

Luminex
complexity simplified.



Reimagine your discoveries

Amnis® ImageStream[®]X Mk II and
FlowSight® Imaging Flow Cytometers

Learn more >



184 (8)

J Immunol 2010; 184:4049-4577; ;
<http://www.jimmunol.org/content/184/8>

This information is current as
of June 16, 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.



4049 IN THIS ISSUE

LETTERS TO THE EDITOR

- 4051 Comment on “Cutting Edge: Depletion of Foxp3⁺ Cells Leads to Induction of Autoimmunity by Specific Ablation of Regulatory T Cells in Genetically Targeted Mice”
Dominik Wolf, Anna Maria Wolf, and Alexandar Tzankov
- 4051 Comment on “Development of Murine Lupus Involves the Combined Genetic Contribution of the *SLAM* and *FcγR* Intervals within the *Nba2* Autoimmune Susceptibility Locus”
Divaker Choubey, Ravichandran Panchanathan, Hui Shen, and Xin Duan
- 4052 Response to Comment on “Development of Murine Lupus Involves the Combined Genetic Contribution of the *SLAM* and *FcγR* Intervals within the *Nba2* Autoimmune Susceptibility Locus”
Trine N. Jørgensen and Loren D. Erickson
- 4052 Comment on “CRTAM Confers Late-Stage Activation of CD8⁺ T Cells to Regulate Retention within Lymph Node”
Sunny Hei Wong, Fredrik O. Vannberg, Alexandra J. Spencer, Louise van der Weyden, Adrian V. S. Hill, and David H. Wyllie

BRIEF REVIEWS

- 4055 Analysis of $\gamma\delta$ T Cell Functions in the Mouse
Willi K. Born, Zhinan Yin, Youn-Soo Hahn, Deming Sun, and Rebecca L. O'Brien
- 4062 Metabolic Shifts in Immunity and Inflammation
Douglas J. Kominsky, Eric L. Campbell, and Sean P. Colgan

CUTTING EDGE

- 4069 Cutting Edge: IFN- γ Is a Negative Regulator of IL-23 in Murine Macrophages and Experimental Colitis
Shehzad Z. Sheikh, Katsuyoshi Matsuoka, Taku Kobayashi, Fengling Li, Tara Rubinas, and Scott E. Plevy

On the cover: Odorant binding protein 1a is an important autoantigen in autoimmune dacryoadenitis. Spontaneous autoimmunity in *Aire*-deficient mice targets a number of different organs, including the lacrimal glands. Transfer of T lymphocytes from *Aire*-deficient mice stimulated with odorant binding protein 1a fusion protein results in lacrimal gland autoimmunity, as demonstrated by a massive lymphocytic infiltration into the lacrimal glands and destruction of normal tissue architecture (shown). DeVoss, J. J., N. LeClair, Y. Hou, N. Grewal, K. Johannes, W. Lu, T. Yang, C. Meagher, L. Fong, E. C. Strauss, and M. S. Anderson. 2010. An autoimmune response to odorant binding protein 1a is associated with dry eye in the *Aire*-deficient mouse. *J. Immunol.* 184: 4236–4246.

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 © 2010 by The American Association of Immunologists, Inc.

- 4074 Cutting Edge: CD28 and c-Rel-Dependent Pathways Initiate Regulatory T Cell Development
Kieng B. Vang, Jianying Yang, Antonio J. Pagán, Lin-Xi Li, Junmei Wang, Jonathan M. Green, Amer A. Beg, and Michael A. Farrar

CELLULAR IMMUNOLOGY AND IMMUNE REGULATION

- 4079 CD8 T Cells Activated in Distinct Lymphoid Organs Differentially Express Adhesion Proteins and Coexpress Multiple Chemokine Receptors
Andrew R. Ferguson and Victor H. Engelhard
- 4087 Estradiol and G1 Reduce Infarct Size and Improve Immunosuppression after Experimental Stroke
Bing Zhang, Sandhya Subramanian, Suzan Dziennis, Jia Jia, Masayoshi Uchida, Kozaburo Akiyoshi, Elton Migliati, Anne D. Lewis, Arthur A. Vandenbark, Halina Offner, and Patricia D. Hurn
- 4095 T Cell Ig Domain and Mucin Domain 1 Engagement on Invariant NKT Cells in the Presence of TCR Stimulation Enhances IL-4 Production but Inhibits IFN- γ Production
Hye Sung Kim, Hyun Soo Kim, Chang Woo Lee, and Doo Hyun Chung
- 4107 Dynamic Regulation of CD8 T Cell Tolerance Induction by Liver Sinusoidal Endothelial Cells
Anna Schurich, Martina Berg, Dirk Stabenow, Jan Böttcher, Michaela Kern, Hans-Jörg Schild, Christian Kurts, Verena Schuette, Sven Burgdorf, Linda Diehl, Andreas Limmer, and Percy A. Knolle
- 4115 Unexpected Role for the Immunoproteasome Subunit LMP2 in Antiviral Humoral and Innate Immune Responses
Scott E. Hensley, Damien Zanker, Brian P. Dolan, Alexandre David, Heather D. Hickman, Alan C. Embry, Cara N. Skon, Kristie M. Grebe, Thomas A. Griffin, Weisan Chen, Jack R. Bennink, and Jonathan W. Yewdell
- 4123 Transcriptional Repressor BCL6 Controls Th17 Responses by Controlling Gene Expression in Both T Cells and Macrophages
Arpita Mondal, Deepali Sawant, and Alexander L. Dent
- 4133 Redistribution of Sphingosine 1-Phosphate by Sphingosine Kinase 2 Contributes to Lymphopenia
Sven-Christian Sensken, Constantin Bode, Manju Nagarajan, Ulrike Peest, Oliver Pabst, and Markus H. Gräler
- 4143 Peripheral B Cell Tolerance and Function in Transgenic Mice Expressing an IgD Superantigen
Bao Hoa Duong, Takayuki Ota, Djemel Ait-Azzouzene, Miyo Aoki-Ota, José Luis Vela, Christoph Huber, Kevin Walsh, Amanda L. Gavin, and David Nemazee
- 4159 Chlamydial Respiratory Infection during Allergen Sensitization Drives Neutrophilic Allergic Airways Disease
Jay C. Horvat, Malcolm R. Starkey, Richard Y. Kim, Kenneth W. Beagley, Julie A. Preston, Peter G. Gibson, Paul S. Foster, and Philip M. Hansbro
- 4170 Attenuation of PI3K/Akt-Mediated Tumorigenic Signals through PTEN Activation by DNA Vaccine-Induced Anti-ErbB2 Antibodies
Alessandra Porzia, Stefania Lanzardo, Arianna Citti, Federica Cavallo, Guido Forni, Angela Santoni, Ricciarda Galandrini, and Rossella Paolini
- 4178 Lck Mediates Th2 Differentiation through Effects on T-bet and GATA-3
Kyeorda L. Kemp, Steven D. Levin, Paul J. Bryce, and Paul L. Stein
- 4185 Relative Over-Reactivity of Human versus Chimpanzee Lymphocytes: Implications for the Human Diseases Associated with Immune Activation
Paula C. Soto, Lance L. Stein, Nancy Hurtado-Ziola, Stephen M. Hedrick, and Ajit Varki
- 4196 Toxin-Coupled MHC Class I Tetramers Can Specifically Ablate Autoreactive CD8⁺ T Cells and Delay Diabetes in Nonobese Diabetic Mice
Benjamin G. Vincent, Ellen F. Young, Adam S. Buntzman, Rosemary Stevens, Thomas B. Kepler, Roland M. Tisch, Jeffrey A. Frelinger, and Paul R. Hess

- 4205 Characterization of Synergistic Induction of CX3CL1/Fractalkine by TNF- α and IFN- γ in Vascular Endothelial Cells: An Essential Role for TNF- α in Post-Transcriptional Regulation of CX3CL1
Tomoh Matsumiya, Ken Ota, Tadaatsu Imaizumi, Hidemi Yoshida, Hiroto Kimura, and Kei Satoh
- 4215 Adoptive Transfer of Tumor-Specific Tc17 Effector T Cells Controls the Growth of B16 Melanoma in Mice
Maria de la Luz Garcia-Hernandez, Hiromasa Hamada, Joyce B. Reome, Sara K. Misra, Michael P. Tighe, and Richard W. Dutton
- 4228 Disrupting the Intermolecular Self-Association of Itk Enhances T Cell Signaling
Lie Min, Wenfang Wu, Raji E. Joseph, D. Bruce Fulton, Leslie Berg, and Amy H. Andreotti
- 4236 An Autoimmune Response to Odorant Binding Protein 1a Is Associated with Dry Eye in the *Aire*-Deficient Mouse
Jason J. DeVoss, Norbert P. LeClair, Yafei Hou, Navdeep K. Grewal, Kelsey P. Johannes, Wen Lu, Ting Yang, Craig Meagher, Lawrence Fong, Erich C. Strauss, and Mark S. Anderson
- 4247 CD11c^{hi} Dendritic Cells Regulate the Re-establishment of Vascular Quiescence and Stabilization after Immune Stimulation of Lymph Nodes
Te-Chen Tzeng, Susan Chyou, Sha Tian, Brian Webster, April C. Carpenter, Victor H. Guaiquil, and Theresa T. Lu
- 4258 Differential IL-17 Production and Mannan Recognition Contribute to Fungal Pathogenicity and Commensalism
Lisa Rizzetto, Mirela Kuka, Carlotta De Filippo, Alessandra Cambi, Mihai G. Netea, Luca Beltrame, Giorgio Napolitani, Maria Gabriella Torcia, Ugo D'Oro, and Duccio Cavalieri
- 4269 Immunotherapy Can Reject Intracranial Tumor Cells without Damaging the Brain despite Sharing the Target Antigen
Byram W. Bridle, Jian Li, Shucui Jiang, Ruby Chang, Brian D. Lichty, Jonathan L. Bramson, and Yonghong Wan
- 4276 Human Plasmacytoid Dendritic Cells Phagocytose, Process, and Present Exogenous Particulate Antigen
Jurjen Tel, Annechien J. A. Lambeck, Luis J. Cruz, Paul J. Tacken, I. Jolanda M. de Vries, and Carl G. Figdor
- 4284 Mathematical Modeling of Chimeric TCR Triggering Predicts the Magnitude of Target Lysis and Its Impairment by TCR Downmodulation
Scott E. James, Philip D. Greenberg, Michael C. Jensen, Yukang Lin, Jinjuan Wang, Libua E. Budde, Brian G. Till, Andrew A. Raubitschek, Stephen J. Forman, and Oliver W. Press
- 4295 Role of SMAD and Non-SMAD Signals in the Development of Th17 and Regulatory T Cells
Ling Lu, Julie Wang, Feng Zhang, Yang Chai, David Brand, Xuehao Wang, David A. Horwitz, Wei Shi, and Song Guo Zheng
- 4307 IL-17RC Is Required for IL-17A- and IL-17F-Dependent Signaling and the Pathogenesis of Experimental Autoimmune Encephalomyelitis
Yan Hu, Naruhisa Ota, Ivan Peng, Canio J. Refino, Dimitry M. Danilenko, Patrick Caplazi, and Wenjun Ouyang
- 4317 Different Proliferative Potential and Migratory Characteristics of Human CD4⁺ Regulatory T Cells That Express either CD45RA or CD45RO
Nicola J. Booth, Arthur J. McQuaid, Toni Sobande, Steve Kissane, Elaine Agius, Sarah E. Jackson, Mike Salmon, Francesco Falciani, Kwee Yong, Malcolm H. Rustin, Arne N. Akbar, and Milica Vukmanovic-Stejić
- 4327 NK Cells Influence Both Innate and Adaptive Immune Responses after Mucosal Immunization with Antigen and Mucosal Adjuvant
Lindsay J. Hall, Simon Clare, and Gordon Dougan
- 4338 Protein-DNA Complex Is the Exclusive Malaria Parasite Component That Activates Dendritic Cells and Triggers Innate Immune Responses
Xianzhu Wu, Nagaraj M. Gowda, Sanjeev Kumar, and D. Channe Gowda

MOLECULAR AND STRUCTURAL IMMUNOLOGY

- 4349 PU.1 Positively Regulates GATA-1 Expression in Mast Cells
Clifford M. Takemoto, Stephanie Brandal, Anil G. Jegga, Youl-Nam Lee, Amir Shahlaee, Ye Ying, Rodney DeKoter, and Michael A. McDevitt
- 4362 Expression of Functional D299G.T399I Polymorphic Variant of TLR4 Depends More on Coexpression of MD-2 Than Does Wild-Type TLR4
Polonca Prohinar, Prasad Rallabhandi, Jerrold P. Weiss, and Theresa L. Gioannini

IMMUNOGENETICS

- 4368 Adaptive Interactions between HLA and HIV-1: Highly Divergent Selection Imposed by HLA Class I Molecules with Common Supertype Motifs
Mina John, David Heckerman, Ian James, Lawrence P. Park, Jonathan M. Carlson, Abha Chopra, Silvana Gaudieri, David Nolan, David W. Haas, Sharon A. Riddler, Richard Haubrich, and Simon Mallal

HOST DEFENSE

- 4378 Redundant and Pathogenic Roles for IL-22 in Mycobacterial, Protozoan, and Helminth Infections
Mark S. Wilson, Carl G. Feng, Daniel L. Barber, Felix Yarovinsky, Allen W. Cheever, Alan Sher, Michael Grigg, Mary Collins, Lynette Fouser, and Thomas A. Wynn
- 4391 Regulatory T Cells Inhibit T Cell Proliferation and Decrease Demyelination in Mice Chronically Infected with a Coronavirus
Kathryn Trandem, Daniela Anghelina, Jingxian Zhao, and Stanley Perlman
- 4401 Lysophosphatidylcholine Increases Neutrophil Bactericidal Activity by Enhancement of Azurophil Granule-Phagosome Fusion via Glycine·GlyR α 2/TRPM2/p38 MAPK Signaling
Chang-Won Hong, Taek-Keun Kim, Hwa-Yong Ham, Ju-Suk Nam, Yong Ho Kim, Haifeng Zheng, Bo Pang, Tae-Kwon Min, Jun-Sub Jung, Si-Nae Lee, Hyun-Jeong Cho, Ee-Jin Kim, In-Hwan Hong, Tae-Cheon Kang, Jongho Lee, Seog Bae Oh, Sung Jun Jung, Sung Joon Kim, and Dong-Keun Song
- 4414 Essential Role of IL-17A in the Formation of a Mycobacterial Infection-Induced Granuloma in the Lung
Yuko Okamoto Yoshida, Masayuki Umemura, Ayano Yahagi, Rebecca L. O'Brien, Koichi Ikuta, Kenji Kishihara, Hiromitsu Hara, Susumu Nakae, Yoichiro Iwakura, and Goro Matsuzaki
- 4423 Single-Chain HLA-A2 MHC Trimers That Incorporate an Immundominant Peptide Elicit Protective T Cell Immunity against Lethal West Nile Virus Infection
Sojung Kim, Lijin Li, Curtis P. McMurtrey, William H. Hildebrand, Jon A. Weidanz, William E. Gillanders, Michael S. Diamond, and Ted H. Hansen
- 4431 Quality of the Transgene-Specific CD8⁺ T Cell Response Induced by Adenoviral Vector Immunization Is Critically Influenced by Virus Dose and Route of Vaccination
Peter Johannes Holst, Cathrine Ørskov, Allan Randrup Thomsen, and Jan Prausgaard Christensen
- 4440 Plasmacytoid Dendritic Cells Enhance Mortality during Lethal Influenza Infections by Eliminating Virus-Specific CD8 T Cells
Ryan A. Langlois and Kevin L. Legge

INFLAMMATION

- 4447 ADAM17 Activity and Other Mechanisms of Soluble L-selectin Production during Death Receptor-Induced Leukocyte Apoptosis
Yue Wang, Adam C. Zhang, Zhenya Ni, Amy Herrera, and Bruce Walcheck
- 4455 Overexpression of CXC Chemokine Ligand 14 Exacerbates Collagen-Induced Arthritis
Limo Chen, Linjie Guo, Jun Tian, Hongxia He, Ekaterina Marinova, Pumin Zhang, Biao Zheng, and Shuhua Han

- 4460 Chronic Cigarette Smoke Exposure Primes NK Cell Activation in a Mouse Model of Chronic Obstructive Pulmonary Disease
Gregory T. Motz, Bryan L. Eppert, Brian W. Wortham, Robyn M. Amos-Krooks, Jennifer L. Flury, Scott C. Wesselkamper, and Michael T. Borchers
- 4470 Identification of the Cellular Sensor That Stimulates the Inflammatory Response to Sterile Cell Death
Hajime Kono, Dipti Karmarkar, Yoichiro Iwakura, and Kenneth L. Rock
- 4479 IL-17–Mediated Monocyte Migration Occurs Partially through CC Chemokine Ligand 2/Monocyte Chemoattractant Protein-1 Induction
Shiva Shahrara, Sarah R. Pickens, Arthur M. Mandelin, II, William J. Karpus, Qiquan Huang, Jay K. Kolls, and Richard M. Pope
- 4488 Uncoordinated 119 Preferentially Induces Th2 Differentiation and Promotes the Development of Asthma
Magdalena M. Gorska, Nicolas Goplen, Qiaoling Liang, and Rafeul Alam
- 4497 Inhibitor of NK- κ B Kinases α and β Are Both Essential for High Mobility Group Box 1-Mediated Chemotaxis
Marianna Penzo, Raffaella Molteni, Tomomi Suda, Sylvia Samaniego, Angela Raucci, David M. Habel, Frederick Miller, Hui-ping Jiang, Jun Li, Ruggero Pardi, Roberta Palumbo, Eleonora Olivotto, Richard R. Kew, Marco E. Bianchi, and Kenneth B. Marcu
- 4510 *Polycomb* Group Gene Product Ring1B Regulates Th2-Driven Airway Inflammation through the Inhibition of Bim-Mediated Apoptosis of Effector Th2 Cells in the Lung
Akane Suzuki, Chiaki Iwamura, Kenta Shinoda, Damon J. Tumes, Motoko Y. Kimura, Hiroyuki Hosokawa, Yusuke Endo, Shu Horiuchi, Koji Tokoyoda, Haruhiko Koseki, Masakatsu Yamashita, and Toshinori Nakayama
- 4521 Ontogeny of Stromal Organizer Cells during Lymph Node Development
Cécile Bénézech, Andrea White, Emma Mader, Karine Serre, Sonia Parnell, Klaus Pfeffer, Carl F. Ware, Graham Anderson, and Jorge H. Caamaño
- 4531 IL-17 Promotes p38 MAPK-Dependent Endothelial Activation Enhancing Neutrophil Recruitment to Sites of Inflammation
Lucie Roussel, François Houle, Carlos Chan, Yu Yao, Julie Bérubé, Ron Olivenstein, James G. Martin, Jacques Huot, Qutayba Hamid, Lorenzo Ferri, and Simon Rousseau
- 4538 Evidence for Unfolded Protein Response Activation in Monocytes from Individuals with α -1 Antitrypsin Deficiency
Tomás P. Carroll, Catherine M. Greene, Catherine A. O'Connor, Áine M. Nolan, Shane J. O'Neill, and Noel G. McElvaney
- 4547 Access to the Spleen Microenvironment through Lymph Shows Local Cytokine Production, Increased Cell Flux, and Altered Signaling of Immune Cells during Lipopolysaccharide-Induced Acute Inflammation
Elvira Semaeva, Olav Tenstad, Jørn Skavland, Marianne Enger, Per Ole Iversen, Bjørn Tore Gjertsen, and Helge Wiig

CLINICAL IMMUNOLOGY

- 4557 Cell-Specific Gene Expression in Langerhans Cell Histiocytosis Lesions Reveals a Distinct Profile Compared with Epidermal Langerhans Cells
Carl E. Allen, Liunan Li, Tricia L. Peters, Hon-chiu Eastwood Leung, Alexander Yu, Tsz-Kwong Man, Sivashankarappa Gurusiddappa, Michelle T. Phillips, M. John Hicks, Amos Gaikwad, Miriam Merad, and Kenneth L. McClain
- 4568 Chemokine Receptor 4 Plays a Key Role in T Cell Recruitment into the Airways of Asthmatic Patients
Pandurangan Vijayanand, Kesta Durkin, Guido Hartmann, Jaymin Morjaria, Gregory Seumois, Karl J. Staples, David Hall, Christina Bessant, Michelle Bartholomew, Peter H. Howarth, Peter S. Friedmann, and Ratko Djukanović

CORRECTIONS

- 4575 Correction: A Th1-Recognized Peptide P277, When Tandemly Repeated, Enhances a Th2 Immune Response Toward Effective Vaccines Against Autoimmune Diabetes in Nonobese Diabetic Mice
Liang Jin, Aihua Zhu, Yu Wang, Qingmei Chen, Qiyao Xiong, Jianping Li, Yunxiao Sun, Taiming Li, Rongyue Cao, Jie Wu, and Jingjing Liu

- 4576 Correction: CC Chemokine Ligand 3 Overcomes the Bacteriocidal and Phagocytic Defect of Macrophages and Hastens Recovery from Experimental Otitis Media in TNF^{-/-} Mice
Anke Leichtle, Michelle Hernandez, Joerg Ebmeyer, Kenshi Yamasaki, Yuping Lai, Katherine Radek, Yun-Hoon Choung, Sara Euteneuer, Kwang Pak, Richard Gallo, Stephen I. Wasserman, and Allen F. Ryan
- 4577 Correction: C-Type Lectin SIGN-R1 Has a Role in Experimental Colitis and Responsiveness to Lipopolysaccharide
Sean P. Saunders, Jillian L. Barlow, Caitriona M. Walsh, Agustin Bellsoi, Philip Smith, Andrew N. J. McKenzie, and Padraic G. Fallon
- 4578 **AUTHOR INDEX**