IN THIS ISSUE

PILLARS OF IMMUNOLOGY

1293 Peyer’s Patches as the Inductive Site for IgA Responses
Jiri Mestecky and Charles O. Elson

Susan W. Craig and John J. Cebra

BRIEF REVIEWS

1309 Effector CD8 T Cell Development: A Balancing Act between Memory Cell Potential and Terminal Differentiation
Nikhil S. Joshi and Susan M. Kaech

CELLULAR IMMUNOLOGY AND IMMUNE REGULATION

1317 Implication of Matrix Metalloproteinase 7 and the Noncanonical Wingless-Type Signaling Pathway in a Model of Kidney Allograft Tolerance Induced by the Administration of Anti-Donor Class II Antibodies
Vojislav Jovanovic, Anne-Sophie Dugast, Jean-Marie Helan, Joanna Ashorn-Clais, Magali Giraud, Nicolas Deguillez, Anne Moreau, Annaick Pallier, Elise Chiffoleau, David Lair, Claire Usal, Helga Smit, Bernard Vanhove, Jean-Paul Soutiflou, and Sophie Brouard

1326 Fast Progression of Recombinant Human Myelin/Oligodendrocyte Glycoprotein (MOG)-Induced Experimental Autoimmune Encephalomyelitis in Marmosets Is Associated with the Activation of MOG34–56-Specific Cytotoxic T Cells
Yolanda S. Kap, Paul Smith, S. Anwar Jagesar, Ed Remarque, Erwin Blezer, Gustav J. Strijkers, Jon D. Laman, Rogier Q. Hintjen, Jan Bauer, Herbert P. M. Brok, and Bert A. ’t Hart

1338 Expression of Aire and the Early Wave of Apoptosis in Spermatogenesis
Claudia E. Schaller, Clifford L. Wang, Gabriele Beck-Engeser, Lindie Goss, Hamish S. Scott, Mark S. Anderson, and Matthias Wabl

On the cover: Still frame from Supplementary Movie 1 of a three-dimensional reconstruction of a Kupfer-type immunological synapse between a lymphocyte expressing LFA-1 (red) and a virally infected astrocyte expressing HSV1-TK (white). Notice that IFN-γ (green) is polarized to the immunological interface between both cells. This suggests that IFN-γ may be selectively released at the immunological synaptic interface in vivo. Barcia, C., K. Wawrowsky, R. J. Barrett, C. Liu, M. G. Castro, and P. R. Lowenstein. 2008. In vivo polarization of IFN-γ at Kupfer and non-Kupfer immunological synapses during the clearance of virally infected brain cells. J. Immunol. 180: 1344–1352.
1344 In Vivo Polarization of IFN-γ at Kupfer and Non-Kupfer Immunological Synapses during the Clearance of Virally Infected Brain Cells
Carlos Barcia, Kolja Wawrowsky, Robert J. Barrett, Chunyan Liu, Maria G. Castro, and Pedro R. Lowenstein

1353 Cross Presentation of Antigen on MHC Class II via the Draining Lymph Node after Corneal Transplantation in Mice
Lucia Kuffová, Magdaléna Netuková, Linda Duncan, Andrew Porter, Brigitta Stockinger, and John V. Forrester

1362 Helper B Cells Promote Cytotoxic T Cell Survival and Proliferation Independently of Antigen Presentation through CD27/CD70 Interactions
Sara Deola, Monica C. Panelli, Dragan Maric, Silvia Selleri, Natalia I. Dmitrieva, Ching Y. Voss, Harvey Klein, David Stroncek, Eva Wang, and Francesco M. Marincola

1373 Autoantigen-Specific IL-10-Transduced T Cells Suppress Chronic Arthritis by Promoting the Endogenous Regulatory IL-10 Response
Teun Guichelaar, Carolinda B. ten Brink, Peter J. van Koosten, Suzanne E. Berlo, Chris P. Broeren, Willem van Eden, and Femke Broere

1382 Stimulation by TLR5 Modulates Osteoclast Differentiation through STAT1/IFN-γ
Hyunil Ha, Jong-Ho Lee, Ha-Nesi Kim, Han Bok Kwak, Hyun-Man Kim, Shee Eun Lee, Joon Haeng Rhee, Hong-Hee Kim, and Zang Hee Lee

1390 Human Follicular Dendritic Cells Interact with T Cells via Expression and Regulation of Cyclooxygenases and Prostaglandin E and I Synthases
In Yong Lee, Whajung Cho, Jini Kim, Chan-Sik Park, and Jongeon Choe

1398 Route of Uptake of Palmitoylated Encephalitogenic Peptides of Myelin Proteolipid Protein by Antigen-Presenting Cells: Importance of the Type of Bond between Lipid Chain and Peptide and Relevance to Autoimmunity
Nadège A. Pfender, Sylvie Groich, Guy Rousel, Marc Koch, Elisabeth Trifilieff, and Judith M. Greer

1405 Suppression of Mature Dendritic Cell Function by Regulatory T Cells In Vivo Is Abrogated by CD40 Licensing
Jens Hänig and Manfred B. Lutz

1414 Mathematical Modeling Reveals the Biological Program Regulating Lymphopenia-Induced Proliferation
Andrew Yates, Manoj Saini, Anne Mathiot, and Benedict Seddon

1423 17β-Estradiol Alters the Activity of Conventional and IFN-Producing Killer Dendritic Cells
Mark C. Siracusa, Michael G. Overstreet, Franck Housseau, Alan L. Scott, and Sabra L. Klein

1432 The Ontogeny and Fate of NK Cells Marked by Permanent DNA Rearrangements
Kristy Pillebeam, Per Basse, Laurent Brosay, Nikola Vujanovic, Rachel Gerstein, Abbe N. Vallejo, and Lisa Borghesi

1442 Th17 Cells Exhibit a Distinct Calcium Profile from Th1 and Th2 Cells and Have Th1-Like Motility and NF-AT Nuclear Localization
K. Scott Weber, Mark J. Miller, and Paul M. Allen

1451 Ex Vivo Cytokine and Memory T Cell Responses to the 42-kDa Fragment of Plasmodium falciparum Merozoite Surface Protein-1 in Vaccinated Volunteers
Maria Cecilia Huaman, Laura B. Martin, Elissa Malkin, David L. Narum, Louis H. Miller, Siddhartha Mahanty, and Carole A. Long

1462 IFN-α Skews Monocytes into CD56+ Expressing Dendritic Cells with Potent Functional Activities In Vitro and In Vivo
Claudia Papewalis, Benedikt Jacobs, Margret Wuttke, Evelyn Ullrich, Thomas Baehringer, Roland Fenk, Holger S. Willenberg, Sven Schinner, Mathias Cohnen, Jochen Seissler, Kai Zacharowski, Werner A. Scherbaum, and Matthias Schott

1471 IFN-γ Arms Human Dendritic Cells to Perform Multiple Effector Functions
Loredana Frasca, Maria Nasso, Fabiana Spensieri, Giorgio Fedele, Raffaella Palazzo, Fabio Malavasi, and Clara Maria Ausiello
Transcutaneous Anti-Influenza Vaccination Promotes Both CD4 and CD8 T Cell Immune Responses in Humans
Annika Vogt, Brice Mahé, Dominique Costagliola, Olivia Bonduelle, Sabrina Hadam, Gregor Schaefer, Hans Schaefer, Christine Katlama, Wolfram Sterry, Brigitte Autran, Ulrike Blume-Peytavi, and Béhazine Combadiere

TGF-β Inhibits IL-2 Production and Promotes Cell Cycle Arrest in TCR-Activated Effector/Memory T Cells in the Presence of Sustained TCR Signal Transduction
Lopamudra Das and Alan D. Levine

Homeostasis of the Naive CD4+ T Cell Compartment during Aging
Ryan D. Kilpatrick, Tammy Rickabaugh, Lance E. Hultin, Patricia Hultin, Mary Ann Hauser, Roger Detels, John Phair, and Beth D. Jamieson

In Tram T Cell Tolerance Diminishes Autoantibody Responses and Exacerbates Experimental Allergic Encephalomyelitis
J. Jeremiah Bell, Rohit D. Divekar, Jason S. Ellis, Jason A. Caccio, Cara L. Haymaker, Renu Jain, Danielle M. Tartar, Christine M. Hoeman, John C. Hardaway, and Habib Zaghouani

Kinetic and Mechanistic Requirements for Helping CD8 T Cells
Paola Agnellini, Melanie Wiesel, Katrin Schwarz, Petra Wolint, Martin F. Bachmann, and Annette Oxenius

Distinct CD8+ T Cell Repertoires Primed with Agonist and Native Peptides Derived from a Tumor-Associated Antigen
Yafei Hou, Brian Kavanagh, and Lawrence Fong

Targeting the Effector Site with IFN-αβ-Inducing TLR Ligands Reactivates Tumor-Resident CD8 T Cell Responses to Eradicate Established Solid Tumors
Andrew J. Currie, Robert G. van der Most, Steve A. Broomfield, Amy C. Prosser, Michael G. Tovey, and Bruce W. S. Robinson

Bone Marrow Stroma Confers Resistance to Apo2 Ligand/TRAiL in Multiple Myeloma in Part by Regulating c-FLIP
Lia Elena Perez, Nancy Parquet, Kenneth Shain, Ramadevi Nimmanapalli, Melissa Alser, Claudio Anasetti, and William Dalton

T Regulatory Cells Contribute to the Attenuated Primary CD8+ and CD4+ T Cell Responses to Herpes Simplex Virus Type 2 in Neonatal Mice

Th2 Lymphoproliferative Disorder of Lat136F Mutant Mice Unfolds Independently of TCR-MHC Engagement and Is Insensitive to the Action of Foxp3+ Regulatory T Cells
Ying Wang, Adrien Kissenpfennig, Michael Mingeneau, Sylvie Richez, Pierre Perrin, Stéphane Chevrier, Céline Génot, Bruno Lucas, James P. DiSanto, Hans Acha-Orbea, Bernard Malissen, and Marie Malissen

Antigen Release Kinetics in the Phagosome Are Critical to Cross-Presentation Efficiency
Shanshan W. Howland and K. Dane Wittrup

A Peptide That Ameliorates Lupus Up-Regulates the Diminished Expression of Early Growth Response Factors 2 and 3
Uri Sela, Molly Dayan, Rami Herschkoviz, Ofer Lider, and Edna Mozes

Direct Action of Type I IFN on NK Cells Is Required for Their Activation in Response to Vaccinia Viral Infection In Vivo
Jennifer Martinez, Xiaopei Huang, and Yiping Yang

Human Mesenchymal Stem Cells License Adult CD34+ Hemopoietic Progenitor Cells to Differentiate into Regulatory Dendritic Cells through Activation of the Notch Pathway
Yin-Ping Li, Sophie Paucevoy, Evelyne Lauret, Sonia Poirault, Pierre Bordigoni, Fatima Mekhlof, Olivier Hequet, Yves Bertrand, Jing-Ping Ou-Yang, Jean-François Stoltz, Pierre Miossec, and Asia Eljaafari

Colonic Patches Direct the Cross-Talk Between Systemic Compartments and Large Intestine Independently of Innate Immunity
Sun-Young Chang, Hye-Ran Cha, Satoishi Uematsu, Shizuo Akira, Osamu Igarashi, Hiroshi Kiyono, and Mi-Na Kweon
An MHC Class II Restriction Bias in CD4 T Cell Responses toward I-A Is Altered to I-E in DM-Deficient Mice
Paula R. Menges, Scott A. Jenks, Elizabeth K. Bikoff, David R. Friedmann, Zachery A. G. Knowelden, and Andrea J. Sant

Regulation of T Cell Homeostasis by the Transmembrane Adaptor Protein SIT
Vilmos Posevitz, Boerge Arndt, Tina Krieger, Nicole Warnecke, Burkhart Schraven, and Luca Simeoni

EBV Latent Membrane Proteins (LMPs) 1 and 2 as Immunotherapeutic Targets: LMP-Specific CD4+ Cytotoxic T Cell Recognition of EBV-Transformed B Cell Lines

Suppression of Th2 Cell Development by Notch Ligands Delta1 and Delta4
Jie Sun, Connie J. Krawczyk, and Edward J. Pearce

The Soluble Leukocyte-Associated Ig-Like Receptor (LAIR)-2 Antagonizes the Collagen/LAIR-1 Inhibitory Immune Interaction
Robert Jan Lebbink, Maaike C. W. van den Berg, Talisha de Ruiter, Nicolas Raynal, Joel A. G. van Roon, Peter J. Lenting, Boquan Jin, and Linde Meyenaar

**MOLECULAR AND STRUCTURAL IMMUNOLOGY**

The Receptor Tyrosine Kinase RON Represses HIV-1 Transcription by Targeting RNA Polymerase II Processivity
Alicia Klatt, Zhiqiang Zhang, Parisa Kalantari, Pamela A. Hankey, David S. Gilmour, and Andrew J. Henderson

Two Novel NKG2D Ligands of the Mouse H60 Family with Differential Expression Patterns and Binding Affinities to NKG2D
Akihiko Takada, Shigeru Yoshida, Mizuo Kajikawa, Yuiko Miyatake, Utano Tomaru, Masaharu Sakai, Hitoshi Chiba, Kazumi Maenaka, Daijke Kohda, Kazunori Fugo, and Masanori Kasuhara

An Essential Role of Sialylated O-Linked Sugar Chains in the Recognition of Mouse CD99 by Paired Ig-Like Type 2 Receptor (PILR)
Jing Wang, Ikuo Shiratori, Takeshi Satoh, Lewis L. Lanier, and Hisashi Arase

Differential Roles for the E2A Activation Domains in B Lymphocytes and Macrophages
Savita Bhalla, Christina Spaulding, Rachel L. Brumbaugh, Derek E. Zagott, Mark E. Masari, Cornelis Murre, and Barbara L. Kee

Puromycin-Sensitive Aminopeptidase Limits MHC Class I Presentation in Dendritic Cells but Does Not Affect CD8 T Cell Responses during Viral Infections

Role of the β-Subunit Arginine/Lysine Finger in Integrin Heterodimer Formation and Function
Vineet Gupta, Jose Luis Alonso, Takashi Sugimori, Makram Issafi, Jiang-Ping Xiong, and M. Amin Arnaout

Identification of Pax5 Target Genes in Early B Cell Differentiation

**HOST DEFENSE**

NK Cells Lyse T Regulatory Cells That Expand in Response to an Intracellular Pathogen
Sugata Roy, Peter F. Barnes, Ankita Garg, Shiping Wu, David Cosman, and Ramakrishna Vankayalapati

Infection with Trypanosoma cruzi Restricts the Repertoire of Parasite-Specific CD8+ T Cells Leading to Immunodominance
Fanny Tzelepis, Bruna C. G. de Alencar, Marcus L. O. Penido, Carla Claser, Alexandre V. Machado, Oscar Bruna-Romero, Ricardo T. Gazzinelli, and Mauricio M. Rodrigues

Cytosolic Antiviral RNA Recognition Pathway Activates Caspases 1 and 3
Johanna Rintahaka, Daniel Wiik, Panu E. Kovanen, Harri Ailenius, and Sampa Matikainen
Healthy Human Subjects Have CD4+ T Cells Directed against H5N1 Influenza Virus
Michelle Roti, Junbao Yang, DeAnna Berger, Laurie Huston, Eddie A. James, and William W. Kwok

Inhibition of HIV-1 Infectivity through an Innate Mechanism Involving Naturally Occurring IgM Anti-Leukocyte Autoantibodies
Peter I. Lobo, Kailo H. Schlegel, Wen Yuan, Gregory C. Townsend, and Jennifer A. White

INFLAMMATION

Naturally Occurring IgM Anti-Leukocyte Autoantibodies (IgM-ALA) Inhibit T Cell Activation and Chemotaxis
Peter I. Lobo, Kailo H. Schlegel, Clinton E. Spencer, Mark D. Okusa, Christopher Chisholm, Nino Mchedlishvili, Andrew Park, Constance Christ, and Christopher Burtner

Helminth Infection with Litomosoides sigmodontis Induces Regulatory T Cells and Inhibits Allergic Sensitization, Airway Inflammation, and Hyperreactivity in a Murine Asthma Model
Anna M. Dittrich, Annika Erbacher, Sabine Specht, Felix Dieser, Martin Krokowski, Angela Awagyan, Philippe Stock, Birgit Abrens, Wolfgang H. Hoffmann, Achim Hoerauf, and Eckard Hamelmann

Autocrine Regulation of IL-21 Production in Human T Lymphocytes
Flavio Caprioli, Massimiliano Sarra, Roberta Caruso, Carmine Stolfi, Daniele Fina, Giuseppe Sica, Thomas T. MacDonald, Francesco Pallone, and Giovanni Montelione

Cyclin-Dependent Kinase Inhibitors Block Leukocyte Adhesion and Migration
Li Liu, Barbara Schwartz, Yoshiaki Tsibota, Elaine Raines, Hiroaki Kiyokawa, Karyn Yonekawa, John M. Harlan, and Lynn M. Schnapp

Sphingosine 1-Phosphate 1 and TLR4 Mediate IFN-β Expression in Human Gingival Epithelial Cells
Mehmet A. Eskan, Beate G. Ruse, Manjunatha R. Benakanakere, Meng-Jer Lee, and Denis F. Kinane

Down-Regulation of MHC II in Mesenchymal Stem Cells at High IFN-γ Can Be Partly Explained by Cytoplasmic Retention of CIITA
Katherine C. Tang, Katarzyna A. Trzaska, Sergey V. Smirnov, Sergei V. Kotenko, Stephan K. Schwander, Jerrold J. Ellner, and Pranela Rameshwar

Vitamin A Deficiency Decreases and High Dietary Vitamin A Increases Disease Severity in the Mouse Model of Asthma
Gertrud U. Schuster, Nicholas J. Kenyon, and Charles B. Stephensen

Cyclooxygenase-2 Deficiency Enhances Th2 Immune Responses and Impairs Neutrophil Recruitment in Hepatic Ischemia/Reperfusion Injury
Takashi Hamada, Seiichiro Tsuchihashi, Armine A. Avyanez, Sergio Duarte, Carolina Moore, Ronald W. Busuttil, and Ana J. Coito

Activation of Peroxisome Proliferator-Activated Receptor γ (PPARγ) Suppresses Rho GTases in Human Brain Microvascular Endothelial Cells and Inhibits Adhesion and Transendothelial Migration of HIV-1 Infected Monocytes
Servio H. Ramirez, David Heilman, Brenda Morsey, Raghaba Potula, James Haorah, and Yuri Persidsky

Polarized Localization of Epithelial CXCL11 in Chronic Obstructive Pulmonary Disease and Mechanisms of T Cell Egression
Joanna C. Porter, Mary Falzon, and Alan Hall

TNF Receptor-Associated Factor 1 Expressed in Resident Lung Cells Is Required for the Development of Allergic Lung Inflammation
Michiko K. Oyoshi, Paul Bryce, Shou Goya, Muriel Pichavant, Dale T. Umetzu, Hans C. Oettgen, and Erdyni N. Tsitsikov

The Myeloid Differentiation Factor 88 (MyD88) Is Required for CD4+ T Cell Effector Function in a Murine Model of Inflammatory Bowel Disease
Masayuki Fukata, Keith Breglio, Anli Chen, Arunan S. Vanadevan, Tyralee Goo, David Hsu, Daisy Conduah, Rauliang Xu, and Maria T. Abreu

Histone Deimination As a Response to Inflammatory Stimuli in Neutrophils
Indira Neeli, Salar N. Khan, and Marko Radic
1903 Dual Roles of Immunoregulatory Cytokine TGF-β in the Pathogenesis of Autoimmunity-Mediated Organ Damage
Vijay Saxena, Douglas W. Lienesch, Min Zhou, Ramireddy Bommireddy, Mohamad Azhar, Thomas Doetschman, and Ram Raj Singh

1913 Identification of Cellular Pathways of “Type 1,” Th17 T Cells, and TNF- and Inducible Nitric Oxide Synthase-Producing Dendritic Cells in Autoimmune Inflammation through Pharmacogenomic Study of Cyclosporine A in Psoriasis
Asifa S. Haider, Michelle A. Lowes, Mayte Suárez-Fariñas, Lisa C. Zaba, Irma Cardinale, Artemis Khatcherian, Inna Novitskaya, Knut M. Wittkowski, and James G. Krueger

1921 Role of Sphingosine 1-Phosphate in the Pathogenesis of Sjögren’s Syndrome
Masahiro Sekiguchi, Tsuyoshi Iwasaki, Masayasu Kitano, Hideki Kuno, Naoaki Hashimoto, Yutaka Kawahito, Masayuki Azuma, Timothy Hla, and Hajime Sano

1929 Identification of a Molecular Signature in Human Type 1 Diabetes Mellitus Using Serum and Functional Genomics
Xujing Wang, Shuang Jia, Rhonda Geoffrey, Ramin Alemzadeh, Soumitra Ghosh, and Martin J. Hessner

1938 Activated Renal Macrophages Are Markers of Disease Onset and Disease Remission in Lupus Nephritis
Lena Schiffer, Ramalingam Bethnaicken, Meera Ramamurthy, Weiqing Huang, Mario Schiffer, Haiou Tao, Michael M. Madaio, Erwin P. Bottinger, and Anne Davidson

1948 Differential Contribution of Three Activating IgG Fc Receptors (FcγRI, FcγRIII, and FcγRIV) to IgG2a- and IgG2b-Induced Autoimmune Hemolytic Anemia in Mice
Lucie Baudino, Falk Nimmerjahn, Samareh Azeredo da Silva, Eduardo Martinez-Soria, Takahiro Saito, Michael Carroll, Jeffrey V. Ravetch, J. Sjef Verbeek, and Shozo Izui

1954 Successful Treatment of Animal Models of Rheumatoid Arthritis with Small-Molecule Cyclin-Dependent Kinase Inhibitors
Chiyoko Sekine, Takahiko Sugihara, Sachiko Miyake, Hiroshi Hirai, Mitsuki Yoshida, Nobuyuki Miyasaka, and Hitoshi Kobayashi

1962 Distinct, Specific IL-17- and IL-22-Producing CD4+ T Cell Subsets Contribute to the Human Anti-Mycobacterial Immune Response
Thomas J. Scriba, Barbara Kaldorf, Deborah-Ann Abrahams, Fatima Isaacs, Jessica Hofmeister, Gillian Black, Hisham J. Hassan, Robert J. Wilkinson, Gerhard Walzl, Sebastian J. Gelderbloem, Hassan Mahomed, Gregory D. Hussey, and Willem A. Hanekom

1971 Synoviocyte Stimulation by the LFA-1–Intercellular Adhesion Molecule-2–Ezrin–Akt Pathway in Rheumatoid Arthritis
Karnail Singh, Inés Colmegna, Xiaowen He, Cornelia M. Weyand, and Jörg J. Goronzy

1979 Induction of CD56 and TCR-Independent Activation of T Cells with Aging
Bonnie H. Lemster, Joshua J. Michel, David T. Montag, John F. Paat, Stephanie A. Studenski, Anne B. Newman, and Abbe N. Vallejo

1991 Tumor Immunotherapy by Epicutaneous Immunization Requires Langerhans Cells
Patrizia Stutzenz, Laura K. Green, Jae Y. Jung, Kylie M. Price, Christoph H. Tripp, Bernard Malissen, Adrien Kislenpfennig, Ian F. Hermans, and Franca Ronchese

1999 Author Index

2003 AAI Membership Application

2004 AAI Trainee Membership Application