IN THIS ISSUE

845 Driving CARs over the Threshold  See article p. 911
Finding Friends for AIRE  See article p. 921
Thymocyte Peer Pressure  See article p. 1057
One More Reason To Take Your Vitamins  See article p. 1090
The Skin-ny on Secondary Lymphoid Organs in Transplantation  See article p. 1364

PILLARS OF IMMUNOLOGY

847 Laying Bare the Nude Mouse Gene
Graham Anderson and Nicholas I. McCarthy

Michael Nehls, Dietmar Pfeifer, Michael Schorpp, Hans Hedrich, and Thomas Boehm

BRIEF REVIEWS

855 The Acute Respiratory Distress Syndrome: From Mechanism to Translation
SeungHye Han and Rama K. Mallampalli

CUTTING EDGE

863 Cutting Edge: Maresin-1 Engages Regulatory T Cells To Limit Type 2 Innate Lymphoid Cell Activation and Promote Resolution of Lung Inflammation
Nandini Krishnamoorthy, Patrick R. Burkett, Jemound Dalli, Raja-Elie E. Abdulnour, Romain Colas, Sequeil Ramon, Richard P. Phipps, Nico A. Petasis, Vijay K. Kuchroo, Charles N. Serhan, and Bruce D. Levy

868 Cutting Edge: Critical Role for C5aRs in the Development of Septic Lymphopenia in Mice
Jamison J. Grailer, Fatemeh Fattahi, Rachel S. Dick, Firas S. Zetoune, and Peter A. Ward

873 Cutting Edge: AIM2 and Endosomal TLRs Differentially Regulate Arthritis and Autoantibody Production in DNase II–Deficient Mice
Rebecca Baum, Shruti Sharma, Susan Carpenter, Quan-Zhen Li, Patricia Busto, Katherine A. Fitzgerald, Ann Marshak-Rothstein, and Ellen M. Gravallese

Cutting Edge: Epigenetic Regulation of Foxp3 Defines a Stable Population of CD4+ Regulatory T Cells in Tumors from Mice and Humans
Jeremy D. Waight, Shinji Takai, Bo Marelli, Guozhong Qin, Kenneth W. Hance, Dong Zhang, Robert Tighe, Yan Lan, Kin-Ming Lo, Helen Sabzevari, Robert Hofmeister, and Nicholas S. Wilson

Cutting Edge: Progesterone Directly Upregulates Vitamin D Receptor Gene Expression for Efficient Regulation of T Cells by Calcitriol
Shankar Thangamani, Myughoo Kim, Youngmin Son, Xinxin Huang, Heejoo Kim, Jee H. Lee, Jungyoon Cho, Benjamin Ulrich, Hal E. Broxmeyer, and Chang H. Kim

ALLERGY AND OTHER HYPERSENSITIVITIES
IL-10 and Regulatory T Cells Cooperate in Allergen-Specific Immunotherapy To Ameliorate Allergic Asthma
Livia Böhm, Joachim Maxeiner, Helen Meyer-Martin, Sebastian Reuter, Susetta Finotto, Matthias Klein, Hansjörg Schild, Edgar Schmitt, Tobias Bopp, and Christian Taube

ANTIGEN RECOGNITION AND RESPONSES
Fixed Expression of Single Influenza Virus–Specific TCR Chains Demonstrates the Capacity for TCR α– and β–Chain Diversity in the Face of Peptide–MHC Class I Specificity
E. Bridie Clemens, Peter C. Doherty, Nicole L. La Gruta, and Stephen J. Turner

Target Antigen Density Governs the Efficacy of Anti–CD20-CD28-CD3 ζ Chimeric Antigen Receptor–Modified Effector CD8+ T Cells

AUTOIMMUNITY
Homeodomain-Interacting Protein Kinase 2, a Novel Autoimmune Regulator Interaction Partner, Modulates Promiscuous Gene Expression in Medullary Thymic Epithelial Cells
Kristin Rattay, Janine Claude, Esmail Rezavandy, Sonja Matt, Thomas G. Hofmann, Bruno Kyewski, and Jens Derbinski

CLINICAL AND HUMAN IMMUNOLOGY
The V Gene Repertoires of Classical and Atypical Memory B Cells in Malaria-Susceptible West African Children

Differential Expression of the Transcription Factor ARID3a in Lupus Patient Hematopoietic Progenitor Cells
Michelle L. Ratliff, Julie M. Ward, Joan T. Merrill, Judith A. James, and Carol F. Webb

Combination Therapy with Anti–CTLA-4 and Anti–PD-1 Leads to Distinct Immunologic Changes In Vivo
Rituparna Das, Rakesh Verma, Mario Szol, Chandra Sekhar Bodupalli, Scott N. Gettinger, Harriet Kluger, Margaret Callahan, Jed D. Wolchok, Ruth Halaban, Madhav V. Dhodapkar, and Karita M. Dhodapkar

CD26-Mediated Induction of EGR2 and IL-10 as Potential Regulatory Mechanism for CD26 Costimulatory Pathway
Ryo Hatano, Kei Ohnuma, Haruna Otsuka, Eriko Komiya, Izumi Taki, Satoshi Iwata, Nam H. Dang, Ko Okumura, and Chikao Morimoto

Sterile DJ14 Rearrangements Reveal that Distance Between Gene Segments on the Human Ig H Chain Locus Influences Their Ability To Rearrange
Tina Østergaard Hansen, Anders Blaabjerg Lange, and Torben Barington
IMMUNE REGULATION

983 Immune Complexes Suppress IFN-γ–Induced Responses in Monocytes by Activating Discrete Members of the SRC Kinase Family
Gunther H. Boekhoudt, Anna G. McGrath, Jennifer F. A. Swisher, and Gerald M. Feldman

990 Modulating DNA Methylation in Activated CD8+ T Cells Inhibits Regulatory T Cell–Induced Binding of Foxp3 to the CD8+ T Cell IL-2 Promoter
Michelle M. Miller, Nnenna Akaronu, Elizabeth M. Thompson, Sylvia F. Hood, and Jonathan E. Fogle

999 Effector T Cells Boost Regulatory T Cell Expansion by IL-2, TNF, OX40, and Plasmacytoid Dendritic Cells Depending on the Immune Context
Audrey Bayens, David Saadoun, Fabienne Billiard, Angéline Rouern, Sylvie Grégoire, Bruno Zaragoza, Yenkel Grinberg-Bleyer, Gilles Marodon, Eliane Piaggio, and Benoît L. Salomon

1011 Intestinal Helminths Regulate Lethal Acute Graft-versus-Host Disease and Preserve the Graft-versus-Tumor Effect in Mice
Yue Li, Hung-Lin Chen, Nadine Bannick, Michael Henry, Adrian N. Holm, Ahmed Metwali, Joseph F. Urban, Jr., Paul B. Rothman, George J. Weiner, Bruce R. Blazar, David E. Elliott, and M. Nedim Ince

1021 Chronic Morphine-Induced MicroRNA-124 Promotes Microglial Immunosuppression by Modulating P65 and TRAF6
Shuwei Qiu, Yimin Feng, Gene LeSage, Ying Zhang, Charles Stuart, Lei He, Yi Li, Yi Caudle, Ying Peng, and Deling Yin

1031 Survival of Human Circulating Antigen-Induced Plasma Cells Is Supported by Plasma Cell–Niche Cytokines and T Follicular Helper Lymphocytes
Ana Ramor-Amaya, Beatriz Rodríguez-Bayona, Rubén López-Blanco, Eloisa Andújar, Mónica Pérez-Alegre, Antonio Campos-Caro, and José A. Brieva

1039 Temporal Expression of Growth Factors Triggered by Epiregulin Regulates Inflammation Development
Masaya Harada, Daisuke Kamimura, Yasunobu Arima, Hisashi Kohsaka, Yuji Nakatsuji, Makoto Nishida, Toru Atsumi, Jie Meng, Hidenori Bando, Rajeev Singh, Lavannya Sabharwal, Jing-Jing Jiang, Noriko Kumai, Nobuyuki Miyasaka, Saburo Sakoda, Keiko Yamauchi-Takihara, Hideki Ogura, Toshio Hirano, and Masaaki Murakami

1047 CD40L Induces Functional Tunneling Nanotube Networks Exclusively in Dendritic Cells Programmed by Mediators of Type 1 Immunity

IMMUNE SYSTEM DEVELOPMENT

1057 Stable Interactions and Sustained TCR Signaling Characterize Thymocyte–Thymocyte Interactions that Support Negative Selection
Heather J. Melichar, Jenny O. Ross, Kayleigh T. Taylor, and Ellen A. Robey

IMMUNOGENETICS

1062 The Human IL-23 Receptor rs11209026 A Allele Promotes the Expression of a Soluble IL-23R–Encoding mRNA Species
Raymond Y. Yu, Jonathan Brazaitis, and Grant Gallagher

IMMUNOTHERAPY AND VACCINES

1069 Induction of Potent CD8 T Cell Cytotoxicity by Specific Targeting of Antigen to Cross-Presenting Dendritic Cells In Vivo via Murine or Human XCR1

1080 CD8 T Cell Tolerance to a Tumor-Associated Self-Antigen Is Reversed by CD4 T Cells Engineered To Express the Same T Cell Receptor
Sara Ghorashian, Pedro Velică, Ignatius Chua, Anne-Marie McNicol, Ben Carpenter, Angelika Holler, Emma Nicholson, Maryam Ahmadi, Mathias Zech, Shao-An Xue, Wolfgang Uckert, Emma Morris, Ronjon Chakraverty, and Hans J. Staus
INFECTION DISEASE AND HOST RESPONSE

1090 The α-Tocopherol Form of Vitamin E Reverses Age-Associated Susceptibility to Streptococcus pneumoniae Lung Infection by Modulating Pulmonary Neutrophil Recruitment
Ela N. Bou Ghanem, Stacie Clark, Xiaogang Du, Dayong Wu, Andrew Camilli, John M. Leong, and Simin N. Meydani

1100 A Major Role for Myeloid-Derived Suppressor Cells and a Minor Role for Regulatory T Cells in Immunosuppression during Staphylococcus aureus Infection
Christina Tebartz, Sarah Anita Horst, Tim Sparwasser, Jochen Huehn, Andreas Beineke, Georg Peters, and Eva Medina

1112 Atg7 Enhances Host Defense against Infection via Downregulation of Superoxide but Upregulation of Nitric Oxide
Xuefeng Li, Yan Ye, Xikun Zhou, Canhua Huang, and Min Wu

1122 IRAK4 as a Molecular Target in the Amelioration of Innate Immunity–Related Endotoxic Shock and Acute Liver Injury by Chlorogenic Acid
Sun Hong Park, Seung-Il Baek, Jieun Yun, Seungmin Lee, Da Young Yoon, Jae-Kyung Jung, Sang-Hun Jung, Bang Yeon Hwang, Jin Tae Hong, Sang-Bae Han, and Youngsoo Kim

1131 Diverse Roles for T-bet in the Effector Responses Required for Resistance to Infection

1141 CD8+ T Cells Complement Antibodies in Protecting against Yellow Fever Virus
Maria R. Bassi, Michael Konggaard, Maria A. Steffensen, Christina Fenger, Michael Rasmussen, Karsten Skjødt, Bente Finsen, Anette Stryhn, Søren Buus, Jan P. Christensen, and Allan R. Thomsen

INNATE IMMUNITY AND INFLAMMATION

1169 TRIF-Dependent Innate Immune Activation Is Critical for Survival to Neonatal Gram-Negative Sepsis
Alex G. Cuenca, Dallas N. Joiner, Lori F. Gentile, Angela L. Cuenca, James L. Wynn, Kindra M. Kelly-Scumpia, Philip O. Scumpia, Kevin E. Behrens, Philip A. Efron, Dina Nacionales, Chao Lui, Shannon M. Wallet, Westley H. Reeves, Clayton E. Mathews, and Lyle L. Moldawer

1178 Radiation Exposure Induces Inflammasome Pathway Activation in Immune Cells
Veit M. Stoecklein, Akinori Osuka, Shizu Ishikawa, Madeline R. Lederer, Lorenz Wanke-Jellinek, and James A. Lederer

1190 TLR2 Modulates Antibodies Required for Intestinal Ischemia/Reperfusion-Induced Damage and Inflammation
Michael R. Pope and Sherry D. Fleming

1199 A Second Stimulus Required for Enhanced Antifungal Activity of Human Neutrophils in Blood Is Provided by Anaphylatoxin C5a
Kerstin Hünniger, Kristin Bieber, Ronny Martin, Teresa Lehner, Marc Thilo Fige, Jürgen Lößler, Ren-Feng Guo, Nieli C. Riedemann, and Oliver Kurzai

1211 Neutrophil Priming Occurs in a Sequential Manner and Can Be Visualized in Living Animals by Monitoring IL-1β Promoter Activation
Yi Yao, Hironori Matsushima, Jennifer A. Ohtola, Shuo Geng, Ran Lu, and Akira Takushima

1225 Zebrafish IRF1 Regulates IFN Antiviral Response through Binding to IFNβ1 and IFNβ3 Promoters Downstream of MyD88 Signaling
Hui Feng, Yi-Bing Zhang, Qi-Min Zhang, Zhi Li, Qi-Ya Zhang, and Jian-Fang Gui
MiR-127 Modulates Macrophage Polarization and Promotes Lung Inflammation and Injury by Activating the JNK Pathway
Hangjie Ying, Yanhua Kang, Hang Zhang, Dongjiu Zhao, Jingyan Xia, Zhe Lu, Huanhuan Wang, Feng Xu, and Liyun Shi

Protective Role for Caspase-11 during Acute Experimental Murine Colitis

Apoptosis-Associated Speck-like Protein Containing a CARD Forms Specks but Does Not Activate Caspase-1 in the Absence of NLRP3 during Macrophage Swelling
Vincent Compan, Fátima Martín-Sánchez, Alberto Baroja-Mazo, Gloria López-Castejón, Ana I. Gomez, Alexei Verkhratsky, David Brough, and Pablo Pelegrín

Endogenous Intracellular Cathelicidin Enhances TLR9 Activation in Dendritic Cells and Macrophages
Yukinobu Nakagawa and Richard L. Gallo

Complement Deficiency Promotes Cutaneous Wound Healing in Mice
Stavros Rafail, Ioannis Kourtzelis, Periklis G. Foukas, Maciej M. Markiewski, Robert A. DeAngelis, Mara Guariento, Daniel Ricklin, Elizabeth A. Grice, and John D. Lambris

The Endoplasmic Reticulum Adaptor Protein ERAdP Initiates NK Cell Activation via the Ubc13-Mediated NF-κB Pathway
Jun Chen, Lu Hao, Chong Li, Buqing Ye, Ying Du, Honglian Zhang, Bo Long, Pingping Zhu, Benyu Liu, Liuliu Yang, Peifeng Li, Yong Tian, and Zusan Fan

Distinct Cellular Sources of Hesperolin A3 and Leukotriene B4 Are Used To Coordinate Bacterial-Induced Neutrophil Transepithelial Migration
Michael A. Pazos, Waheed Pirzai, Lael M. Yonker, Christophe Morisseau, Karsten Gronert, and Bryan P. Hurley

Knockdown of the Antiapoptotic Bcl-2 Family Member A1/Bfl-1 Protects Mice from Anaphylaxis
Elenora Ottina, Katarina Lyberg, Maja Sochalska, Andreas Villunger, and Gunnar P. Nilsson

Phosphatidylinositol 4–Phosphate 5–Kinase α and Vav1 Mutual Cooperation in CD28-Mediated Actin Remodeling and Signaling Functions
Michela Muscolini, Cristina Camperio, Nicla Porciello, Silvana Caristi, Cristina Capuano, Antonella Viola, Ricciarda Galandrini, and Loretta Tuosto

IL-2Rβ–Dependent Signaling and CD103 Functionally Cooperate To Maintain Tolerance in the Gut Mucosa
Xiaomei Yuan, Michael J. Der, Norman H. Altman, and Thomas R. Malek

IFN-γ Production by Memory Helper T Cells Is Required for CD40-Independent alloantibody Responses
Victoria Gorbacheva, Run Fan, Xi Wang, William M. Baldwin, III, Robert L. Fairchild, and Anna Valujskikh

Anti–IL-12/23 p40 Antibody Attenuates Experimental Chronic Graft-versus-Host Disease via Suppression of IFN-γ/IL-17–Producing Cells
Sachiyo Okamoto, Hideaki Fujiwara, Hisakazu Nishimori, Ken–ichi Matsuoka, Nobuharu Fujii, Eisei Kondo, Takehiro Tanaka, Akihiko Yoshimura, Mitsune Tanimoto, and Yoshinobu Maeda

Both Rejection and Tolerance of Allografts Can Occur in the Absence of Secondary Lymphoid Tissues
Cavit D. Kant, Yoshinobu Akiyama, Katsuhiro Tanaka, Susan Shea, Yohei Yamada, Sarah E. Connolly, Jose Marino, Georges Tocco, and Gilles Benichou

TSLP Expression: Analysis with a ZsGreen TSLP Reporter Mouse
Cedric Dewas, Xi Chen, Tetsuya Honda, Ilkka Junttila, Jay Linton, Mark C. Udey, Stephen F. Porcella, Daniel E. Sturdevant, Lionel Feigenbaum, Lily Koo, Joy Williams, and William E. Paul

MOLECULAR AND STRUCTURAL IMMUNOLOGY

MUCOSAL IMMUNOLOGY

TRANSPLANTATION

NOVEL IMMUNOLOGICAL METHODS
LETTERS OF RETRACTION

1381 Retraction: Guanosine Inhibits CD40 Receptor Expression and Function Induced by Cytokines and β Amyloid in Mouse Microglia Cells
Iolanda D’Alimonte, Vincenzo Flati, Elena Toniato, Stefano Martinotti, Michæl P. Rathbone, Shucui Jiang, Patrizia Di Iorio, Francesco Caciagli, and Renata Ciccarelli

CORRECTIONS

1382 Correction: Role of Neutrophils in IL-17–Dependent Immunity to Mucosal Candidiasis
Anna R. Huppler, Heather R. Conti, Nydiaris Hernández-Santos, Toni Darville, Partha S. Biswas, and Sarah L. Gaffen

1383 Correction: AID-Initiated DNA Lesions Are Differentially Processed in Distinct B Cell Populations
Zhangguo Chen, Sheila Ranganath, Sawanee S. Viboolsittiseri, Maxwell D. Eder, Xiaomi Chen, Mibret T. Elsu, Shunzong Yuan, Erica Hansen, and Jing H. Wang

1384 AUTHOR INDEX