IN THIS ISSUE

PILLARS OF IMMUNOLOGY

6391 The First Structures of T Cell Receptors Bound to Peptide–MHC
Kai W. Wucherpfennig

6394 Pillars Article: Structure of the Complex Between Human T-Cell Receptor, Viral Peptide and HLA-A2.
David N. Garboczi, Partho Ghosh, Ursula Utz, Qing R. Fan, William E. Biddison, and Don C. Wiley

6402 Pillars Article: An αβ T Cell Receptor Structure at 2.5 Å and Its Orientation in the TCR-MHC Complex.
K. Christopher Garcia, Massimo Degano, Robyn L. Stanfield, Anders Brunmark, Michael R. Jackson, Per A. Peterson, Luc Teyton, and Ian A. Wilson

BRIEF REVIEWS

6413 The Role of the Transcription Factor CREB in Immune Function
Andy Y. Wen, Kathleen M. Sakamoto, and Lloyd S. Miller

CUTTING EDGE

6421 Cutting Edge: Adaptive Versus Innate Receptor Signals Selectively Control the Pool Sizes of Murine IFN-γ– or IL-17–Producing γδ T Cells upon Infection
Julie C. Ribot, Miguel Chaves-Ferreira, Francisco d'Orey, Mélanie Wenker, Natacha Gonçalves-Sousa, Jérémie Decalf, João P. Simas, Adrian C. Hayday, and Bruno Silva-Santos

6426 Cutting Edge: Mechanisms of IL-2–Dependent Maintenance of Functional Regulatory T Cells

Characterization of Lymphocyte Subsets in Patients with Common Variable Immunodeficiency Reveals Subsets of Naive Human B Cells Marked by CD24 Expression
Marcela Vlková, Eva Froňková, Veronika Kanderová, Aleš Janda, Sárka Růžičková, Jiří Litzman, Anna Šedivá, and Tomáš Kalina

EBV Latent Membrane Protein 1 Is a Negative Regulator of TLR9
Ikbal Fathallah, Peggy Parroche, Henri Graffat, Claudia Zannetti, Hanna Johansson, Jiping Yue, Evelyn Manet, Massimo Tommasino, Bakary S. Sylla, and Uzma A. Hasan

Drug Antigenicity, Immunogenicity, and Costimulatory Signaling: Evidence for Formation of a Functional Antigen through Immune Cell Metabolism
Ayman Elsheikh, Sidonie N. Laverge, J. Luis Castrejon, John Farrell, Haiyi Wang, Jean Satibish, Werner J. Pickler, B. Kevin Park, and Dean J. Naisbit

STAT1-Activating Cytokines Limit Th17 Responses through Both T-bet–Dependent and –Independent Mechanisms
Alejandro V. Villarino, Eugenio Gallo, and Abul K. Abbas

Eotaxin-3/CC Chemokine Ligand 26 Is a Functional Ligand for CX3CR1
Takaishi Nakayama, Yoshiko Watanabe, Naoki Oiso, Tomonori Higuchi, Akiko Shigeta, Nobuyuki Mizuguchi, Fuminori Katou, Kenji Hashimoto, Akira Kawada, and Osamu Yoshiie

CIITA Enhances HIV-1 Attachment to CD4⁺ T Cells Leading to Enhanced Infection and Cell Depletion

Serum Antibodies Critically Affect Virus-Specific CD4⁺/CD8⁺ T Cell Balance during Respiratory Syncytial Virus Infections
Debby Kruisjen, Mark J. Bakkers, Nathalie O. van Uden, Marco C. Viveen, Tjeje C. van der Sluis, Jan L. Kimpen, Jeanette H. Leusen, Frank E. Coenjaerts, and Grada M. van Bleek

Inhibition of Terminal Differentiation of B Cells Mediated by CD27 and CD40 Involves Signaling through JNK
Shuchismita Satpathy, Gautam N. Shenoy, Sheetal Kau, Tushar Vaidya, Vinceta Bal, Satyajit Rath, and Anna George

CD8⁺ T Cell Responses against TAP-Inhibited Cells Are Readily Detected in the Human Population
Margit H. Lampen, Mariët C. Verweij, Bianca Querido, Sjoerd H. van der Burg, Emmanuel J. H. J. Wiertz, and Thorbald van Hall

Unexpected Role for the B Cell-Specific Src Family Kinase B Lymphoid Kinase in the Development of IL-17–Producing γδ T Cells
Renee M. Laird, Karen Laky, and Sandra M. Hayes

TCR Revision Generates Functional CD4⁺ T Cells
J. Scott Hale, Maramawit Wubeshet, and Pamela J. Fink

Cyclooxygenase-2 Enhances Antimicrobial Peptide Expression and Killing of Staphylococcus aureus
Jamie J. Bernard and Richard L. Gallo

Reduced Functional Avidity Promotes Central and Effector Memory CD4 T Cell Responses to Tumor-Associated Antigens
Stefano Caserta, Joanna Kłeczkowska, Anna Mondino, and Rose Zamoyska

Differential TRAF3 Utilization by a Variant Human CD40 Receptor with Enhanced Signaling
Anna L. Peters and Gail A. Bishop

Blockade of Programmed Death-1 in Young (New Zealand Black × New Zealand White)F₁ Mice Promotes the Activity of Suppressive CD8⁺ T Cells That Protect from Lupus-Like Disease
Maida Wong, Antonio La Cava, Ram P. Singh, and Bevra H. Hahn
6572 Hoxa9 Regulates Flt3 in Lymphohematopoietic Progenitors
   Kimberly Gwin, Elena Frank, Ayoko Bossou, and Kay L. Medina

6584 IL-2 Complex Treatment Can Protect Naive Mice from Bacterial and Viral Infection
   Sara E. Hamilton, Jason M. Schenkel, Adovi D. Akue, and Stephen C. Jameson

6591 Superantigen-Induced Proliferation of Human CD4+CD25− T Cells Is Followed by a Switch to a
   Functional Regulatory Phenotype
   Amanda L. Taylor and Martin J. Llewelyn

6599 Lipopolysaccharide-Mediated IL-10 Transcriptional Regulation Requires Sequential Induction of Type I
   IFNs and IL-27 in Macrophages
   Shankar Subramanian Iyer, Amir Ali Ghaffari, and Genhong Cheng

6608 Exosome-Driven Antigen Transfer for MHC Class II Presentation Facilitated by the Receptor Binding
   Activity of Influenza Hemagglutinin
   James S. Testa, Geraud S. Apcber, Joseph D. Comber, and Laurence C. Eisenlohr

6617 Umbilical Cord-Derived Mesenchymal Stromal Cells Modulate Monocyte Function to Suppress T Cell
   Proliferation
   Antony J. Cutler, Vasanti Limbani, John Girdlestone, and Cristina V. Navarrete

6624 NFAT5 Regulates T Lymphocyte Homeostasis and CD24-Dependent T Cell Expansion under Pathologic
   Hypernatremia
   Rosa Berga-Bolaños, Katherine Dreus-Elger, Jose Aramburu, and Cristina López-Rodríguez

6636 Diesel Exhaust Particle-Treated Human Bronchial Epithelial Cells Upregulate Jagged-1 and OX40 Ligand in
   Myeloid Dendritic Cells via Thymic Stromal Lymphopoietin
   Bertram Bleck, Doris B. Tie, Terry Gordon, Mohammad R. Ahsan, and Joan Reisman

6646 CCR2 Identifies a Stable Population of Human Effector Memory CD4+ T Cells Equipped for Rapid Recall
   Response
   Hongwei H. Zhang, Kaimei Song, Ronald L. Rabin, Brenna J. Hill, Stephen P. Perfetto, Mario Roederer, Daniel C. Douek,
   Richard M. Siegel, and Joshua M. Farber

6644 Lymphocyte Development Requires S-nitrosoglutathione Reductase
   Zhiyong Yang, Zhi-En Wang, Paschalis-Thomas Doulias, Wei Wei, Harry Ischiropoulos, Richard M. Locksley,
   and Limin Liu

6670 The Pim Kinase Pathway Contributes to Survival Signaling in Primed CD8+ T Cells upon CD27
   Costimulation
   Victor Peperzak, Elie A. M. Veraar, Anna M. Keller, Yanling Xiao, and Jannie Borst

6679 The Interactions of Multiple Cytokines Control NK Cell Maturation
   Jason Brady, Sebastian Carotta, Rebecca P. L. Thong, Christopher J. Chan, Yoshihiro Hayakawa, Mark J. Smyth,
   and Stephen L. Nutt

6689 The Chlamydia muridarum-Induced IFN-β Response Is TLR3-Dependent in Murine Oviduct Epithelial
   Cells
   Wilbert A. Derbiguy, Raymond M. Johnson, Katherine S. Toomey, Susan Ofner, and Krupakar Jayaraju

6698 Methyl Gallate Exhibits Potent Antitumor Activities by Inhibiting Tumor Infiltration of CD4+CD25+
   Regulatory T Cells
   Heekyung Lee, Hyojung Lee, Youngjoo Kwon, Jun-Ho Lee, Jinju Kim, Min-Kyu Shin, Sung-Hoon Kim, and Hyunsu Bae

6706 CTL Induction of Tumoricidal Nitric Oxide Production by Intratumoral Macrophages Is Critical for Tumor
   Elimination
   Rodolfo D. Vicetti Miguel, Thomas L. Cherpes, Leah J. Watson, and Kyle C. McKenna
6719 Chromosome 1 Open Reading Frame 190 Promotes Activation of NF-κB Canonical Pathway and Resistance of Dendritic Cells to Tumor-Associated Inhibition In Vitro
Zhizhi Jing, Xin Yuan, Jing Zhang, Xin Huang, Zhiquan Zhang, Jingyi Liu, Maomiao Zhang, Jiangbo Oyang, Yuan Zhang, Zhujun Zhang, and Rongcun Yang

6728 RNA Polymerase II Inhibitors Dissociate Antigenic Peptide Generation from Normal Viral Protein Synthesis: A Role for Nuclear Translation in Defective Ribosomal Product Synthesis?
Brian P. Dolan, Jonathan J. Knowlton, Alexandre David, Jack R. Bennink, and Jonathan W. Yewdell

6734 Enrichment of Foxp3+ CD4 Regulatory T Cells in Migrated T Cells to IL-6– and IL-8–Expressing Tumors through Predominant Induction of CXCR1 by IL-6
Shingo Eikawa, Yoshihiro Ohue, Kenta Kitaoka, Toshiki Aji, Akiko Uenaka, Mikio Oka, and Eiichi Nakayama

6741 A Critical Role for C5L2 in the Pathogenesis of Experimental Allergic Asthma
Xun Zhang, Inken Schmude, Yves Laumonnier, Manoj. K. Pandey, Jennifer R. Clark, Peter König, Norma P. Gerard, Craig Gerard, Marsha Willi-Karp, and Jörg Köhl

6753 Broad Cross- Reactive TCR Repertoires Recognizing Dissimilar Epstein-Barr and Influenza A Virus Epitopes

6765 The Tailless Complex Polypeptide-1 Ring Complex of the Heat Shock Protein 60 Family Facilitates Cross-Priming of CD8 Responses Specific for Chaperoned Peptides
Ralph E. Vatner and Pramod K. Srivastava

6774 In Vivo Analysis of Ifn-γ1 and Ifn-γ2 Signaling in Zebrafish
Dina Aggad, Corinella Stein, Dirk Sieger, Martine Mazel, Philippe Herbelin, Jean-Pierre Levaud, Georges Lutfalla, and Maria Leptin

6783 TLR-Activated Dendritic Cells Enhance the Response of Aged Naive CD4 T Cells via an IL-6–Dependent Mechanism
Stephen C. Jones, Vinayak Brahmkshatriya, Gail Huston, John Dibble, and Susan L. Swain

6795 Antigen-Specific Th9 Cells Exhibit Uniqueness in Their Kinetics of Cytokine Production and Short Retention at the Inflammatory Site
Cuiyan Tan, Mehak K. Aziz, Jenna D. Lovass, Barbara P. Vistica, Guangpu Shi, Eric F. Wawrosek, and Igal Gery

6802 IL-13RA2 Has a Protective Role in a Mouse Model of Cutaneous Inflammation
Umaasudari Swaprabad, Manoj R. Warrier, Aaron M. Gibson, Weiguo Chen, Yasushiro Tabata, Stacey A. Bass, Marc E. Rothenberg, and Gurjit K. Khurana Hershey

6809 T Cell Polarity at the Immunological Synapse Is Required for CD154-Dependent IL-12 Secretion by Dendritic Cells
Marie Touret, Sarah Guérin, Karine Chemin, Stéphanie Dogniaux, Francesc Miro, Armelle Bohineust, and Claire Hivroz

6819 Re-Examination of CD91 Function in GRP94 (Glycoprotein 96) Surface Binding, Uptake, and Peptide Cross-Presentation
Angela R. Jockheck-Clark, Edith V. Bowers, Mariam B. Totonchy, Julie Neubauer, Salvatore V. Pizzo, and Christopher V. Nicchitta

6831 Protective Endogenous Cyclic Adenosine 5’-Monophosphate Signaling Triggered by Pemphigus Autoantibodies
Volker Spindler, Franziska Vielmuth, Enno Schmidt, David S. Rubenstein, and Jens Waschke

6839 TIM-4, a Receptor for Phosphatidyserine, Controls Adaptive Immunity by Regulating the Removal of Antigen-Specific T Cells
Influenza Epitope-Specific CD8+ T Cell Avidity, but Not Cytokine Polyfunctionality, Can Be Determined by TCRβ Clonotype
Jessica M. Moffat, Andreas Handel, Peter C. Doherty, Stephen J. Turner, Paul G. Thomas, and Nicole L. La Gruta

MHC Class I and TCR Avidity Control the CD8 T Cell Response to IL-15/IL-15Rα Complex
Thomas A. Sokolovek, Sara L. Colpitts, Henry M. Smilowitz, and Leo Lefrançois

MOLECULAR AND STRUCTURAL IMMUNOLOGY

The Crucial Role of GATA-1 in CCR3 Gene Transcription: Modulated Balance by Multiple GATA Elements in the CCR3 Regulatory Region
Byung Soo Kim, Tae Gi Uhlm, Seol Kyoung Lee, Sin-Hwa Lee, Jin Hyun Kang, Choon-Sik Park, and Il Yup Chung

Fc-Glycosylation Influences Fcγ Receptor Binding and Cell-Mediated Anti-HIV Activity of Monoclonal Antibody 2G12
Donald N. Forthal, Johannes S. Gach, Gary Landucci, Jakub Jez, Richard Strasser, Renate Kunert, and Herta Steinkellner

IMMUNOGENETICS

IL-22RA2 Associates with Multiple Sclerosis and Macrophage Effector Mechanisms in Experimental Neuroinflammation
Amennai D. Beyeen, Milena Z. Adzemovic, Johan Öckinger, Pernilla Stridh, Kristina Becanovic, Hannes Laaksonen, Hans Lassmann, Robert A. Harris, Jan Hillert, Lars Alfredson, Elisabeth G. Célès, Hanne F. Harbo, Ingrid Kockum, Maja Jagodic, and Tomas Olson

HOST DEFENSE

Hyaluronan Fragments Contribute to the Ozone-Primed Immune Response to Lipopolysaccharide
Zhuowei Li, Erin N. Potts, Claude A. Piantadosi, W. Michael Foster, and John W. Hollingsworth

Secreted M-Ficolin Anchors onto Monocyte Transmembrane G Protein-Coupled Receptor 43 and Cross Talks with Plasma C-Reactive Protein to Mediate Immune Signaling and Regulate Host Defense
Jing Zhang, Lifa Yang, Zhiwei Ang, Sia Lee Yoong, Thi Thu Thuy Tran, Ganesh Srinivasan Anand, Nguan Soon Tan, Bao Ho, and Jeak Ling Ding

Chlamydia-Specific CD4 T Cell Clones Control Chlamydia muridarum Replication in Epithelial Cells by Nitric Oxide-Dependent and -Independent Mechanisms
Krupakar Jayaratana, Micah Kerr, Susan Ofler, and Raymond M. Johnson

Critical Role of IL-25 in Nematode Infection-Induced Alterations in Intestinal Function
Aiping Zhao, Joseph F. Urban, Jr., Rex Sun, Jennifer Stiltz, Motoko Morimoto, Luigi Notari, Kathleen B. Madden, Zhonghan Yang, Viktoria Grinchuk, Thirumalai R. Ramalingam, Thomas A. Wynn, and Terez Shea-Donohue

Early Enhanced Local Neutrophil Recruitment in Peritonitis-Induced Sepsis Improves Bacterial Clearance and Survival
Florin L. Craciun, Elizabeth R. Schuller, and Daniel G. Remick

IgG1 Is Pathogenic in Leishmania mexicana Infection
Niansheng Chu, Bolaji N. Thomas, Supriya R. Patel, and Laurence U. Buxbaum

INFLAMMATION

IL-17 Regulates Adipogenesis, Glucose Homeostasis, and Obesity

Ceramide and Ceramide 1-Phosphate Are Negative Regulators of TNF-α Production Induced by Lipopolysaccharide
Szczepan Józefiowski, Maciej Czerkies, Anna Łukasik, Alicja Bielawska, Jacek Bielawski, Katarzyna Kwiatkowska, and Andrzej Sobota
Phosphoryl Moieties of Lipid A from *Neisseria meningitidis* and *N. gonorrhoeae* Lipooligosaccharides Play an Important Role in Activation of Both MyD88- and TRIF-Dependent TLR4–MD-2 Signaling Pathways
Mingfeng Liu, Constance M. John, and Gary A. Jarvis

Hepatitis C Virus Inhibits DNA Damage Repair through Reactive Oxygen and Nitrogen Species and by Interfering with the ATM-NBS1/Mre11/Rad50 DNA Repair Pathway in Monocytes and Hepatocytes
Keigo Machida, George McNamara, Kevin T.-H. Cheng, Jeffrey Huang, Chun-Hsiang Wang, Lucio Comai, Jing-Hsiung James Ou, and Michael M. C. Lai

Platelets Contribute to Allograft Rejection through Glutamate Receptor Signaling
AnneMarie F. Swaim, David J. Field, Karen Fox-Talbot, William M. Baldwin, III, and Craig N. Morrell

Targeted Complement Inhibitors Protect against Posttransplant Cardiac Ischemia and Reperfusion Injury and Reveal an Important Role for the Alternative Pathway of Complement Activation
Carl Atkinson, Songqing He, Keely Morris, Fei Qiao, Sarah Casey, Martin Goddard, and Stephen Tomlinson

Induction of Cardiac Angiogenesis Requires Killer Cell Lectin-Like Receptor 1 and α4β7 Integrin Expression by NK Cells
Manaf Bouchentouf, Kathy-Ann Forner, Jessica Cuerquis, Véronique Michaud, Jiamin Zheng, Pierre Paradis, Ernesto L. Schiffrin, and Jacques Galipeau

Neutrophil Migration across Intestinal Epithelium: Evidence for a Role of CD44 in Regulating Detachment of Migrating Cells from the Luminal Surface
Jennifer C. Brazil, Winston Y. Lee, Keli N. Kolegraff, Asma Nusrat, Charles A. Parkos, and Nancy A. Louis

Galectin-3 Exerts Cytokine-Like Regulatory Actions through the JAK–STAT Pathway
Sae-Bom Jeon, Hee Jung Yoon, Chi Young Chang, Han Seok Koh, Seong-Ho Jeon, and Eun Jung Park

Suppression of TNF-α and IL-1 Signaling Identifies a Mechanism of Homeostatic Regulation of Macrophages by IL-27
George D. Kalliolias, Rachael A. Gordon, and Lionel B. Ivashkiv

LFA-1 and Mac-1 Define Characteristically Different Intraluminal Crawling and Emigration Patterns for Monocytes and Neutrophils In Situ
Ronen Sumagin, Hen Prizant, Elena Lomakina, Richard E. Waugh, and Ingrid H. Sarelius

A Critical Role for Mast Cells and Mast Cell-Derived IL-6 in TLR2-Mediated Inhibition of Tumor Growth
Sharon A. Oldford, Ian D. Haidl, Mackenzie A. Howatt, Carlos A. Leiva, Brent Johnston, and Jean S. Marshall

Differential Regulation of Caspase-1 Activation via NLRP3/NLRC4 Inflammasomes Mediated by Aerolysin and Type III Secretion System during *Aeromonas veronii* Infection
Andrea J. McCoy, Yukiko Koizumi, Naomi Higa, and Toshihiko Suzuki

GM-CSF Is an Essential Regulator of T Cell Activation Competence in Uterine Dendritic Cells during Early Pregnancy in Mice
Lachlan M. Moldenhauer, Sarah N. Keenihan, John D. Hayball, and Sarah A. Robertson

Robust Vaccine-Elicited Cellular Immune Responses in Breast Milk following Systemic Simian Immunodeficiency Virus DNA Prime and Live Virus Vector Boost Vaccination of Lactating Rhesus Monkeys
Human Papillomavirus 16-Associated Cervical Intraepithelial Neoplasia in Humans Excludes CD8 T Cells from Dysplastic Epithelium
Cornelia L. Trimble, Rachael A. Clark, Christopher Thoburn, Nicole C. Hanson, Jodie Tassello, Denise Frosina, Ferdynand Kos, Jessica Teague, Ying Jiang, Nicole C. Barat, and Achim A. Jungbluth

Elevated Levels of Soluble TNF Receptors 1 and 2 Correlate with *Plasmodium falciparum* Parasitemia in Pregnant Women: Potential Markers for Malaria-Associated Inflammation
Audrey Davidson Thévenon, James A. Zhou, Rosette Megnekou, Simon Ako, Rose G. F. Leke, and Diane Wallace Taylor

AUTHOR INDEX