IN THIS ISSUE

PILLARS OF IMMUNOLOGY

5933 CD4 on the Road to Coreceptor Status
Dario A. A. Vignali

Carolyn Doyle and Jack L. Strominger

BRIEF REVIEWS

5939 Small RNAs Guide Hematopoietic Cell Differentiation and Function
Francisco Navarro and Judy Lieberman

CUTTING EDGE

5949 Cutting Edge: A Thymocyte-Thymic Epithelial Cell Cross-Talk Dynamically Regulates Intrathymic IL-7 Expression In Vivo
Nuno L. Alves, Nicholas D. Huntington, Jean-Jacques Mention, Odile Richard-Le Goff, and James P. Di Santo

5954 Cutting Edge: Delay and Reversal of T Cell Tolerance by Intratumoral Injection of Antigen-Loaded Dendritic Cells in an Autochthonous Tumor Model
Eileen M. Higham, Ching-Hung Shen, K. Dane Wittrup, and Jianzhu Chen

5959 Cutting Edge: Mechanical Forces Acting on T Cells Immobilized via the TCR Complex Can Trigger TCR Signaling
Ya-Chen Li, Bing-Mae Chen, Pei-Chun Wu, Tuan-Lu Cheng, Lung-Sen Kao, Mi-Hua Tao, Andre Lieber, and Steve R. Roffler

5964 Cutting Edge: *Rag* Deletion in Peripheral T Cells Blocks TCR Revision
J. Scott Hale, Kristina T. Ames, Tamar E. Boursalian, and Pamela J. Fink

On the cover: The structure of the Vγ2Vδ2 T cell Ag receptor is shown with the CDRs colored. Alanine mutations in all CDR loops altered recognition of prenyl pyrophosphates with strong contributions from germline elements of CDR3δ (green residues) but minimal contributions from CDR3δ (yellow residues). These results show that prenyl pyrophosphate recognition primarily involves germline-encoded regions of the γδ TCR, allowing a high proportion of Vγ2Vδ2 TCRs to respond. The large footprint strongly supports the existence of a presenting molecule for these Ags. Wang, H., Z. Fang, and C. T. Morita. 2010. Vγ2Vδ2 T cell receptor recognition of prenyl pyrophosphates is dependent on all CDRs. *J. Immunol.* 181: 6209–6222.
CELLULAR IMMUNOLOGY AND IMMUNE REGULATION

5969 APC Activation by IFN-α Decreases Regulatory T Cell and Enhances Th Cell Functions
Luigia Pace, Sara Vitale, Beatrice Dettori, Cecilia Palombi, Valentina La Sorsa, Filippo Belardelli, Enrico Proietti, and Gino Doria

5980 Hemoglobin Transforms Anti-Inflammatory Salmonella typhi Virulence Polysaccharide into a TLR-2 Agonist
Rohini Garg and Ayub Qadri

5988 Both CD4 and CD8 T Cells Mediate Equally Effective In Vivo Tumor Treatment When Engineered with a Highly Avid TCR Targeting Tyrosinase

5999 Counterregulation between the FcεRI Pathway and Antiviral Responses in Human Plasmacytoid Dendritic Cells
Michelle A. Gill, Gagan Baijua, Tiffany A. George, Caroline C. Dong, Irene I. Dougherty, Nan Jiang, Vanthaya N. Gan, and Rebecca S. Gruchalla

6007 CD28 Facilitates the Generation of Foxp3− Cytokine Responsive Regulatory T Cell Precursors
Chan-Wang J. Lio, Lindzy F. Dodson, Christine M. Deppong, Chyi-Song Hsieh, and Jonathan M. Green

6014 Sex Steroid Ablation Enhances Immune Reconstitution Following Cytotoxic Antineoplastic Therapy in Young Mice
Gabrielle L. Goldberg, Jarrod A. Dudakov, Jessica J. Reiseger, Natalie Seach, Tomoo Ueno, Katerina Vlahos, Maree V. Hamnett, Lauren F. Young, Tracy S. P. Heng, Richard L. Boyd, and Ann P. Chidgey

6025 Neuronal Nitric Oxide Synthase Modulates Maturation of Human Dendritic Cells
Henric S. Adler, Alexandra Simon, Edith Graulich, Alice Habermeier, Nicole Bacher, Andreas Friebe, Ellen I. Closs, and Kerstin Steinbrink

6035 Targeting Neural-Restrictive Silencer Factor Sensitizes Tumor Cells to Antibody-Based Cancer Immunotherapy In Vitro via Multiple Mechanisms
Martin V. Kolev, Mariceta M. Ruseva, B. Paul Morgan, and Rossen M. Donev

6043 Cross-Talk between T Cells and NK Cells Generates Rapid Effector Responses to Plasmodium falciparum-Infected Erythrocytes
Amir Horowitz, Kirsty C. Newman, J. Henry Evans, Daniel S. Korbel, Daniel M. Davis, and Eleanor M. Riley

6053 MicroRNA-466l Upregulates IL-10 Expression in TLR-Triggered Macrophages by Antagonizing RNA-Binding Protein Tristetraprolin-Mediated IL-10 mRNA Degradation
Feng Ma, Xingguang Liu, Dong Li, Pin Wang, Nan Li, Liwei Lu, and Xueqiao Cao

6060 Krüppel-Like Factor 2 Regulates Trafficking and Homeostasis of γδ T Cells
Oludare A. Odumade, Michael A. Weinreich, Stephen C. Jameson, and Kristin A. Hogquist

6067 Maintenance of Immune Tolerance to a Neo-Self Acetylcholine Receptor Antigen with Aging: Implications for Late-Onset Autoimmunity
Sue Stacy, Eslanda L. Williams, Nathan E. Standifer, Amanda Pasquali, Keith A. Krolick, Anthony J. Infante, and Ellen Kraig

6076 Allergic Conjunctivitis Exacerbates Corneal Allograft Rejection by Activating Th1 and Th2 Alloimmune Responses
Jerry Y. Niederkorn, Peter W. Chen, Jessamee Mellon, Christina Stevens, and Elizabeth Mayhew

6084 Transcription Factor E2F1 Suppresses Dendritic Cell Maturation
Fang Fang, Yan Wang, Rui Li, Ying Zhao, Yang Guo, Ming Jiang, Jie Sun, Yang Ma, Zijia Ren, Zhigang Tian, Feng Wei, De Yang, and Weihua Xiao
The Immunostimulatory Activity of Unmethylated and Methylated CpG Oligodeoxynucleotide Is Dependent on Their Ability To Colocalize with TLR9 in Late Endosomes
Susan D. de Jong, Genc Basha, Kaley D. Wilson, Mikameh Kazem, Pieter Cullis, Wilf Jefferies, and Ying Tam

Gender-Specific Expression of β1 Integrin of VLA-4 in Myelin Basic Protein-Primed T Cells: Implications for Gender Bias in Multiple Sclerosis
Saurav Brahmachari and Kalipada Pahan

The Role of the CCL2/CCR2 Axis in Mouse Mast Cell Migration In Vitro and In Vivo
Sarah J. Collington, Jenny Hallgren, James E. Peate, Tatiana G. Jones, Barrett J. Rollins, John Westwick, K. Frank Austen, Timothy J. Williams, Michael F. Gurni, and Charlotte L. Weller

Erbb2 DNA Vaccine Combined with Regulatory T Cell Deletion Enhances Antibody Response and Reveals Latent Low-Avidity T Cells: Potential and Limits of Its Therapeutic Efficacy
Simona Rolla, Francesco Ria, Sergio Occhipinti, Gabriele Di Sante, Manuela Iezzi, Michela Spadaro, Chiara Nicolò, Elena Ambrosino, Irene Fiore Merighi, Piero Musiani, Guido Forni, and Federica Cavallo

Foxa2 Programs Th2 Cell-Mediated Innate Immunity in the Developing Lung
Gang Chen, Huajing Wan, Fengming Luo, Lipian Zhang, Yan Xu, Ian Lewkowich, Marsha Wills-Karp, and Jeffrey A. Whitsett

Expanded CD23<sup>+</sup>/CD21<sup>hi</sup> B Cells in Inflamed Lymph Nodes Are Associated with the Onset of Inflammatory-Erosive Arthritis in TNF-Transgenic Mice and Are Targets of Anti-CD20 Therapy
Jie Li, Igor Kazin, Safiekhkhatoon Moskhan, Steven T. Proulx, Liangping Xing, Denise Skrombolas, Robert Dunn, Inaki Sanz, Edward M. Schwarz, and Andrea Bottaro

Antigen-Specific Immunity and Cross-Priming by Epithelial Ovarian Carcinoma-Induced CD11b<sup>+</sup>Gr-1<sup>+</sup> Cells
Kei Tomihara, Miao Guo, Takako Shin, Xiubua Sun, Sara M. Ludwig, Michael J. Brumlik, Bin Zhang, Tyler J. Curiel, and Tahirow Shin

RORC2 Is Involved in T Cell Polarization through Interaction with the FOXP3 Promoter
Simone Burgler, Pierre-Yves Mantel, Claudio Basuin, Nadia Ouaked, Cezmi A. Akdis, and Carsten B. Schmid-Weber

Reporter Alleles that Inform on Differences in Cre Recombinase Expression
Mark Klinger, Stephen A. Chmura, and Nigel Killeen

MOLECULAR AND STRUCTURAL IMMUNOLOGY

p53 Represses Class Switch Recombination to IgG2a through Its Antioxidant Function
Jeroen E. J. Guikema, Carol E. Schrader, Michael H. Brodsky, Erin K. Linehan, Adam Richards, Nahla El Falaky, Daniel H. Li, Hayla K. Sluss, Eva Szomolanyi-Tsuda, and Janet Stavnezer

Genome-Wide RNA Interference in <i>Drosophila</i> Cells Identifies G Protein-Coupled Receptor Kinase 2 as a Conserved Regulator of NF-κB Signaling
Susanna Valanne, Henna Myllymäki, Jenni Kallio, Martin Rudolf Schmid, Anni Klein, Astrid Murumäki, Laura Airaksinen, Tapio Kotipelto, Meri Kautoio, Johanna Ulevia, Shiva Seyedolezami Esfahani, Ylva Engström, Olli Silvennoinen, Dan Huismark, Mataleena Parikka, and Mika Rämet

HLA-F Complex without Peptide Binds to MHC Class I Protein in the Open Conformer Form
Jodie P. Goodridge, Aura Burian, Ni Lee, and Daniel E. Geraghty

Vγ<sub>2</sub>Vδ<sub>2</sub> T Cell Receptor Recognition of Prenyl Pyrophosphates Is Dependent on All CDRs
Hong Wang, Zhimei Fang, and Craig T. Morita

Minimal Amino Acid Exchange in Human TCR Constant Regions Fosters Improved Function of TCR Gene-Modified T Cells
Daniel Sommermeyer and Wolfgang Uckert

Selected Murine Residues Endow Human TCR with Enhanced Tumor Recognition
Gil Bialer, Miryam Horovitz-Fried, Shlomo Ya’acobi, Richard A. Morgan, and Cyrille J. Cohen
Switch Region Identity Plays an Important Role in Ig Class Switch Recombination
Palash Bhattacharya, Robert Wuerffel, and Amy L. Kenter

The E3 Ubiquitin Ligase RNF5 Targets Virus-Induced Signaling Adaptor for Ubiquitination and Degradation
Bo Zhong, Yu Zhang, Bo Tan, Tian-Tian Liu, Yan-Yi Wang, and Hong-Bing Shu

IMMUNOGENETICS

Identification and Characterization of a Lupus Suppressor 129 Locus on Chromosome 3
Francesco Carlucci, Liliane Fossati-Jimack, Ingrid E. Dumitriu, Yasin Heidari, Mark J. Walport, Marta Szafla, Paramita Bansah, Oliver A. Garden, H. Terence Cook, and Marina Botto

HOST DEFENSE

Monocyte Trafficking to Hepatic Sites of Bacterial Infection Is Chemokine Independent and Directed by Focal Intercellular Adhesion Molecule-1 Expression
Chao Shi, Peter Velázquez, Tobias M. Hobl, Ingrid Leiner, Michael L. Dustin, and Eric G. Pamer

Diabetic Mice Display a Delayed Adaptive Immune Response to Mycobacterium tuberculosis
Therese Vallsenskog, Gregory W. Martens, and Hardy Kornfeld

Specificity of Staphylococcal Superantigen-Like Protein 10 toward the Human IgG1 Fc Domain
Deepa Patel, Bruce D. Winus, Ries J. Langley, and John D. Fraser

Immune Complex-Mediated Enhancement of Secondary Antibody Responses
Chelsey L. Geis, Craig P. Chappell, Rangaiah Shashidharamurthy, Periasamy Selvaraj, and Joshy Jacob

A Role for IL-1 Receptor-Associated Kinase-M in Prostaglandin E2-Induced Immunosuppression Post-Bone Marrow Transplantation
Leah L. N. Hubbard, Megan N. Ballinger, Pradeep E. Thomas, Carol A. Wilke, Theodore J. Standiford, Koichi S. Kobayashi, Richard A. Flavell, and Bethany B. Moore

Superior Antitumor Response Induced by Large Stress Protein Chaperoned Protein Antigen Compared with Peptide Antigen
Xiang-Yang Wang, Xiaolei Sun, Xing Chen, John Facciponti, Elizabeth A. Repasky, John Kane, and John R. Subjeck

Lack of Original Antigenic Sin in Recall CD8+ T Cell Responses
Dietmar Zehn, Michael J. Turner, Leo Lefrançois, and Michael J. Bevan

INFLAMMATION

Mouse and Human Eosinophils Degranulate in Response to Platelet-Activating Factor (PAF) and LysoPAF via a PAF-Receptor–Independent Mechanism: Evidence for a Novel Receptor
Kimberly D. Dyer, Caroline M. Percopo, Zhihui Xie, Zhao Yang, John Dongil Kim, Francis Davoine, Paige Lacy, Kirk M. Druey, Redwan Moqbel, and Helene F. Rosenberg

(1,3)-β-Glucans Activate Both Dectin-1 and NLRP3 Inflammasome in Human Macrophages
Päivi Kankkunen, Laura Teirilä, Johanna Rintahaka, Harri Alenius, Henrik Wolff, and Samps Matikainen

Surfactant Protein D-Mediated Decrease of Allergen-Induced Inflammation Is Dependent upon CTLA4
Ko-Wei Lin, Kai Yu Jen, Carlos Jose Suarez, Erika C. Crouch, David L. Perkins, and Patricia W. Finn

Human Eosinophils Recognize Endogenous Danger Signal Crystalline Uric Acid and Produce Proinflammatory Cytokines Mediated by Autocrine ATP
Takehito Kobayashi, Hideoz Kozaki, and Hirohito Kita

Identification of a Novel Human MD-2 Splice Variant That Negatively Regulates Lipopolysaccharide-Induced TLR4 Signaling
Pearl Gray, Kathrin S. Michelsen, Cherlyn M. Sirois, Emily Lowe, Kenichi Shimada, Timothy R. Crother, Shuang Chen, Constantinos Brikos, Yonca Bulut, Eicke Latz, David Underhill, and Moha Arditi
6367 IL-17A–Producing γδ T and Th17 Lymphocytes Mediate Lung Inflammation but Not Fibrosis in Experimental Silicosis
Sandra Lo Re, Laure Dumoutier, Isabelle Couillin, Charlotte Van Vye, Yousof Yakoub, Francine Uwambayinema, Benoît Marien, Sylvie van den Brule, Jacques Van Snick, Catherine Uyttenbove, Bernard Ryffel, Jean-Christophe Renaud, Dominique Lison, and François Huaux

6378 Identifying the Cells Breaching Self-Tolerance in Autoimmunity
Robert A. Benson, Agapitos Patakas, Paola Conigliao, Catherine M. Rush, Paul Garside, Iain B. McInnes, and James M. Brewer

6386 Extracellular DNA: A Major Proinflammatory Component of Pseudomonas aeruginosa Biofilms
Juan I. Faizman, Daniela M. Rufo, Maria L. Gabelloni, Jorge R. Geffner, Mirta Giordano, Mariana Catalano, Ángeles Zorreguieta, and Analía S. Trevani

6396 Membrane-Type I Matrix Metalloproteinase-Dependent Regulation of Rheumatoid Arthritis Synoviocyte Function
Farideh Sabeh, David Fox, and Stephen J. Weiss

6407 CD93/AA4.1: A Novel Regulator of Inflammation in Murine Focal Cerebral Ischemia
Denise Harhausen, Vincent Prinz, Gina Ziegler, Karen Gertz, Matthias Endres, Hans Lehrach, Philippe Gasque, Marina Botto, Philip F. Stabel, Ulrich Dinslag, Wilfried Niewfled, and George Trendelenburg

6418 Resolution of Inflammation in Murine Autoimmune Arthritis Is Disrupted by Cyclooxygenase-2 Inhibition and Restored by Prostaglandin E2–Mediated Lipoxin A4 Production
Marion Man-Ying Chan and Andrea Ross Moore

6427 Acute Serum Amyloid A Induces Migration, Angiogenesis, and Inflammation in Synovial Cells In Vitro and in a Human Rheumatoid Arthritis/SCID Mouse Chimeric Model
Mary Connolly, Alessandra Marreli, Mark Blades, Jennifer McCormick, Paola Maderna, Catherine Godson, Ronan Mullan, Oliver FitzGerald, Barry Bresnihan, Costantino Pitzalis, Douglas J. Veale, and Ursula Fearon

6438 Arginase I Suppresses IL-12/IL-23p40–Driven Intestinal Inflammation during Acute Schistosomiasis
De'Broski R. Herbert, Tatjana Orevok, Amanda Rolon, Monica Ilies, Charles Perkins, William O'Brien, Stephen Cederbaum, David W. Christianon, Nives Zimmermann, Marc E. Rothenberg, and Fred D. Finkelstein

6447 Scaffolding Adaptor Protein Gab1 Is Required for TLR3/4- and RIG–I–Mediated Production of Proinflammatory Cytokines and Type I IFN in Macrophages
Yuejuan Zheng, Huazhang An, Ming Yao, Jin Hou, YiZhi Yu, Gensheng Feng, and Xuetao Cao

CLINICAL IMMUNOLOGY

6457 Treatment of Autoimmune Arthritis Using RNA Interference-Modulated Dendritic Cells
Xiufen Zheng, Motohiko Suzuki, Thomas E. Ichim, XuSheng Zhang, Hongtao Sun, Fei Zhu, Aminah Shunnar, Bertha Garcia, Robert D. Inman, and Weiping Min

6465 Blockade of Notch1 Signaling Alleviates Murine Lupus via Blunting Macrophage Activation and M2b Polarization
Weijuan Zhang, Wei Xu, and Sidong Xiong

6479 Surfactant Protein-A as an Anti-Inflammatory Component in the Amnion: Implications for Human Pregnancy
Deug-Chan Lee, Roberto Romero, Chong Jai Kim, Tinnakorn Chaiworapongsa, Adi L. Tarca, JoonHo Lee, Yeon-Lim Sub, Shali Mazaki-Tovi, Edi Vaisbuch, Pooja Mittal, Sorin Draghici, Offer EreZ, Juan Pedro Kusanovic, Sonia S. Hasan, and Jung-Sun Kim

6492 Mycobacterium tuberculosis Upregulates Microglial Matrix Metalloproteinase-1 and -3 Expression and Secretion via NF-kB– and Activator Protein-1–Dependent Monocyte Networks
Justin A. Green, Paul T. Elkington, Caroline J. Pennington, Federico Roncaroli, Shrutii Dholakia, Rachel C. Moores, Anwen Bullen, Joanna C. Porter, Dan Agranoff, Dylan R. Edwards, and Jon S. Friedland
Cytotoxic Potential of Lung CD8+ T Cells Increases with Chronic Obstructive Pulmonary Disease Severity and with In Vitro Stimulation by IL-18 or IL-15
Christine M. Freeman, MeiLan K. Han, Fernando J. Martinez, Suan Murray, Lyrica X. Liu, Stephen W. Chenese, Timothy J. Polak, Joanne Sonstein, Jill C. Teds, Theresa M. Ames, Douglas A. Arenberg, Catherine A. Meldrum, Christi Getty, Lisa McCloskey, and Jeffrey L. Curtis

Conditional Superagonist CTL Ligands for the Promotion of Tumor-Specific CTL Responses
C. Siddiq Abdul-Alim, Yongqing Li, and Cassian Yee

DAP12 Is Required for Macrophage Recruitment to the Lung in Response to Cigarette Smoke and Chemotaxis toward CCL2
Laura L. Koth, C. J. Cambier, Aminut Ellicwanger, Margaret Solon, Lydia Hou, Lewis L. Lanier, Clare L. Abram, Jessica A. Hamerman, and Prescott G. Woodruff

Novel SHP-1 Inhibitors Tyrosine Phosphatase Inhibitor-1 and Analogs with Preclinical Anti-Tumor Activities as Tolerated Oral Agents
Suman Kandu, Keke Fan, Mingli Cao, Daniel J. Lindner, Zhizhuang Joe Zhao, Ernest Borden, and Taolin Yi

Polyfunctional CD4+ and CD8+ T Cell Responses to Tuberculosis Antigens in HIV-1–Infected Patients before and after Anti-Retroviral Treatment
Jayne S. Sutherland, James M. Young, Kevin L. Peterson, Bakary Sanneh, Hilton C. Whittle, Sarah L. Rowland-Jones, Richard A. Adegbola, Asan Jaye, and Martin O. C. Ota

LAG-3 Expression Defines a Subset of CD4+CD25highFoxp3+ Regulatory T Cells That Are Expanded at Tumor Sites
Chiara Camisaschi, Chiara Casati, Francesca Rini, Michela Perego, Annamaria De Filippo, Frédéric Triebel, Giorgio Parmiani, Filiberto Belli, Licia Rivoltini, and Chiara Castelli

LETTERS OF RETRACTION

Retraction: Naturally Occurring Human IgM Antibody That Binds B7-DC and Potentiates T Cell Stimulation by Dendritic Cells

Retraction: Blockade of Allergic Airway Inflammation Following Systemic Treatment with a B7-Dendritic Cell (PD-L2) Cross-Linking Human Antibody
Koji Iijima, Takao Kobayashi, Moses Rodriguez, Hirohito Kita, and Larry R. Pease

Retraction: B7-DC/PD-L2 Cross-Linking Induces NF-κB-Dependent Protection of Dendritic Cells from Cell Death
Loc T. Nguyen, Bogoljub Ciric, Virginia P. Van Keulen, and Larry R. Pease

Retraction: Induction of a Th1 Response from Th2-Polarized T Cells by Activated Dendritic Cells: Dependence on TCR:Peptide-MHC Interaction, ICAM-1, IL-12, and IFN-γ
Karla R. Wiehagen, Vesna Pulko, Virginia Van Keulen, William A. Faubion, Keith L. Knutson, and Larry R. Pease

Retraction: Reprogrammed FoxP3+ T Regulatory Cells Become IL-17+ Antigen-Specific Autoimmune Effectors In Vitro and In Vivo
Rosalyn Cabrera, Erin L. Schenk, Pilar Nava-Parada, Michael P. Bell, Virginia P. Van Keulen, Ronald J. Marler, Sara J. Felts, and Larry R. Pease

Retraction: TREM-2 Mediated Signaling Induces Antigen Uptake and Retention in Mature Myeloid Dendritic Cells
Laura N. Arneson, Jadee L. Upshaw, Charles L. Howe, Sara J. Felts, Marco Colonna, Moses Rodriguez, and Larry R. Pease

AUTHOR INDEX