Ability of the Adapter Protein ADAP To Regulate Integrin Function and NF- κ B Activation
Brandon J. Burbach, Rupa Srivastava, Melissa A. Ingram, Jason S. Mitchell, and Yoji Shimizu
- 6238 Donor CD8 T Cells and IFN- γ Are Critical for Sex-Based Differences in Donor CD4 T Cell Engraftment and Lupus-Like Phenotype in Short-Term Chronic Graft-Versus-Host Disease Mice
Anthony D. Foster, Kateryna Soloviova, Irina Puliaeva, Maksym Puliaiev, Roman Puliaev, Fred Finkelman, and Charles S. Via
- 6255 Enhanced Antigen Processing of Flagellin Fusion Proteins Promotes the Antigen-Specific CD8⁺ T Cell Response Independently of TLR5 and MyD88
John T. Bates, Aaron H. Graff, James P. Phipps, Jason M. Grayson, and Steven B. Mizel
- 6263 Disparities in TLR5 Expression and Responsiveness to Flagellin in Equine Neutrophils and Mononuclear Phagocytes
Soyoung Kwon, Andrew T. Gewirtz, David J. Hurley, Thomas P. Robertson, James N. Moore, and Michel L. Vandenplas
- 6271 Macrophage Migration Inhibitory Factor: A Downregulator of Early T Cell-Dependent IFN- γ Responses in *Plasmodium chabaudi adami* (556 KA)-Infected Mice
Diane Tshikudi Malu, Benoit Bélanger, François Desautels, Karine Kelendji, Esther Dalko, Jaime Sanchez-Dardon, Lin Leng, Richard Bucala, Abhay R. Satoskar, and Tatiana Scorza
- 6280 Programmed Death 1 Regulates Development of Central Memory CD8 T Cells after Acute Viral Infection
S. Rameeza Allie, Weijun Zhang, Shinchiro Fuse, and Edward J. Usherwood
- 6287 A New Subset of CD103⁺CD8 α ⁺ Dendritic Cells in the Small Intestine Expresses TLR3, TLR7, and TLR9 and Induces Th1 Response and CTL Activity
Kosuke Fujimoto, Thangaraj Karuppuchamy, Naoki Takemura, Masaki Shimohigoshi, Tomohisa Machida, Yasunari Haseda, Taiki Aoshi, Ken J. Ishii, Shizuo Akira, and Satoshi Uematsu
- 6296 CD300F Blocks Both MyD88 and TRIF-Mediated TLR Signaling through Activation of Src Homology Region 2 Domain-Containing Phosphatase 1
Sang-Min Lee, Eun-Ju Kim, Kyoungso Suk, and Won-Ha Lee
- 6304 DNAM-1 Mediates Epithelial Cell-Specific Cytotoxicity of Aberrant Intraepithelial Lymphocyte Lines from Refractory Celiac Disease Type II Patients
Jennifer M.-L. Tjon, Yvonne M. C. Kooy-Winkelaar, Greetje J. Tack, A. Mieke Mommaas, Marco W. J. Schreurs, Marco W. Schilham, Chris J. Mulder, Jeroen van Bergen, and Frits Koning
- 6313 Th17 Cells Induce Colitis and Promote Th1 Cell Responses through IL-17 Induction of Innate IL-12 and IL-23 Production
Ting Feng, Hongwei Qin, Lanfang Wang, Ety N. Benveniste, Charles O. Elson, and Yingzi Cong
- 6319 Effect of MHC Class I Diversification on Influenza Epitope-Specific CD8⁺ T Cell Precursor Frequency and Subsequent Effector Function
E. Bridie Day, Kim L. Charlton, Nicole L. La Gruta, Peter C. Doherty, and Stephen J. Turner
- 6329 IL-2 Controls the Stability of Foxp3 Expression in TGF- β -Induced Foxp3⁺ T Cells In Vivo
Qian Chen, Yong Chan Kim, Arian Laurence, George A. Punkosdy, and Ethan M. Shevach

MOLECULAR AND STRUCTURAL IMMUNOLOGY

- 6338 Analyses of Recombinant Stereotypic *IGHV3-21*-Encoded Antibodies Expressed in Chronic Lymphocytic Leukemia
Emanuela M. Ghia, George F. Widhopf, II, Laura Z. Rassenti, and Thomas J. Kipps
- 6345 MAL Protein Controls Protein Sorting at the Supramolecular Activation Cluster of Human T Lymphocytes
Olga M. Antón, Laura Andrés-Delgado, Natalia Reglero-Real, Alicia Batista, and Miguel A. Alonso
- 6357 Analysis and Modeling of the Variable Region of Camelid Single-Domain Antibodies
Aroop Sircar, Kayode A. Sanni, Jiye Shi, and Jeffrey J. Gray

- 6368 Pre-TCR Signaling and CD8 Gene Bivalent Chromatin Resolution during Thymocyte Development
Nicola Harker, Anna Garefalaki, Ursula Menzel, Eleni Kristaki, Taku Naito, Katia Georgopoulos, and Dimitris Kioussis
- 6378 Genome-Wide Analysis Reveals Unique Regulation of Transcription of Th2-Specific Genes by GATA3
Shu Horiuchi, Atsushi Onodera, Hiroyuki Hosokawa, Yukiko Watanabe, Tomoaki Tanaka, Sumio Sugano, Yutaka Suzuki, and Toshinori Nakayama
- 6390 The Polyclonal CD8 T Cell Response to Influenza M1₅₈₋₆₆ Generates a Fully Connected Network of Cross-Reactive Clonotypes to Structurally Related Peptides: A Paradigm for Memory Repertoire Coverage of Novel Epitopes or Escape Mutants
Galina V. Petrova, Elena N. Naumova, and Jack Gorski

IMMUNOGENETICS

- 6398 Quantitative Trait Locus Analysis, Pathway Analysis, and Consomic Mapping Show Genetic Variants of *Tnni3k*, *Fpgt*, or *H28* Control Susceptibility to Viral Myocarditis
Sean A. Wiltshire, Gabriel André Leiva-Torres, and Silvia M. Vidal

HOST DEFENSE

- 6406 Distinctive TLR7 Signaling, Type I IFN Production, and Attenuated Innate and Adaptive Immune Responses to Yellow Fever Virus in a Primate Reservoir Host
Judith N. Mandl, Rama Akondy, Benton Lawson, Natalia Kozyr, Silvija I. Staprans, Rafi Ahmed, and Mark B. Feinberg
- 6417 Painful Pathways Induced by TLR Stimulation of Dorsal Root Ganglion Neurons
Jia Qi, Krisztina Buzas, Huiting Fan, Jeffrey I. Cohen, Kening Wang, Erik Mont, Dennis Klinman, Joost J. Oppenheim, and O. M. Zack Howard
- 6427 Dual Protective Mechanisms of Matrix Metalloproteinases 2 and 9 in Immune Defense against *Streptococcus pneumoniae*
Jeong-Soo Hong, Kendra J. Greenlee, Ramanan Pitchumani, Seung-Hyo Lee, Li-zhen Song, Ming Shan, Seon Hee Chang, Pyong Woo Park, Chen Dong, Zena Werb, Akbil Bidani, David B. Corry, and Farrah Kheradmand
- 6437 Somatically Diversified and Proliferating Transitional B Cells: Implications for Peripheral B Cell Homeostasis
Venkata A. Yeramilli and Katherine L. Knight
- 6445 *Staphylococcus aureus* Metalloprotease Aureolysin Cleaves Complement C3 To Mediate Immune Evasion
Alexander J. Laarman, Maartje Ruyken, Cheryl L. Malone, Jos A. G. van Strijp, Alexander R. Horswill, and Suzan H. M. Rooijackers
- 6454 Posttranscriptional Regulation of IL-23 Expression by IFN- γ through Tristetraprolin
Xuesong Qian, Huan Ning, Jidong Zhang, Daniel F. Hoft, Deborah J. Stumpo, Perry J. Blackshear, and Jianguo Liu

INFLAMMATION

- 6465 Female X-Chromosome Mosaicism for NOX2 Deficiency Presents Unique Inflammatory Phenotype and Improves Outcome in Polymicrobial Sepsis
Rachna Chandra, Stephanie Federici, Zoltán H. Németh, Béla Horváth, Pál Pacher, György Haskó, Edwin A. Deitch, and Zoltán Spolarics
- 6474 Pre-B Cell Colony-Enhancing Factor (PBEF/Nampt/Visfatin) Primes Neutrophils for Augmented Respiratory Burst Activity through Partial Assembly of the NADPH Oxidase
Zeenat Malam, Jean Parodo, Faiza Waheed, Katalin Szaszi, Andras Kapus, and John C. Marshall
- 6485 Priming of Eosinophils by GM-CSF Is Mediated by Protein Kinase C β II-Phosphorylated L-Plastin
Konrad Pazdrak, Travis W. Young, Christof Straub, Susan Stafford, and Alexander Kurosky
- 6497 Increased Th2 Cytokine Secretion, Eosinophilic Airway Inflammation, and Airway Hyperresponsiveness in Neurturin-Deficient Mice
Tatiana Michel, Maud Thérésine, Aurélie Poli, Olivia Domingues, Wim Ammerlaan, Nicolaas H. C. Brons, François Heneges, and Jacques Zimmer

- 6505 An Endogenously Anti-Inflammatory Role for Methylation in Mucosal Inflammation Identified through Metabolite Profiling
Douglas J. Kominsky, Simon Keely, Christopher F. MacManus, Louise E. Glover, Melanie Scully, Colm B. Collins, Britelle E. Bowers, Eric L. Campbell, and Sean P. Colgan
- 6515 Runx3 Is Required for Full Activation of Regulatory T Cells To Prevent Colitis-Associated Tumor Formation
Manabu Sugai, Koji Aoki, Motomi Osato, Yukiko Nambu, Kosei Ito, Makoto M. Taketo, and Akira Shimizu
- 6521 Gp130-Dependent Astrocytic Survival Is Critical for the Control of Autoimmune Central Nervous System Inflammation
Fahad Haroon, Katrin Drögemüller, Ulrike Händel, Anna Brunn, Dirk Reinhold, Gopala Nishanth, Werner Mueller, Christian Trautwein, Matthias Ernst, Martina Deckert, and Dirk Schlüter
- 6532 Inflammation-Associated Autophagy-Related Programmed Necrotic Death of Human Neutrophils Characterized by Organelle Fusion Events
Cristina C. Mihalache, Shida Yousefi, Sébastien Conus, Peter M. Villiger, E. Marion Schneider, and Hans-Uwe Simon
- 6543 Microparticles (Ectosomes) Shed by Stored Human Platelets Downregulate Macrophages and Modify the Development of Dendritic Cells
Salima Sadallah, Ceylan Eken, Perrine J. Martin, and Jürg A. Schifferli
- 6553 Pannexin-1 Is Required for ATP Release during Apoptosis but Not for Inflammasome Activation
Yan Qu, Shabram Misaghi, Kim Newton, Laurie L. Gilmour, Salina Louie, James E. Cupp, George R. Dubyak, David Hackos, and Vishva M. Dixit
- 6562 Leukotriene B₄ Mediates Neutrophil Migration Induced by Heme
Ana Paula T. Monteiro, Carla S. Pinheiro, Tatiana Luna-Gomes, Liliane R. Alves, Clarissa M. Maya-Monteiro, Barbara N. Porto, Christina Barja-Fidalgo, Claudia F. Benjamim, Marc Peters-Golden, Christianne Bandeira-Melo, Marcelo T. Bozza, and Claudio Canetti
- 6568 Endothelin-1 Signaling Promotes Fibrosis In Vitro in a Bronchopulmonary Dysplasia Model by Activating the Extrinsic Coagulation Cascade
Konstantinos Kambas, Akrivi Chrysanthopoulou, Ioannis Kourtzelis, Marianna Skordala, Ioannis Mitroulis, Stavros Rafail, Stergios Vradelis, Ioannis Sigalas, You-Qiang Wu, Matthaios Speletas, George Kolios, and Konstantinos Ritis
- 6576 The Immunosuppressive Role of IL-32 in Lymphatic Tissue during HIV-1 Infection
Anthony J. Smith, Chad M. Toledo, Stephen W. Wiegrefe, Lijie Duan, Timothy W. Schacker, Cavan S. Reilly, and Ashley T. Haase
- 6585 *Staphylococcus aureus* Biofilms Prevent Macrophage Phagocytosis and Attenuate Inflammation In Vivo
Lance R. Thurlow, Mark L. Hanke, Teresa Fritz, Amanda Angle, Amy Aldrich, Stetson H. Williams, Ian L. Engebretsen, Kenneth W. Bayles, Alexander R. Horswill, and Tammy Kielian
- 6597 Stat4 Is Critical for the Balance between Th17 Cells and Regulatory T Cells in Colitis
Jiangnan Xu, Yu Yang, Guixing Qiu, Girdhari Lal, Na Yin, Zhibong Wu, Jonathan S. Bromberg, and Yaozhong Ding
- ## CLINICAL IMMUNOLOGY
- 6607 An HLA-Presented Fragment of Macrophage Migration Inhibitory Factor Is a Therapeutic Target for Invasive Breast Cancer
Oriana Hawkins, Bhavna Verma, Stanley Lightfoot, Rinki Jain, Amit Rawat, Sandy McNair, Shannon Caseltine, Aleksandar Mojsilovic, Priyanka Gupta, Francisca Neethling, Othon Almanza, William Dooley, William Hildebrand, and Jon Weidanz
- 6617 Selective T Cell Expansion during Aging of CD8 Memory Repertoires to Influenza Revealed by Modeling
Yuri N. Naumov, Elena N. Naumova, Maryam B. Yassai, and Jack Gorski

- 6625 Protein Kinase CK2/PTEN Pathway Plays a Key Role in Platelet-Activating Factor-Mediated Murine Anaphylactic Shock
Nam-In Kang, Ha-Yong Yoon, Han-A Kim, Kyoung-Jin Kim, Myung-Kwan Han, Young-Rae Lee, Pyoung-Han Hwang, Byoung-Yul Soh, Sook-Jeong Shin, Subn-Young Im, and Hern-Ku Lee
- 6633 Papillomavirus-Specific CD4⁺ T Cells Exhibit Reduced STAT-5 Signaling and Altered Cytokine Profiles in Patients with Recurrent Respiratory Papillomatosis
Eddie A. James, James A. DeVoti, David W. Rosenthal, Lynda J. Hatam, Bettie M. Steinberg, Allan L. Abramson, William W. Kwok, and Vincent R. Bonagura
- 6641 AUTHOR INDEX