

Luminex
complexity simplified.



**Simple, Compact, and
Affordable Cell Analysis.**
Muse[®] Cell Analyzer.

LEARN MORE >



189 (2)

J Immunol 2012; 189:497-1093; ;
<http://www.jimmunol.org/content/189/2>

This information is current as
of September 28, 2020.

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.



497 IN THIS ISSUE

LETTERS TO THE EDITOR

- 499 Comment on “Inflammasome Activation of IL-18 Results in Endothelial Progenitor Cell Dysfunction in Systemic Lupus Erythematosus”
Zhenhua Duan, Yujing Zhang, Zhen Zeng, and Faming Pan
- 499 Response to Comment on “Inflammasome Activation of IL-18 Results in Endothelial Progenitor Cell Dysfunction in Systemic Lupus Erythematosus”
Mariana J. Kaplan and J. Michelle Kahlenberg
- 500 Comment on “Expression of Helios in Peripherally Induced Foxp3⁺ Regulatory T Cells”
Eyad Elkord
- 500 Response to Comment on “Expression of Helios in Peripherally Induced Foxp3⁺ Regulatory T Cells”
Rachel A. Gottschalk, Emily Corse, and James P. Allison
- 501 Comment on “Class B Scavenger Receptor Types I and II and CD36 Targeting Improves Sepsis Survival and Acute Outcomes in Mice”
Ling Guo, Zhong Zheng, Junting Ai, Bin Huang, and Xiang-An Li
- 502 Response to Comment on “Class B Scavenger Receptor Types I and II and CD36 Targeting Improves Sepsis Survival and Acute Outcomes in Mice”
Asada Leelahavanichkul, Alexander V. Bocharov, Roger Kurlander, Irina N. Baranova, Tatyana G. Vishnyakova, Ana C. P. Souza, Xuzhen Hu, Kent Doi, Boris Vaisman, Marcelo Amar, Denis Sviridov, Zhigang Chen, Alan T. Remaley, Gyorgy Csako, Amy P. Patterson, Peter S. T. Yuen, Robert A. Star, and Thomas L. Eggerman

BRIEF REVIEWS

- 503 B Cell Tolerance and Positive Selection in Lupus
Dan Eilat and Matthias Wabl

On the cover: Blood smear from mice infected with *Plasmodium berghei* ANKA stained with Diff-Quik. Original magnification $\times 40$. Chapman, L. M., A. A. Aggrey, D. J. Field, K. Srivastava, S. Ture, K. Yui, D. J. Topham, W. M. Baldwin, III, and C. N. Morrell. 2012. Platelets Present Antigen in the Context of MHC Class I. *J. Immunol.* 189: 916–923.

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 © 2012 by The American Association of Immunologists, Inc.

CUTTING EDGE

- 511 Cutting Edge: Mast Cells Critically Augment Myeloid-Derived Suppressor Cell Activity
Sheinei J. Saleem, Rebecca K. Martin, Johanna K. Morales, Jamie L. Sturgill, David R. Gibb, Laura Graham, Harry D. Bear, Masoud H. Manjili, John J. Ryan, and Daniel H. Conrad
- 516 Cutting Edge: Impaired MHC Class I Expression in Mice Deficient for Nlr5/Class I Transactivator
Amlan Biswas, Torsten B. Meissner, Taro Kawai, and Koichi S. Kobayashi

CELLULAR IMMUNOLOGY AND IMMUNE REGULATION

- 521 Recruitment of Memory B Cells to Lymph Nodes Remote from the Site of Immunization Requires an Inflammatory Stimulus
Gautam N. Shenoy, Priyadarshini Chatterjee, Sheetal Kaw, Snigdha Mukherjee, Deepak K. Rathore, Vineeta Bal, Satyajit Rath, and Anna George
- 529 The Efficiency of Human Cytomegalovirus pp65_{495–503} CD8⁺ T Cell Epitope Generation Is Determined by the Balanced Activities of Cytosolic and Endoplasmic Reticulum-Resident Peptidases
Sabrina Urban, Kathrin Textoris-Taube, Barbara Reimann, Katharina Janek, Tanja Dannenberg, Frédéric Ebstein, Christin Seifert, Fang Zhao, Jan H. Kessler, Anne Halenius, Petra Henklein, Julia Paschke, Sandrine Cadel, Helga Bernhard, Ferry Ossendorp, Thierry Foulon, Dirk Schadendorf, Annette Paschen, and Ulrike Seifert
- 539 Identification, Cloning, and Functional Characterization of the IL-1 Receptor Antagonist in the Chicken Reveal Important Differences between the Chicken and Mammals
Mark S. Gibson, Mark Fife, Steve Bird, Nigel Salmon, and Pete Kaiser
- 551 Activation of Invariant NKT Cells in Early Phase of Experimental Autoimmune Encephalomyelitis Results in Differentiation of Ly6C^{hi} Inflammatory Monocyte to M2 Macrophages and Improved Outcome
Laura Denney, Wai Ling Kok, Suzanne L. Cole, Sharon Sanderson, Andrew J. McMichael, and Ling-Pei Ho
- 558 Radiotherapy Promotes Tumor-Specific Effector CD8⁺ T Cells via Dendritic Cell Activation
Anurag Gupta, Hans Christian Probst, Van Vuong, Alexandro Landshammer, Sabine Muth, Hideo Yagita, Reto Schwendener, Martin Pruschy, Alexander Knuth, and Maries van den Broek
- 567 The Indispensable Role of CCR5 for In Vivo Suppressor Function of Tumor-Derived CD103⁺ Effector/Memory Regulatory T Cells
Li-Yuan Chang, Yung-Chang Lin, Chiao-Wen Kang, Chen-Yu Hsu, Yu-Yi Chu, Ching-Tai Huang, Yuan-Ji Day, Tse-Ching Chen, Chau-Ting Yeh, and Chun-Yen Lin
- 575 Differential Idiotype Utilization for the In Vivo Type 14 Capsular Polysaccharide-Specific Ig Responses to Intact *Streptococcus pneumoniae* versus a Pneumococcal Conjugate Vaccine
Jesus Colino, Leah Duke, Swadhinya Arjunaraja, Quanyi Chen, Leyu Liu, Alexander H. Lucas, and Clifford M. Snapper
- 587 Toso, a Functional IgM Receptor, Is Regulated by IL-2 in T and NK Cells
Yousuke Murakami, Sriram Narayanan, Su Su, Richard Childs, Konrad Krzewski, Francisco Borrego, Jennifer Weck, and John E. Coligan
- 598 Human Antitumor CD8⁺ T Cells Producing Th1 Polycytokines Show Superior Antigen Sensitivity and Tumor Recognition
Susanne Wilde, Daniel Sommermeyer, Matthias Leisegang, Bernhard Frankenberger, Barbara Mosetter, Wolfgang Uckert, and Dolores J. Schendel
- 606 Transactivation of Inducible Nitric Oxide Synthase Gene by Kruppel-like Factor 6 Regulates Apoptosis during Influenza A Virus Infection
Victoria Mgbemena, Jesus A. Segovia, Te-Hung Chang, Su-Yu Tsai, Garry T. Cole, Chiung-Yu Hung, and Santanu Bose
- 616 Innate Instruction of CD4⁺ T Cell Immunity in Respiratory Bacterial Infection
Gerhard Trunk and Annette Oxenius
- 629 Structural Characterization and Inhibitory Profile of Formyl Peptide Receptor 2 Selective Peptides Descending from a PIP₂-Binding Domain of Gelsolin
Huamei Forsman, Emil Andréasson, Jennie Karlsson, Francois Boulay, Marie-Josèphe Rabiet, and Claes Dahlgren

- 638 Changes in Functional but Not Structural Avidity during Differentiation of CD8⁺ Effector Cells In Vivo after Virus Infection
Samuel Amoah, Rama D. Yammani, Jason M. Grayson, and Martha A. Alexander-Miller
- 646 A Computational Model for Early Events in B Cell Antigen Receptor Signaling: Analysis of the Roles of Lyn and Fyn
Dipak Barua, William S. Hlavacek, and Tomasz Lipniacki
- 659 Autocrine IFN- γ Promotes Naive CD8 T Cell Differentiation and Synergizes with IFN- α To Stimulate Strong Function
Julie M. Cursinger, Puiya Agarwal, Debra C. Lins, and Matthew F. Mescher
- 669 The T Cell Response to IL-10 Alters Cellular Dynamics and Paradoxically Promotes Central Nervous System Autoimmunity
Xin Liu, Rajshekhhar Alli, Meredith Steeves, Phuong Nguyen, Peter Vogel, and Terrence L. Geiger
- 679 Analysis of T Cell Responses to the Major Allergens from German Cockroach: Epitope Specificity and Relationship to IgE Production
Carla Oseroff, John Sidney, Victoria Tripple, Howard Grey, Robert Wood, David H. Broide, Jason Greenbaum, Ravi Kolla, Bjoern Peters, Anna Pomés, and Alessandro Sette
- 689 EWI-2 Association with α -Actinin Regulates T Cell Immune Synapses and HIV Viral Infection
Mónica Gordón-Alonso, Mónica Sala-Valdés, Vera Rocha-Perugini, Daniel Pérez-Hernández, Soraya López-Martín, Angeles Ursa, Susana Álvarez, Tatiana V. Kolesnikova, Jesús Vázquez, Francisco Sánchez-Madrid, and María Yáñez-Mó
- 701 Breakdown in Repression of IFN- γ mRNA Leads to Accumulation of Self-Reactive Effector CD8⁺ T Cells
Pheh-Ping Chang, Sau K. Lee, Xin Hu, Gayle Davey, Guowen Duan, Jae-Ho Cho, Guna Karupiah, Jonathan Sprent, William R. Heath, Edward M. Bertram, and Carola G. Vinuesa
- 711 Autoreactive Preplasma Cells Break Tolerance in the Absence of Regulation by Dendritic Cells and Macrophages
Mileka R. Gilbert, Nikki J. Wagner, Shannon Z. Jones, Amanda B. Wisz, Jose R. Roques, Kristen N. Krum, Sang-Ryul Lee, Volker Nickenleit, Chrys Hulbert, James W. Thomas, Stephen B. Gauld, and Barbara J. Vilen
- 721 Polar Opposites: Erk Direction of CD4 T Cell Subsets
Chiung-Fang Chang, Warren N. D'Souza, Irene L. Ch'en, Gilles Pages, Jacques Pouyssegur, and Stephen M. Hedrick
- 732 Transient Low-Dose Methotrexate Induces Tolerance to Murine Anti-Thymocyte Globulin and Together They Promote Long-Term Allograft Survival
Alexandra Joseph, Kathleen Neff, Julie Richard, Lan Gao, Dinesh Bangari, Marguerite Joby, Kerry Culm-Merdek, Richard Garman, John Williams, Susan Richards, and Melanie Ruzek
- 744 Biochemical and Biologic Characterization of Exosomes and Microvesicles as Facilitators of HIV-1 Infection in Macrophages
Irena Kadiu, Prabakaran Narayanasamy, Prasanta K. Dash, Wei Zhang, and Howard E. Gendelman
- 755 Tim-3 Pathway Controls Regulatory and Effector T Cell Balance during Hepatitis C Virus Infection
Jonathan P. Moorman, Jia M. Wang, Ying Zhang, Xiao J. Ji, Cheng J. Ma, Xiao Y. Wu, Zhan S. Jia, Ke S. Wang, and Zhi Q. Yao
- 767 Increased Frequency of Suppressive Regulatory T Cells and T Cell-Mediated Antigen Loss Results in Murine Melanoma Recurrence
Shawn M. Jensen, Christopher G. Twitty, Levi D. Maston, Paul A. Antony, May Lim, Hong-Ming Hu, Ulf Petrusch, Nicholas P. Restifo, and Bernard A. Fox
- 777 Exosomes Isolated from Mycobacteria-Infected Mice or Cultured Macrophages Can Recruit and Activate Immune Cells In Vitro and In Vivo
Prachi P. Singh, Victoria L. Smith, Petros C. Karakousis, and Jeffery S. Schorey

786 CD2AP/SHIP1 Complex Positively Regulates Plasmacytoid Dendritic Cell Receptor Signaling by Inhibiting the E3 Ubiquitin Ligase Cbl
Musheng Bao, Shino Hanabuchi, Valeria Facchinetti, Qiumei Du, Laura Bover, Joel Plumas, Laurence Chaperot, Wei Cao, Jun Qin, Shao-Cong Sun, and Yong-Jun Liu

793 Murine Lupus Susceptibility Locus *Sle1c2* Mediates CD4⁺ T Cell Activation and Maps to Estrogen-Related Receptor γ
Daniel J. Perry, Yiming Yin, Tiffany Telarico, Henry V. Baker, Igor Dozmorov, Andras Perl, and Laurence Morel

804 Ethylenecarbodiimide-Fixed Donor Splenocyte Infusions Differentially Target Direct and Indirect Pathways of Allorecognition for Induction of Transplant Tolerance
Taba Kheradmand, Shusen Wang, Jane Bryant, James J. Tasch, Nadine Lerret, Kathryn L. Pothoven, Josetta L. Houlihan, Stephen D. Miller, Zheng J. Zhang, and Xunrong Luo

MOLECULAR AND STRUCTURAL IMMUNOLOGY

813 IFN- γ Elicits Macrophage Autophagy via the p38 MAPK Signaling Pathway
Takeshi Matsuzawa, Bae-Hoon Kim, Avinash R. Shenoy, Shigeki Kamitani, Masami Miyake, and John D. MacMicking

819 Abnormal Histone Methylation Is Responsible for Increased Vascular Endothelial Growth Factor 165a Secretion from Airway Smooth Muscle Cells in Asthma
Rachel L. Clifford, Alison E. John, Christopher E. Brightling, and Alan J. Knox

832 Twist1 Regulates *Irfng* Expression in Th1 Cells by Interfering with Runx3 Function
Duy Pham, Joshua W. Vincentz, Anthony B. Firulli, and Mark H. Kaplan

HOST DEFENSE

841 Identification of Protective B Cell Antigens of *Legionella pneumophila*
Stefan S. Weber, Nicole Joller, Anna Barbara Küntzel, Roman Spörri, Vincent S. Tchang, Elke Scandella, Christoph Rösli, Burkhard Ludewig, Hubert Hilbi, and Annette Oxenius

850 In Vivo V_L-Targeted Microbial Superantigen Induced Global Shifts in the B Cell Repertoire
Caroline Grönwall, Sergei L. Kosakovsky Pond, Jason A. Young, and Gregg J. Silverman

860 A Role for the NF- κ B Pathway in Cell Protection from Complement-Dependent Cytotoxicity
Dana Gancz, Michal Lusthaus, and Zvi Fishelson

867 Ablation of Leptin Receptor-Mediated ERK Activation Impairs Host Defense against Gram-Negative Pneumonia
Peter Mancuso, Martin G. Myers, Jr., Deepti Goel, Carlos H. Serezani, Edmund O'Brien, Jared Goldberg, David M. Aronoff, and Marc Peters-Golden

876 Innate IFN- γ Is Essential for Programmed Death Ligand-1-Mediated T Cell Stimulation following *Listeria monocytogenes* Infection
Jared H. Rowe, James M. Ertelt, and Sing Sing Way

885 HIV-1 Infection of Human Intestinal Lamina Propria CD4⁺ T Cells In Vitro Is Enhanced by Exposure to Commensal *Escherichia coli*
Stephanie M. Dillon, Jennifer A. Manuzak, Amanda K. Leone, Eric J. Lee, Lisa M. Rogers, Martin D. McCarter, and Cara C. Wilson

897 NK1.1⁺ Cells and IL-22 Regulate Vaccine-Induced Protective Immunity against Challenge with *Mycobacterium tuberculosis*
Rohan Dhiman, Sivakumar Periasamy, Peter F. Barnes, Ankita Garg Jaiswal, Padmaja Paidipally, Amanda B. Barnes, Amy Twinnereim, and Ramakrishna Vankayalapati

906 Macrophage Dectin-1 Expression Is Controlled by Leukotriene B₄ via a GM-CSF/PU.1 Axis
C. Henrique Serezani, Steve Kane, Latima Collins, Mariana Morato-Marques, John J. Osterholzer, and Marc Peters-Golden

916 Platelets Present Antigen in the Context of MHC Class I
Lesley M. Chapman, Angela A. Aggrey, David J. Field, Kalyan Srivastava, Sara Ture, Katsuyuki Yui, David J. Topham, William M. Baldwin, III, and Craig N. Morrell

- 924 *Leishmania donovani* Exploits Host Deubiquitinating Enzyme A20, a Negative Regulator of TLR Signaling, To Subvert Host Immune Response
Supriya Srivastav, Susanta Kar, Ajit G. Chande, Robin Mukhopadhyaya, and Pijush K. Das
- 935 Phenotypic and Functional Characterization of NK Cells in Human Immune Response against the Dimorphic Fungus *Paracoccidioides brasiliensis*
Larissa N. A. Longhi, Rosiane M. da Silva, Márcia C. Fornazim, Maria C. Spago, Rômulo T. D. de Oliveira, Alexandre E. Nowill, Maria H. S. L. Blotta, and Ronei L. Mamon

INFLAMMATION

- 946 Distinct Macrophage Subpopulations Characterize Acute Infection and Chronic Inflammatory Lung Disease
Mubing Duan, Waichu C. Li, Ross Vlahos, Mhairi J. Maxwell, Gary P. Anderson, and Margaret L. Hibbs
- 956 Expression, Regulation, and Function of Atypical Chemerin Receptor CCRL2 on Endothelial Cells
Justin Monnier, Susanna Lewén, Edward O'Hara, Kexin Huang, Hua Tu, Eugene C. Butcher, and Brian A. Zabel
- 968 IFN- γ -Producing CD4⁺ T Cells Promote Experimental Cerebral Malaria by Modulating CD8⁺ T Cell Accumulation within the Brain
Ana Villegas-Mendez, Rachel Greig, Tovah N. Shaw, J. Brian de Souza, Emily Guyer Findlay, Jason S. Stumbofer, Julius C. R. Hafalla, Daniel G. Blount, Christopher A. Hunter, Eleanor M. Riley, and Kevin N. Couper
- 980 Defective Macrophage Migration in G α_{i2} - but Not G α_{i3} -Deficient Mice
Kristina Wiege, Duc D. Le, Shahzad N. Syed, Syed R. Ali, Ana Novakovic, Sandra Beer-Hammer, Roland P. Piekorz, Reinhold E. Schmidt, Bernd Nürnberg, and J. Engelbert Gessner
- 988 Cross-Species Transcriptional Network Analysis Defines Shared Inflammatory Responses in Murine and Human Lupus Nephritis
Celine C. Berthier, Ramalingam Bethunaickan, Tania Gonzalez-Rivera, Viji Nair, Meera Ramanujam, Weijia Zhang, Erwin P. Bottinger, Stephan Segerer, Maja Lindenmeyer, Clemens D. Cohen, Anne Davidson, and Matthias Kretzler
- 1002 Gemfibrozil, a Lipid-Lowering Drug, Upregulates IL-1 Receptor Antagonist in Mouse Cortical Neurons: Implications for Neuronal Self-Defense
Grant T. Corbett, Avik Roy, and Kalipada Pahan
- 1014 Molecular Mechanisms Responsible for the Selective and Low-Grade Induction of Proinflammatory Mediators in Murine Macrophages by Lipopolysaccharide
Urmila Maitra, Hui Deng, Trevor Glaros, Bianca Baker, Daniel G. S. Capelluto, Zihai Li, and Liwu Li
- 1024 TGF- β Mediates Proinflammatory Seminal Fluid Signaling in Human Cervical Epithelial Cells
David J. Sharkey, Anne M. Macpherson, Kelton P. Tremellen, David G. Mottershead, Robert B. Gilchrist, and Sarah A. Robertson
- 1036 Specialized Proresolving Mediators Enhance Human B Cell Differentiation to Antibody-Secreting Cells
Sesquile Ramon, Fei Gao, Charles N. Serhan, and Richard P. Phipps
- 1043 Exogenous Administration of 15d-PGJ₂-Loaded Nanocapsules Inhibits Bone Resorption in a Mouse Periodontitis Model
Marcelo H. Napimoga, Carlos A. T. da Silva, Vanessa Carregaro, Thais S. Farnesi-de-Assunção, Poliana M. Duarte, Nathalie F. S. de Melo, and Leonardo F. Fraceto

CLINICAL IMMUNOLOGY

- 1053 TNFR-Associated Factor 2 Deficiency in B Lymphocytes Predisposes to Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma in Mice
Gema Pérez-Chacón, David Llobet, Constanza Pardo, José Pindado, Yongwon Choi, John C. Reed, and Juan M. Zapata
- 1062 Retinoic Acid Attenuates Rheumatoid Inflammation in Mice
Seung-Ki Kwok, Mi-Kyung Park, Mi-La Cho, Hye-Jwa Oh, Eun-Mi Park, Dong-Gun Lee, Jennifer Lee, Ho-Youn Kim, and Sung-Hwan Park

- 1072 Fetal-Specific CD8⁺ Cytotoxic T Cell Responses Develop during Normal Human Pregnancy and Exhibit Broad Functional Capacity
David Lissauer, Karen Piper, Oliver Goodyear, Mark D. Kilby, and Paul A. H. Moss
- 1081 IL-21 Promotes Lupus-like Disease in Chronic Graft-versus-Host Disease through Both CD4 T Cell- and B Cell-Intrinsic Mechanisms
Vinh Nguyen, Irina Luzina, Horea Rus, Cosmin Tegla, Ching Chen, and Violeta Rus
- 1094 **AUTHOR INDEX**