IN MEMORIAM
5465 A Remembrance of Baruj Benacerraf (AAI ’57) 1920–2011
Ronald N. Germain and Steven J. Burakoff

IN THIS ISSUE

LETTERS TO THE EDITOR
5473 Comment on “The Inhibiting Fc Receptor for IgG, FcγRIIB, Is a Modifier of Autoimmune Susceptibility”
Kenneth G. C. Smith, Lisa C. Willcocks, and Paul A. Lyons

5473 Response to Comment on “The Inhibiting Fc Receptor for IgG, FcγRIIB, Is a Modifier of Autoimmune Susceptibility”
Sjef Verbeek, Peter Boross, and Shozo Izui

PILLARS OF IMMUNOLOGY
5475 Cytokine Signaling: Birth of a Pathway
John J. O’Shea, Massimo Gadina, and Yuka Kanno

Laura Velazquez, Marc Fellous, George R. Stark, and Sandra Pellegrini

Chris Schindler, Ke Shuai, Vincent R. Prezioso, and James E. Darnell, Jr.

CUTTING EDGE
5495 Cutting Edge: Nicastrin and Related Components of γ-Secretase Generate a Peptide Epitope Facilitating Immune Recognition of Intracellular Mycobacteria, through MHC Class II-Dependent Priming of T Cells
Christopher R. Singh, Pearl Bakhr, Arshad Khan, Qing Bo Li, and Chinnaswamy Jagannath

On the cover: A CTL clone (center) is surrounded by three different target cells and beads coated with anti-LFA-1. Experiments using beads coated with anti-LFA or anti-TCR or both revealed that both TCR and LFA-1 ligation are required for the recruitment of the cytoskeletal adaptor protein paxillin to the contact site. Robertson, L. K. and H. L. Ostergaard. 2011. Paxillin associates with the microtubule cytoskeleton and the immunological synapse of CTL through its leucine-aspartic acid domains and contributes to microtubule organizing center reorientation. J. Immunol. 187: 5824–5833.
Cutting Edge: Calcium/Calmodulin-Dependent Protein Kinase Type IV Is Essential for Mesangial Cell Proliferation and Lupus Nephritis
Kunihiro Ichinose, Thomas Rauen, Yuang-Taung Juang, Katalin Kir-Toth, Masayuki Mizui, Tomohiro Koga, and George C. Tsokos

Cutting Edge: Natural Helper Cells Derive from Lymphoid Progenitors
Qi Yang, Steven A. Saenz, Daniel A. Zlotoff, David Artis, and Avinash Bhandoola

Cutting Edge: Tissue-Retentive Lung Memory CD4 T Cells Mediate Optimal Protection to Respiratory Virus Infection
John R. Teijaro, Damian Turner, Quynh Pham, E. John Wherry, Leo Lefrançois, and Donna L. Farber

Cutting Edge: A Role for Inside-Out Signaling in TCR Regulation of CD28 Ligand Binding
Mariano Sanchez-Lockhart, Minsoo Kim, and Jim Miller

CELLULAR IMMUNOLOGY AND IMMUNE REGULATION

Altered Differentiation, Diminished Pathogenicity, and Regulatory Activity of Myelin-Specific T Cells Expressing an Enhanced Affinity TCR
Rajshekhar Alli, Phuong Nguyen, and Terrence L. Geiger

Different Expression Levels of the TAP Peptide Transporter Lead to Recognition of Different Antigenic Peptides by Tumor-Specific CTL
Aurélie Durgeau, Faten El Hage, Isabelle Vergnon, Pierre Validire, Vincent de Montpréville, Benjamin Bese, Jean-Charles Soria, Thorbald van Hall, and Fatbia Mami-Chouaib

Virally-Induced Upregulation of Heparan Sulfate on B Cells via the Action of Type I IFN
Nadine Jarousse, Damian L. Trujillo, Sarah Wilcox-Adelman, and Laurent Coscoy

The Antiviral Immune Response in Mice Devoid of Immunoproteasome Activity
Michael Basler, Ulrike Beck, Christopher J. Kirk, and Marcus Groettrup

Coordinated Regulation of Lymph Node Vascular–Stromal Growth First by CD11c+ Cells and Then by T and B Cells
Susan Chyou, Fairouz Benahmed, Jingfeng Chen, Varsha Kumar, Sha Tian, Martin Lipp, and Theresa T. Lu

Quantifying Antigen-Specific CD4 T Cells during a Viral Infection: CD4 T Cell Responses Are Larger Than We Think
Daniel S. McDermott and Steven M. Varga

CD84 Negatively Regulates IgE High-Affinity Receptor Signaling in Human Mast Cells
Damiana Álvarez-Errico, Irene Oliver-Vila, Erola Ainsua-Enrich, Alasdair M. Gilfillan, César Picado, Joan Sayós, and Margarita Martín

Glycogen Synthase Kinase-3β Is a Prosurvival Signal for the Maintenance of Human Mast Cell Homeostasis
Madeleine Rådinger, Daniel Smrz, Dean D. Metcalfe, and Alasdair M. Gilfillan

Negative Selection by IgM Superantigen Defines a B Cell Central Tolerance Compartment and Reveals Mutations Allowing Escape
Bao Hua Duong, Takayuki Ota, Miyo Aoki-Ota, Anthony Byron Cooper, Djemel Ait-Azzouzene, José Luis Vela, Amanda Lee Gavin, and David Nemazee

B7-H1 Expressed by Activated CD8 T Cells Is Essential for Their Survival
Vesna Pulko, Kimberley J. Harris, Xin Liu, Rachel M. Gibbons, Susan M. Harrington, Christopher J. Krco, Eugene D. Kwon, and Haidong Dong

Human Th1 and Th17 Cells Exhibit Epigenetic Stability at Signature Cytokine and Transcription Factor Loci
Carla J. Cohen, Sarah Q. Crome, Kate G. MacDonald, Elizabeth L. Dai, Dixie L. Mager, and Megan K. Levings
IL-1β and TGF-β Act Antagonistically in Induction and Differentially in Propagation of Human Proinflammatory Precursor CD4+ T Cells
Katrin Hebel, Marion Rudolph, Bernhard Kosak, Hyun-Dong Chang, Jana Butzmann, and Monika C. Brunner-Weinzierl

Regulation of IFN-α1 Promoter Activity (IFN-α1/IL-29) in Human Airway Epithelial Cells
Rachael Siegel, Joyce Eskdale, and Grant Gallagher

Cross-Talk Between TCR and CCR7 Signaling Sets a Temporal Threshold for Enhanced T Lymphocyte Migration
Karin Schaenude, Mark A. Hauser, Eva Singer, Marcus Grooterup, and Daniel F. Legler

Antimicrobial Peptides Inhibit Polynosinic-Polyctydyl Acid-Induced Immune Responses
Maroof Hasan, Catarina Rukszis, Yan Wang, and Cynthia Anne Leifer

Pathogenic and Protective Functions of TNF in Neuroinflammation Are Defined by Its Expression in T Lymphocytes and Myeloid Cells
Andrey A. Kruglov, Vicky Lampropoulou, Simon Fillatreau, and Sergei A. Nedospasov

Osteopontin Modulates the Generation of Memory CD8+ T Cells during Influenza Virus Infection
Junko Morimoto, Kayoko Sato, Yusuke Nakayama, Chiemi Kimura, Kiichi Kajino, Yutaka Matsui, Tadaaki Miyazaki, and Toshimitsu Uede

Immune Regulation through Mitochondrion-Dependent Dendritic Cell Death Induced by T Regulatory Cells
Min Chen, Kumar Felix, and Jin Wang

Proliferating Cell Nuclear Antigen Is a Novel Inhibitory Ligand for the Natural Cytotoxicity Receptor NKP44
Benjamin Rosental, Michael Brusilovsky, Uzi Hadad, Dafna Oz, Michael Y. Appel, Fabian Afergan, Rami Yosef, Lior Ann Rosenberg, Amir Aharoni, Adielheid Cerwenka, Kerry S. Campbell, Alex Braiman, and Angel Porgador

A Critical Role for Macrophages in Promotion of Urethane-Induced Lung Carcinogenesis
Rinat Zaynagodinov, Taylor P. Sherrill, Vasily V. Polouskhhin, Wei Han, Jamie A. Ashorn, Alissyn G. McLoed, Frank B. McMahon, Linda A. Glausav, Amber L. Degrepe, Georgios T. Stathopoulos, Fiona E. Yull, and Timothy S. Blackwell

Formation of B-1 B Cells from Neonatal B-1 Transitional Cells Exhibits NF-κB Redundancy
Encarnacion Montecino-Rodriguez and Kenneth Dorshkind

Cannabinoid Receptor 2 Is Critical for the Homing and Retention of Marginal Zone B Lineage Cells and for Efficient T-Independent Immune Responses
Sreemanti Basu, Avijit Ray, and Bonnie N. Dittel

Affinity Thresholds for Naive CD8+ CTL Activation by Peptides and Engineered Influenza A Viruses

Influence of Galectin-9/Tim-3 Interaction on Herpes Simplex Virus-1 Latency
Pradeep B. J. Reddy, Sharvan Sehrawat, Amol Suryawanshi, Naveen K. Rajasagi, Sachin Mulik, Mitsuomi Hirahama, and Barry T. Rouse

Rapamycin Attenuates Airway Hyperreactivity, Goblet Cells, and IgE in Experimental Allergic Asthma
Elizabeth M. Mushaben, Elizabeth L. Kramer, Eric B. Brandt, Gurjit K. Khurana Hershey, and Timothy D. Le Cras

IL-6 Promotes Cardiac Graft Rejection Mediated by CD4+ Cells
Adam Jared Booth, Svetlana Grabauskiene, Sherri Chan Wood, Guanyi Lu, Bryna E. Burrell, and D. Keith Bishop

A p53 Defect Sensitizes Various Stages of B Cell Development to Lymphomagenesis in Mice Carrying an IgH 3′ Regulatory Region-Driven c-myc Transgene
Reni Fiancette, Pauline Rouaud, Christelle Vincent-Fubert, Brice Laffleur, Virginie Magnone, Michel Cogné, and Yves Denizot
PTEN Negatively Regulates Engulfment of Apoptotic Cells by Modulating Activation of Rac GTPase
Subhajnan Mondal, Saurabh Ghosh-Roy, Fabien Loison, Yitang Li, Yonghui Jia, Chad Harris, David A. Williams, and Hongbo R. Luo

Lineage-^\textsuperscript{Sca1}\textsuperscript{+}c-Kit\textsuperscript{+} CD25\textsuperscript{+} Cells Are IL-33–Responsive Type 2 Innate Cells in the Mouse Bone Marrow
Adiponeg Brickshawana, Virginia Smith Shapiro, Hirohito Kita, and Larry R. Pease

C5a Regulates NKT and NK Cell Functions in Sepsis
Michael E. Fusakio, Javid P. Mohammed, Yves Laumonnier, Kasper Hoebe, Jörg Köhl, and Jochen Mattner

Peptidoglycan Recognition Protein Pglyrp2 Protects Mice from Psoriasis-like Skin Inflammation by Promoting Regulatory T Cells and Limiting Th17 Responses
Shin Yong Park, Dipika Gupta, Risa Hurwich, Chang H. Kim, and Roman Dzierski

Paxillin Associates with the Microtubule Cytoskeleton and the Immunological Synapse of CTL through Its Leucine-Aspartic Acid Domains and Contributes to Microtubule Organizing Center Reorientation
Leslie K. Robertson and Hanne L. Ostergaard

Selective Upregulation of microRNA Expression in Peripheral Blood Leukocytes in IL-10\textsuperscript{−/−} Mice Precedes Expression in the Colon
Jeremy S. Schaefer, Dina Montufar-Solis, Nadarajah Vigneswaran, and John R. Klein

Uric Acid-Driven Th17 Differentiation Requires Inflammasome-Derived IL-1 and IL-18
Cristina Conforti-Andreoni, Roberto Spreafico, Hong Liang Qian, Nicolas Riveau, Bernhard Röffel, Paola Ricciardi-Castagnoli, and Alessandra Mortellaro

\(\alpha\beta_1\) Integrin-Mediated Signaling Serves as an Intrinsic Regulator of Pathogenic Th17 Cell Generation
Masashi Kanayama, Junko Morimoto, Yatoka Matsui, Masahiro Ikese, Keiko Danzaki, Daisuke Kurotaki, Koyu Ito, Toshimichi Yoshida, and Toshimitsu Uede

CpG Protects Human Monocytic Cells against HIV-Vpr–Induced Apoptosis by Cellular Inhibitor of Apoptosis-2 through the Calcium-Activated JNK Pathway in a TLR9-Independent Manner
Mansi Saxena, Aurelia Busca, Sunita Pandey, Marko Kryworuchko, and Ashok Kumar

Microbiota Downregulates Dendritic Cell Expression of miR-10a, Which Targets IL-12/IL-23p40
Xiaochang Xue, Ting Feng, Suxia Yao, Kyle J. Wolf, Chang-Gong Liu, Xiuping Liu, Charles E. Elson, and Yingzi Cong

Cofilin-Mediated F-Actin Severing Is Regulated by the Rap GTPase and Controls the Cytoskeletal Dynamics That Drive Lymphocyte Spreading and BCR Microcluster Formation
Spencer A. Freeman, Victor Lei, May Dang-Lawson, Kensaku Mizuno, Calvin D. Roskelley, and Michael R. Gold

Pancreatic Islets Engineered with SA-FasL Protein Establish Robust Localized Tolerance by Inducing Regulatory T Cells in Mice
Esma S. Yolcu, Chantale Lacelle, Kyle B. Woodward, Nadir Askenasy, and Haval Shirwan

**MOLECULAR AND STRUCTURAL IMMUNOLOGY**

Escape from CD8\textsuperscript{+} T Cell Response by Natural Variants of an Immunodominant Epitope from *Theileria parva* Is Predominantly Due to Loss of TCR Recognition
Timothy K. Connelley, Niall D. MacHugh, Roger Pelle, William Weir, and W. Ivan Morrison

Structure-Based Selection of Small Molecules To Alter Allele-Specific MHC Class II Antigen Presentation
Aaron W. Michels, David A. Ostrov, Li Zhang, Maki Nakayama, Masanori Fuse, Kristen McDaniel, Bart O. Roep, Peter A. Gottlieb, Mark A. Atkinson, and George S. Eisenbarth

TOX Is Required for Development of the CD4 T Cell Lineage Gene Program
Parinaz Aliabhad, Aisha Kadavalloro, Brian de la Torre, Dietmar Kappes, and Jonathan Kaye
5941 SAP-Mediated Inhibition of Diacylglycerol Kinase α Regulates TCR-Induced Diacylglycerol Signaling
Gianluca Baldanzi, Andrea Pigini, Valentina Bettio, Elena Rainero, Sara Traini, Federica Chianale, Paolo E. Porporato, Nicoletta Filigheddu, Riccardo Mesturini, Shaping Song, Tamás Schweighoffer, Laura Patrussi, Cosima T. Baldari, Xiao-Ping Zhang, Wim J. van Blitterswijk, Fabiola Sinigaglia, Kim E. Nichols, Ignacio Rubio, Ornella Parolini, and Andrea Graziani

5952 The Actin Regulatory Protein HS1 Is Required for Antigen Uptake and Presentation by Dendritic Cells
Yanping Huang, Chhanda Biswas, Deborah A. Klos Dehring, Uma Sriram, Edward K. Williamson, Shuixing Li, Fiona Clarke, Stefania Gallucci, Yair Argon, and Janis K. Burkhards

5964 T Cell Factor 1 Regulates Thymocyte Survival via a RORγt-Dependent Pathway
Ruiqing Wang, Huimin Xie, Zhaoxing Huang, Jian Ma, Xiansheng Fang, Yan Ding, and Zuming Sun

5974 c-Myb and GATA-3 Cooperatively Regulate IL-13 Expression via Conserved GATA-3 Response Element and Recruit Mixed Lineage Leukemia (MLL) for Histone Modification of the IL-13 Locus
Teruhiko Kozuka, Mayumi Sugita, Susan Shetzline, Alan M. Gewirtz, and Yuji Nakata

5983 EphB Receptors Trigger Akt Activation and Suppress Fas Receptor-Induced Apoptosis in Malignant T Lymphocytes
Alison Maddigan, Luke Truitt, Ryan Arsenault, Tanya Freywald, Odette Allonby, Jonathan Dean, Aru Narendran, Jim Xiang, Andrew Weng, Scott Napper, and Andrew Freywald

IMMUNOGENETICS

5995 A Comparative Analysis of Viral Peptides Presented by Contemporary Human and Chimpanzee MHC Class I Molecules
Hanneke W. M. van Deutekom, Ilka Hoof, Ronald E. Bontrop, and Can Keşmir

HOST DEFENSE

6002 Phagosomal Degradation Increases TLR Access to Bacterial Ligands and Enhances Macrophage Sensitivity to Bacteria
Andrea J. Wolf, Andrea Arruda, Christopher N. Reyes, Amber T. Kaplan, Takahiro Shimada, Kenichi Shimada, Moshe Arditi, George Liu, and David M. Underhill

6011 Lung CD103+ Dendritic Cells Efficiently Transport Influenza Virus to the Lymph Node and Load Viral Antigen onto MHC Class I for Presentation to CD8 T Cells
Adrian W. S. Ho, Nayana Prabhu, Richard John Betts, Moyar Qing Ge, Xilei Dai, Paul Edward Hutchinson, Fei Chuin Lew, Kok Loon Wong, Brendon John Hanson, Paul A. Macary, and David Michael Kemeny

6022 Recruited Macrophages Control Dissemination of Group A Streptococcus from Infected Soft Tissues
Inbal Mishalian, Merav Ordan, Amnon Peled, Alexander Maly, Miriam B. Eichenbaum, Miriam Ravins, Tegest Aychek, Steffen Jung, and Emanuel Hanski

6032 Characterization of a Human Cervical CD4+ T Cell Subset Coexpressing Multiple Markers of HIV Susceptibility
Lyle R. McKinnon, Billy Nyanga, Duncan Chege, Preston Izulla, Makobu Kimani, Sanja Huibner, Lawrence Gelmon, Katharine E. Block, Claudia Cicala, A. Omu Anzala, James Arthos, Joshua Kimani, and Rupert Kaul

INFLAMMATION

6043 Hck Tyrosine Kinase Regulates TLR4-Induced TNF and IL-6 Production via AP-1
Maria J. Smolinska, Theresa H. Page, Ania M. Urbaniak, Brenda E. Mutch, and Nicole J. Horwood

6052 Mammalian Target of Rapamycin Inhibition in Macrophages of Asymptomatic HIV+ Persons Reverses the Decrease in TLR-4–Mediated TNF-α Release through Prolongation of MAPK Pathway Activation
Xin Li, Xinbing Han, Juliana Llano, Medhavi Bole, Xiuxin Zhou, Katharine Swan, Asha Anandaiah, Benjamin Nelson, Naimish R. Patel, Peter S. Reinach, Henry Koziel, and Souvenir D. Tachado

6059 Eosinophils Regulate Dendritic Cells and Th2 Pulmonary Immune Responses following Allergen Provocation
Elizabeth A. Jacobsen, Katie R. Zellner, Dana Colbert, Nancy A. Lee, and James J. Lee
Mapping the Transcriptional Machinery of the IL-8 Gene in Human Bronchial Epithelial Cells
Valentino Bezzerri, Monica Borgatti, Alesia Finotti, Anna Tamanini, Roberto Gambari, and Giulio Cabrini

Attenuated Atherosclerotic Lesions in apoE-Fcγ-Chain-Deficient Hyperlipidemic Mouse Model Is Associated with Inhibition of Th17 Cells and Promotion of Regulatory T Cells
Hang Pong Ng, Ramona L. Burris, and Shanmugam Nagarajan

Integrin αvβ5-Mediated TGF-β Activation by Airway Smooth Muscle Cells in Asthma
Amanda L. Tatler, Alison E. John, Lisa Jolly, Anthony Halgood, Jo Porte, Chris Brightling, Alan J. Knox, Lishua Pang, Dean Sheppard, Xiaohua Huang, and Gisli Jenkins

The Role for Decorin in Delayed-Type Hypersensitivity
Daniela G. Seidler, Negia A. Mohamed, Carla Bocian, Anika Stadtmann, Sven Hermann, Klaus Schäfers, Michael Schäfers, Renato V. Iozzo, Alexander Zarbock, and Martin Götte

Adenosinergic Regulation of the Expansion and Immunosuppressive Activity of CD11b+Gr1+ Cells
Sergey Ryzhov, Sergey V. Novitskiy, Anna E. Goldstein, Asel Biktasova, Michael Blackburn, Italo Biaggioni, Mikhail M. Dikov, and Igor Feoktistov

CLINICAL IMMUNOLOGY

Pilot Clinical Trial of Type 1 Dendritic Cells Loaded with Autologous Tumor Lysates Combined with GM-CSF, Pegylated IFN, and Cyclophosphamide for Metastatic Cancer Patients

Inflammasome Activation of IL-18 Results in Endothelial Progenitor Cell Dysfunction in Systemic Lupus Erythematosus
J. Michelle Kahlenberg, Seth G. Thacker, Céline C. Berthier, Clemens D. Cohen, Matthias Kretzler, and Mariana J. Kaplan

CORRECTIONS

Correction: Distinct Roles of IL-23 and IL-17 in the Development of Psoriasis-Like Lesions in a Mouse Model
Kimiko Nakajima, Takashi Kanda, Mikiro Takaishi, Takao Shiga, Ken Miyoshi, Hideki Nakajima, Reiko Kamijima, Masahito Tarutani, Jacqueline M. Benson, M. Merle Ellso, Lester L. Gutshall, Michael F. Naso, Yoichiro Isoakura, John DiGiovanni, and Shigeharu Sano

Correction: Basophils Amplify Type 2 Immune Responses, but Do Not Serve a Protective Role, during Chronic Infection of Mice with the Filarial Nematode Litomosoides sigmodontis
Marina N. Torrero, Marc P. Hubner, David Larson, Hajime Karasuyama, and Edward Mitre

Correction: TNF Mediates the Sustained Activation of Nrf2 in Human Monocytes
Stuart A. Rushworth, Subhash Shah, and David J. MacEwan

AUTHOR INDEX