IN THIS ISSUE

PILLARS OF IMMUNOLOGY

6369 The Divergence of Lymphocyte Development Pathways
Carol F. Webb and Paul W. Kincade

Max D. Cooper, Raymond D. A. Peterson, Mary Ann South, and Robert A. Good

BRIEF REVIEWS

6405 Space, Selection, and Surveillance: Setting Boundaries with BLyS
Juli P. Miller, Jason E. Stadanlick, and Michael P. Cancro

CUTTING EDGE

6411 Cutting Edge: T Cell Ig Mucin-3 Reduces Inflammatory Heart Disease by Increasing CTLA-4 during Innate Immunity
Sylvia Friisach-Kiss, Jennifer F. Nyland, Sarah E. Davis, Masheka A. Barrett, Shannon J. L. Gatewood, Dolores B. Njoku, Daniela Cibakova, Ellen K. Silbergeld, Noel R. Rose, and DeLisa Fairweather

CELLULAR IMMUNOLOGY AND IMMUNE REGULATION

6417 Translocation of Active Heparanase to Cell Surface Regulates Degradation of Extracellular Matrix Heparan Sulfate upon Transmigration of Mature Monocyte-Derived Dendritic Cells
Sandrine Benhamron, Hovat Nechushtan, Inna Verbovetski, Alan Krispin, Ghada Abboud-Jarrous, Eyal Zcharia, Evgeny Edovitsky, Efrat Nahari, Tamar Peretz, Israel Vladovskiy, and Dror Mevorach

6425 Monocyte/Macrophage Dysfunctions Do Not Impair the Promotion of Myelofibrosis by High Levels of Thrombopoietin
Orianne Wagner-Ballon, Hidia Chagaouni, Eric Prina, Micheline Tulliez, Geneviève Milon, Hana Raslova, Jean-Luc Villeval, William Vainchenker, and Stéphane Giraudier

6434 Glucocorticoid-Induced TNF Receptor Family Related Gene Activation Overcomes Tolerance/Ignorance to Melanoma Differentiation Antigens and Enhances Antitumor Immunity
Teresa Ramirez-Montagut, Andrew Chow, Daniel Hirschhorn-Cymerman, Thei H. Terwey, Adam A. Kochman, Sydney Lu, Randy C. Miles, Shimon Sakaguchi, Alan N. Houghton, and Marcel R. M. van den Brink

On the cover: Frozen section of jejunum from a 6-wk-old female NOD mouse that had undergone thymectomy 3 days after birth. CD4+ T cells (stained brown) in the lamina propria are normal in number, but CD8+ cells in the epithelial layer (intraepithelial lymphocytes) are markedly depleted after neonatal thymectomy. Locke, N. R., S. Stankovic, D. P. Funda, and L. C. Harrison. 2006. TCRγδ intraepithelial lymphocytes are required for self-tolerance. J. Immunol. 176: 6553–6559.
6443 Suppression of Alveolar Macrophage Apoptosis Prolongs Survival of Rats and Mice with Pneumocystis Pneumonia
Mark E. Lasbury, Pamela J. Durant, Chad A. Ray, Dennis Tschang, Reto Schwendener, and Chao-Hung Lee

6454 NK Lytic-Associated Molecule, Involved in NK Cytotoxic Function, Is an E3 Ligase
Julie M. Fortier and Jacki Kornbluth

6464 Selective Export of HLA-F by Its Cytoplasmic Tail
Louise H. Boyle, Alison K. Gillingham, Sean Munro, and John Trowsdale

6473 Functional and Molecular Comparison of Anergic and Regulatory T Lymphocytes
Birgit Knoechel, Jens Lohr, Shirley Zhu, Lisa Wong, Donglei Hu, Lara Ausubel, and Abul K. Abbas

6484 Cervical Thymus in the Mouse
James Dooley, Matthew Erickson, Geoffrey O. Gillard, and Andrew G. Farr

6491 Exogenous and Endogenous TLR Ligands Activate Anti-Chromatin and Polyreactive B Cells
Michele L. Fields, Michele H. Metzgar, Brian D. Hondowicz, Sun-Ah Kang, Shawn T. Alexander, Kristin D. Hazard, Alice C. Hsu, Yang-Zhu Du, Eline Luning Prak, Marc Monestier, and Jan Erikson

6503 Conditional Ablation of MHC-II Suggests an Indirect Role for MHC-II in Regulatory CD4 T Cell Maintenance
Michiko Shinoda, Faith Mmannywa, Sunil K. Joshi, Tao Li, Katsuya Miyake, Jeanne Pibkala, Jonathan A. Abbas, and Pandelakis A. Koni

6512 Function of Liver Activation-Regulated Chemokine/CC Chemokine Ligand 20 Is Differently Affected by Cathepsin B and Cathepsin D Processing
Lara Hasan, Luca Mazzucchelli, Mark Liebi, Maddalena Lis, Robert E. Hunger, Angus Tester, Christopher M. Overall, and Marlene Wolf

6523 Splenic Atrophy in Experimental Stroke Is Accompanied by Increased Regulatory T Cells and Circulating Macrophages
Halina Offner, Sandhya Subramanian, Susan M. Parker, Chunhe Wang, Michael E. Afentoulis, Anne Lewis, Arthur A. Vandenbark, and Patricia D. Hurn

6532 T Cells in Cryptopatch Aggregates Share TCR γ Variable Region Junctional Sequences with γδ T Cells in the Small Intestinal Epithelium of Mice
Bradley S. Podd, Joseph Theis, Nicholas Whitley, Hao-Yuan Cheng, Kimberly L. Kadla, Hiroko Taniguchi, Joanna Halkias, Kerstin Goth, and Victoria Camerini

6543 Stimulation through CD40 on Mouse and Human Renal Cell Carcinomas Triggers Cytokine Production, Leukocyte Recruitment, and Antitumor Responses that Can Be Independent of Host CD40 Expression
Lynnette Shorts, Jonathan M. Weiss, Jong-Keuk Lee, Lisbeth A. Welniak, Jeffrey Subleski, Timothy Back, William J. Murphy, and Robert H. Wiltrout

6553 TCRγδ Intraepithelial Lymphocytes Are Required for Self-Tolerance
Natasha R. Locke, Sandra Stankovic, David P. Funda, and Leonard C. Harrison

6560 Impact of Orthologous Melan-A Peptide Immunizations on the Anti-Self Melan-A/HLA-A2 T Cell Cross-Reactivity
Sara Colombetti, Theres Fagerberg, Petra Baumgärtner, Laurence Chapatte, Daniel E. Speiser, Nathalie Rufer, Olivier Michielin, and Frédéric Lévy

6568 Abrogation of Functional Selectin-Ligand Expression Reduces Migration of Pathogenic CD8+ T Cells into Heart
Yi Hong Cai, Angeles Alvarez, Pilar Alcaide, Paurene Duramad, Yau-Chin Lim, Petr Jarolim, John B. Lowe, Francis W. Luscinskas, and Andrew H. Lichtman

6576 A Complex of Wiskott-Aldrich Syndrome Protein with Mammalian Verprolins Plays an Important Role in Monocyte Chemotaxis
Shigeru Tsuoi

6586 CD4+CD25+Foxp3+ T Cells and CD4+CD25−Foxp3+ T Cells in Aged Mice
Tomohisa Nishioka, Jun Shimizu, Ryuji Iida, Sayuri Yamazaki, and Shimon Sakaguchi
Macrophage-Colony-Stimulating Factor-Induced Proliferation and Lipopolysaccharide-Dependent Activation of Macrophages Requires Raf-1 Phosphorylation to Induce Mitogen Kinase Phosphatase-1 Expression
Ester Sánchez-Tiló, Mónica Comalada, Consol Farrera, Annabel F. Valledor, Jorge Lloberas, and Antonio Celada

B and T Lymphocyte Attenuator-Mediated Signal Transduction Provides a Potent Inhibitory Signal to Primary Human CD4 T Cells That Can Be Initiated by Multiple Phosphotyrosine Motifs
Jens M. Chemnitz, Anthony R. Lanfranco, Inbal Braunstein, and James L. Riley

Regulation of Ly49D/DAP12 Signal Transduction by Src-Family Kinases and CD45
Llewellyn H. Mason, Jami Willette-Brown, Lynn S. Taylor, and Daniel W. McVicar

Antitumor Activity of the TLR-5 Ligand Flagellin in Mouse Models of Cancer
Lucia Sfondrini, Anna Rossini, Dario Besuso, Andrea Merlo, Elda Tagliabue, Sylvie Menard, and Andrea Balsari

Functional Regulatory T Cells Are Collected in Stem Cell Autografts by Mobilization with High-Dose Cyclophosphamide and Granulocyte Colony-Stimulating Factor
Maud Condomines, Philippe Quittet, Zhao-Yang Lu, Laure Nadal, Pascal Latry, Ernesto Lopez, Marion Baudard, Guillaume Requirand, Christophe Duperray, Jean-François Schved, Jean-François Rossi, Karin Tarte, and Bernard Klein

Differential Signaling of T Cell Generation of IL-4 by Wild-Type and Short-Deletion Variant of Type 2 G Protein-Coupled Receptor for Vasoactive Intestinal Peptide (VPAC2)
Mei-Chuan Huang, Allison L. Miller, Wengang Wang, Yvonne Kong, Sudhir Paul, and Edward J. Goetzl

Lipopolysaccharide-Induced IL-1\beta Production by Human Uterine Macrophages Up-Regulates Uterine Epithelial Cell Expression of Human \beta-Defensin 2
Patricia A. Pioli, Lehn K. Weaver, Todd M. Schafer, Jacqueline A. Wright, Charles R. Wira, and Paul M. Guyre

Macrophages Induce Neutrophil Apoptosis through Membrane TNF, a Process Amplified by Leishmania majort
Cindy Allenbach, Christel Zafferey, Cynthia Perez, Pascal Lauinois, Christoph Mueller, and Fabienne Tacchini-Cottier

An Altered T Cell Repertoire in MECL-1-Deficient Mice
Michael Basler, Jacqueline Moebius, Laura Elenich, Marcus Groettrup, and John J. Monaco

Clustering Class I MHC Modulates Sensitivity of T Cell Recognition
David R. Fooksman, Gigi Kwok Grönvall, Qing Tang, and Michael Edidin

Adhesion- and Degranulation-Promoting Adapter Protein Is Required for Efficient Thymocyte Development and Selection
Jennifer N. Wu, Shereen Gheith, Natalie A. Bezman, Qing-Hua Liu, Lindsey V. Fostel, Andrew M. Swanson, Bruce D. Freedman, Gary A. Koretzky, and Erik J. Peterson

Degeneracy and Repertoire of the Human HIV-1 Gag p17\_\_77–85 CTL Response

IL-7Rα Gene Expression Is Inversely Correlated with Cell Cycle Progression in IL-7-Stimulated T Lymphocytes
Louise Swainson, Eli Verhoeyen, François-Loïc Cossé, and Naomi Taylor

Protein Kinase C-θ-Mediated Signals Enhance CD4^+ T Cell Survival by Up-Regulating Bcl-xL
Santhakumar Manicasamy, Sonal Gupta, Zhaofeng Huang, and Zuoming Sun

Lymphopenia-Induced Homeostatic Proliferation of CD8^+ T Cells Is a Mechanism for Effective Allogeneic Skin Graft Rejection following Burn Injury
Robert Maile, Carrie M. Barnes, Alma I. Nielsen, Anthony A. Meyer, Jeffrey A. Frelinger, and Bruce A. Cairns

CD86 Stimulation on a B Cell Activates the Phosphatidylinositol 3-Kinase/Akt and Phospholipase Cγ2/Protein Kinase Cαβ Signaling Pathways
Nicholas W. Kin and Virginia M. Sanders
6736 APRIL and BAFF Promote Increased Viability of Replicating Human B2 Cells via Mechanism Involving Cyclooxygenase 2
Patricia K. A. Mongini, John K. Inman, Hanna Han, Rasem J. Fattah, Steven B. Abramson, and Mukundan Attur

6752 The Combined Effects of Tryptophan Starvation and Tryptophan Catabolites Down-Regulate T Cell Receptor Fragment C and Induce a Regulatory Phenotype in Naïve T Cells
Francesca Fallarino, Ursula Grohmann, Sylvaine You, Barbara C. McGrath, Douglas R. Cavener, Carmine Vacca, Cirrana Orabona, Roberta Bianchi, Maria L. Belladonna, Claudia Volpi, Pere Santamaria, Maria C. Fioretti, and Paolo Puccetti

6762 Reduced KIR2DL1 Recognition of MHC Class I Molecules Presenting Phosphorylated Peptides

6770 The Mannose Receptor Mediates Uptake of Soluble but Not of Cell-Associated Antigen for Cross-Presentation
Seun Burgdorf, Veronika Lukass-Kornek, and Christian Kurts

6777 Deletion of Exon I of SMAD7 in Mice Results in Altered B Cell Responses
Ronggui Li, Alexander Rosenblad, Greger Brodin, Alex M. Cheng, Aive Aghren, Christina Sundquist, Sarang Kulkarni, Tony Pawson, Carl-Henrik Heldin, and Rainer L. Heuchel

6785 Phosphatidylinositol 3-Kinase/Akt Positively Regulates Fas (CD95)-Mediated Apoptosis in Epidermal Cl41 Cells
Bin Lu, Liying Wang, Christian Sehlik, Djordje Medan, Chuanshu Huang, Shuiying Hu, Fei Chen, Xianglin Shi, and Yun Rojanasakul

6794 Helicobacter pylori CagA-Dependent Macrophage Migration Inhibitory Factor Produced by Gastric Epithelial Cells Binds to CD74 and Stimulates Procarcinogenic Events
Ellen J. Beswick, Irina V. Pinchuk, Giovanni Suarez, Johanna C. Sierra, and Victor E. Reyes

6802 Central Role for MyD88 in the Responses of Microglia to Pathogen-Associated Molecular Patterns
Nilufer Esen and Tammy Kielen

Molecular and Structural Immunology

6812 The TCR Cβ FG Loop Regulates αβ T Cell Development
Maki Touma, Hsiu-Ching Chang, Tetsuro Saada, Mari Handley, Linda K. Clayton, and Ellis L. Reinherz

6824 A Role for MAPK in Feedback Inhibition of Tcrb Recombination
Annette M. Jackson and Michael S. Krangel

6831 Growth, Differentiation, and Malignant Transformation of Pre-B Cells Mediated by Inducible Activation of v-Abl Oncogene
Elizabeth A. Jacobsen, Olga Ananieva, Matthew L. Brown, and Yung Chang

6839 Identification of a Candidate Regulatory Element within the 5′ Flanking Region of the Mouse Igh Locus Defined by Pro-B Cell-Specific Hypersensitivity Associated with Binding of PU.1, Pax5, and E2A
Inka Pawlitzky, Christina V. Angeles, Andrea M. Siegel, Michelle L. Stanton, Roy Riblet, and Peter H. Brodeur

6852 The Fas-Associated Death Domain Protein Is Required in Apoptosis and TLR-Induced Proliferative Responses in B Cells
Hongxia Z. Imtiyaz, Stephen Rosenberg, Yuhang Zhang, Ziaur S. M. Rahman, Ying-Ju Hou, Tim Manser, and Jianke Zhang

6862 Precursor B Cell Receptor Signaling Activity Can Be Uncoupled from Surface Expression
F. Betul Guloglu and Christopher A. J. Roman

6873 Evidence for a Domain-Swapped CD4 Dimer as the Coreceptor for Binding to Class II MHC
Akiko Maekawa, Bryan Schmidt, Barbara Fazekas de St. Groth, Yves-Henri Sanejouand, and Philip J. Hogg

Immunogenetics

6879 Development and Selection of Edited B Cells in B6.56R Mice
Debora R. Sekiguchi, Lenka Yunk, David Gary, Deepshikha Charan, Bhaskar Srivastava, David Allman, Martin G. Weigert, and Eline T. Luning Prak
HOST DEFENSE

6888 Immunologic Consequences of Francisella tularensis Live Vaccine Strain Infection: Role of the Innate Immune Response in Infection and Immunity

6900 HIV-1 Adapts to a Retrocyclin with Cationic Amino Acid Substitutions That Reduce Fusion Efficiency of gp41

6906 PU.1 and a TTTAAA Element in the Myeloid Defensin-1 Promoter Create an Operational TATA Box That Can Impose Cell Specificity onto TFID Function
Mariana Yaneva, Serena Kippenberger, Nan Wang, Qin Su, Margaret McGarvey, Arpi Nazarian, Lynne Lacomis, Heddy Erdjument-Bromage, and Paul Temps

6918 F4/80+ Alternatively Activated Macrophages Control CD4+ T Cell Hyporesponsiveness at Sites Peripheral to Filarial Infection
Matthew D. Taylor, Anjanette Harris, Meera G. Nair, Rick M. Maizels, and Judith E. Allen

6928 Epitopes Derived by Incidental Translational Frameshifting Give Rise to a Protective CTL Response
Matthew B. Zook, Michael T. Howard, Gomathinayagam Sinnathamby, John F. Atkins, and Laurence C. Eisenlohr

6935 Identification of HLA-A*0201-Presented T Cell Epitopes Derived from the Oncofetal Antigen-Immature Laminin Receptor Protein in Patients with Hematological Malignancies
Sandra Siegel, Andreas Wagner, Birte Friedrichs, Anneke Wendeler, Lena Wendel, Dieter Kabelitz, Jörg Steinmann, Adel Baroum, Joseph Coggin, James Dregel, Norbert Schmitz, and Matthias Zeis

6945 Mature Hepatocyte Growth Factor/Scatter Factor on the Surface of Human Granulocytes Is Released by a Mechanism Involving Activated Factor Xa
Tomokazu Ohnishi, Kyoko Kakimoto, Kenjiro Bandow, Charles J. Lowenstein, Yasushi Daikubara, and Tetsuya Matsugushi

6954 Sequencing, Expression, and Functional Analyses Support the Candidacy of Ncf2 in Susceptibility to Salmonella Typhimurium Infection in Wild-Derived Mice
Vanessa Sancho Shimizu and Danielle Malo

6962 Innate Defense against Influenza A Virus: Activity of Human Neutrophil Defensins and Interactions of Defensins with Surfactant Protein D
Kevin L. Hartshorn, Mitchell R. White, Tesfaldet Tette, Uffe Holmskov, and Erika C. Crouch

6973 Maintenance of HIV-Specific CD4+ T Cell Help Distinguishes HIV-2 from HIV-1 Infection

6982 STAT1 Regulates IFN-α/β- and IFN-γ-Dependent Control of Infection with Chlamydia pneumoniae by Nonhemopoietic Cells
Antonio Gigliotti Rothfuchs, Christian Trumstedt, Fabrizio Mattei, Giovanna Schiavoni, Åsa Hidmark, Hans Wigzell, and Martín E. Rottenberg

INFLAMMATION

6991 Leukocyte Recruitment to the Inflamed Glomerulus: A Critical Role for Platelet-Derived P-Selectin in the Absence of Rolling
Michael P. Kilgowski, A. Richard Kitching, and Michael J. Hickey

7000 Antifibrotic Activity of an Inhibitor of Group IIA Secretory Phospholipase A2 in Young Spontaneously Hypertensive Rats
Scott Levick, David Loch, Barbara Rolfe, Robert C. Reid, David P. Fairlie, Stephen M. Taylor, and Lindsay Brown

7008 Different Stabilities of the Structurally Related Receptors for IgE and IgG on the Cell Surface Are Determined by Length of the Stalk Region in Their α-Chains
Toshiyuki Kubota, Kaori Mukai, Yoshiyuki Minegishi, and Hajime Karasuyama
7015 Decreased Capacity of Immune Cells to Cause Tissue Injury Mediates Kidney Ischemic Preconditioning
Melissa J. Burne-Taney, Manchang Liu, William M. Baldwin, Lorraine Racusen, and Hamid Rabb

7021 Identification of Small Heat Shock Protein B8 (HSP22) as a Novel TLR4 Ligand and Potential
Involvement in the Pathogenesis of Rheumatoid Arthritis
Mieke E. Roelof, Wilbert C. Boelens, Leo A. B. Joosten, Shaiba Abdollahi-Roodiaz, Jeroen Geurts, Liza U. Wunderink,
B. Willem Schreurs, Wim B. van den Berg, and Timothy R. D. J. Radstake

7028 Cytokine-Induced Hepatic Apoptosis Is Dependent on FGL2/Fibroleukin: The Role of Sp1/Sp3 and
STAT1/PU.1 Composite cis Elements
Mingfeng Liu, Michael Mendicino, Qin Ning, Anand Ghanekar, Wei He, Ian McGilvery, Itay Shalev, David Pivato,
David A. Clark, M. James Phillips, and Gary A. Levy

7039 Platelet-Activating Factor-Induced Clathrin-Mediated Endocytosis Requires β-Arrestin-1 Recruitment
and Activation of the p38 MAPK Signalosome at the Plasma Membrane for Actin Bundle Formation
Nathan J. D. McLaughlin, Anirban Banerjee, Marguerite R. Kelher, Fabia Gamboni-Robertson, Christine Hamiel,
Forest R. Sheppard, Ernest E. Moore, and Christopher C. Silliman

7051 Leukotriene A 4 Hydrolase Expression in PEL Cells Is Regulated at the Transcriptional Level and Leads to
Increased Leukotriene B 4 Production
Meztli Arguello, Suzanne Paz, Eduardo Hernandez, Catherine Corriveau-Bourque, Lama M. Fawaz, John Hiscotti,
and Rongtuan Lin

7062 The Histamine H 4 Receptor Mediates Allergic Airway Inflammation by Regulating the Activation of
CD4 + T Cells
Paul J. Dunford, Niall O’Donnell, Jason P. Riley, Kacy N. Williams, Lars Karlsson, and Robin L. Thurmond

CLINICAL IMMUNOLOGY

7071 Diagnostic and Therapeutic Potential of Amyloid-Reactive IgG Antibodies Contained in Human Sera
Brian O’Nuallain, Rudi Hrncic, Jonathan S. Wall, Deborah T. Weiss, and Alan Solomon

7079 The Role of Noradrenergic Nerves in the Development of the Lymphoproliferative Disease in
Fas-Deficient, lpr/lpr Mice
Adriana del Rey, Eduardo Roggero, Alexa Kabiersch, Martin Schäfer, and Hugo O. Besedovsky

7087 CXCR3 and Its Ligands in a Murine Model of Obliterative Bronchiolitis: Regulation and Function
Benjamin D. Medoff, John C. Wain, Edward Seung, Ryan Jackobek, Terry K. Means, Leo C. Ginns, Joshua M. Farber,
and Andrew D. Luster

7096 Patients with Chronic Granulomatous Disease Have a Reduced Peripheral Blood Memory B Cell
Compartment
Jack J. Blessing, Margarida M. Souto-Carneiro, William J. Savage, Margaret R. Brown, Cynthia Martinez, Sule Yavuz,
Sebastian Brenner, Richard M. Siegel, Mitchell E. Horwitz, Peter E. Lipicky, Harry L. Malech, and Thomas A. Fleisher

7104 Identical TCR β-Chain Rearrangements in Streptococcal Angina and Skin Lesions of Patients with
Psoriasis Vulgaris
Laura Diluvio, Sigrid Vollmer, Petra Besgen, Joachim W. Ellwart, Sergio Chimienti, and Joerg C. Prinz

7112 Carriage of DRB1*13 Is Associated with Increased Posttreatment IgE Levels against Schistosoma mansoni
Antigens and Lower Long-Term Reinfection Levels
Mark Booth, Marie A. Shaw, Danielle Carpenter, Sarah Joseph, Narcis B. Kabatereine, Henry C. Kariuki,
Joseph K. Mwatha, Frances M. Jones, Brigitte J. Vennervald, John H. Ouma, and David W. Dunne

7119 Therapeutic Induction of Regulatory, Cytotoxic CD8 + T Cells in Multiple Sclerosis
Deepani K. Tennakoon, Riyaz S. Mehta, Sterling B. Ortega, Vijay Bhoj, Michael K. Racke, and Nitin J. Karandikar

7130 Corrections

7133 Author Index

7136 AAI Membership Application

7137 AAI Trainee Membership Application