This information is current as of May 1, 2017.
IN MEMORIAM
2037 David W. Talmage, M.D. (AAI ’54) 1919–2014

IN THIS ISSUE
2039 Stromal Cells Modulate Macrophages See article p. 2373
DNA Sensor STINGs Chlamydia See article p. 2394
Targeting Skin Immunity with TNF See article p. 2416
Neutrophils Breach CNS Barriers See article p. 2438
Fungal Inflammasome Instigation See article p. 2519
Cell Tracking Method Strikes Gold See article p. 2600

LETTERS TO THE EDITOR
2041 Comment on “Aneurysmal Lesions of Patients with Abdominal Aortic Aneurysm Contain Clonally Expanded T Cells”
Albert M. Kroon and Jan-Willem Taanman

2041 Response to Comment on “Aneurysmal Lesions of Patients with Abdominal Aortic Aneurysm Contain Clonally Expanded T Cells”

PILLARS OF IMMUNOLOGY
2043 Just the FACS
Lewis L. Lanier

H. R. Hulett, W. A. Bonner, Janet Barrett, and Leonard A. Herzenberg

M. H. Julius, T. Masuda, and L. A. Herzenberg

**BRIEF REVIEWS**

Hematopoiesis in Steady-State versus Stress: Self-Renewal, Lineage Fate Choice, and the Conversion of Danger Signals into Cytokine Signals in Hematopoietic Stem Cells
Lisa Borghesi

The Multifaceted Roles of Bcl11b in Thymic and Peripheral T Cells: Impact on Immune Diseases
Dorina Avram and Danielle Califano

**CUTTING EDGE**

Cutting Edge: Generation of Effector Cells That Localize to Mucosal Tissues and Form Resident Memory CD8 T Cells Is Controlled by mTOR
Ryan T. Sowell, Magdalena Rogozińska, Christine E. Nelson, Vaiva Vezys, and Amanda L. Marzo

**ANTIGEN RECOGNITION AND RESPONSES**

Simulation of B Cell Affinity Maturation Explains Enhanced Antibody Cross-Reactivity Induced by the Polyvalent Malaria Vaccine AMA1
Sidhartha Chaudhury, Jaques Reifman, and Anders Wallquist

Intrahepatic Activation of Naive CD4⁺ T Cells by Liver-Resident Phagocytic Cells

Bcl-xL Regulates CD1d-Mediated Antigen Presentation to NKT Cells by Altering CD1d Trafficking through the Endocytic Pathway
Priyanka B. Subrahmanyam, Gregory B. Carey, and Tonya J. Webb

Collaboration between a Soluble C-Type Lectin and Calreticulin Facilitates White Spot Syndrome Virus Infection in Shrimp
Xian-Wei Wang, Yi-Hui Xu, Ji-Dong Xu, Xiao-Fan Zhao, and Jin-Xing Wang

**AUTOIMMUNITY**

High Frequency of Cytolytic 21-Hydroxylase–Specific CD8⁺ T Cells in Autoimmune Addison’s Disease Patients
Amina Dawoodji, Ji-Li Chen, Dawn Shepherd, Frida Dalin, Andrea Tarlton, Mohammad Alimohammadi, Marisa Penna-Martinez, Gesine Meyer, Anna L. Mitchell, Eam H. Gan, Eivik Bratland, Sophie Bensing, Eystein S. Husebye, Simon H. Pearce, Klaus Badenhoop, Olle Kämpe, and Vincenzo Cerundolo

Myeloid-Derived Suppressor Cells as a Potential Therapy for Experimental Autoimmune Myasthenia Gravis
Yan Li, Zhidan Tu, Shiguang Qian, John J. Fung, Sanford D. Markowitz, Linda L. Kusner, Henry J. Kaminski, Lina Lu, and Feng Lin

Compensatory Mechanisms Allow Undersized Anchor-Deficient Class I MHC Ligands To Mediate Pathogenic Autoreactive T Cell Responses
Deanna Lamont, Gayatri Mukherjee, P. Rajesh Kumar, Dibyendu Samanta, Caroline G. McPhee, Thomas W. H. Kay, Steven C. Almo, Teresa P. DiLorenzo, and David V. Serreze

Sperm-Associated Antigen 16 Is a Novel Target of the Humoral Autoimmune Response in Multiple Sclerosis
Laura de Beer, Klaartje Somers, Judith Fraussen, Jerome J.A. Hendriks, Jack van Horssen, Myrthe Roubouts, Niels Helliings, Luisa M. Villar, José C. Álvarez-Cermeno, Mercedes Espino, Raymond Hupperts, Peter Jongen, Jan Damoiseaux, Marcel M. Verbeek, Peter P. De Deyn, Marie D’hooghe, Bart Van Wijmeersch, Piet Stinissen, and Veerle Somers
Thiamine Deficiency Promotes T Cell Infiltration in Experimental Autoimmune Encephalomyelitis: The Involvement of CCL2
Zhe Ji, Zhiqin Fan, Ying Zhang, Ronghuan Yu, Haibua Yang, Chenghua Zhou, Jia Luo, and Zun-Ji Ke

IL-2 Protects Lupus-Prone Mice from Multiple End-Organ Damage by Limiting CD4$^+$CD8$^-$ IL-17-$^+$ Producing T Cells
Matsuyuki Mizui, Tomohiro Koga, Linda A. Lieberman, Jessica Beltran, Nobuya Yoshida, Mark C. Johnson, Roland Tisch, and George C. Tsokos

CLINICAL AND HUMAN IMMUNOLOGY

IFN-α Exerts Opposing Effects on Activation-Induced and IL-7-Induced Proliferation of T Cells That May Impair Homeostatic Maintenance of CD4$^+$ T Cell Numbers in Treated HIV Infection
Lilian Cha, Emma de Jong, Martyn A. French, and Sonia Fernandez

Altered Expression of Autoimmune Regulator in Infant Down Syndrome Thymus, a Possible Contributor to an Autoimmune Phenotype
Gabriel Skogberg, Vanja Lundberg, Susanne Lindgren, Judith Gudmundsdottir, Kerstin Sandström, Olle Kämpe, Göran Annerén, Jan Gustafsson, Jan Sunnegårdh, Sjöörd van der Post, Eibjörn Telemo, Martin Berglund, and Olov Ekwall

IMMUNE REGULATION

Two Functionally Distinct Subsets of Mast Cells Discriminated By IL-2-Independent CD25 Activities
Lorenzo Deho’, Cristina Leoni, Tess M. Brodie, Sara Montagner, Marco De Simone, Sara Polletti, Iros Barozzi, Gioachino Natoli, and Silvia Monticelli

Transcription Factor ABF-1 Suppresses Plasma Cell Differentiation but Facilitates Memory B Cell Formation
Yi-Kai Chiu, J-Ying Lin, Shin-Tang Su, Kuan-Hsiung Wang, Shii-Yi Yang, Dong-Yan Tsai, Yi-Ting Hsieh, and Kao-I Lin

TLR4 Activation Enhances the PD-L1-Mediated Tolerogenic Capacity of Colonic CD90$^+$ Stromal Cells
Ellen J. Beswick, Jameel R. Johnson, Jamal I. Saada, Martin Humen, Jenifer House, Sara Dann, Suimin Qiu, Allan R. Brasier, Don W. Powell, Victor E. Reyes, and Irina V. Pinchuk

Ubiquitin-Specific Protease 2b Negatively Regulates IFN-β Production and Antiviral Activity by Targeting TANK-Binding Kinase 1
Lei Zhang, Xueying Zhao, Meng Zhang, Wei Zhao, and Chengjiang Gao

JNK2 Regulates the Functional Plasticity of Naturally Occurring T Regulatory Cells and the Enhancement of Lung Allergic Responses
Anthony Joetham, Michaela Scheidel, Katsuyuki Takeda, Yi Jia, Shigeru Ashino, Azeddine Dakhama, Anna Lluis, Masaharu Okamoto, and Erwin W. Gelfand

IL-17 Suppresses Immune Effector Functions in Human Papillomavirus-Associated Epithelial Hyperplasia
Christina Gosmann, Stephen R. Mattarollo, Jennifer A. Bridge, Ian H. Frazer, and Antje Blumenthal

IMMUNE SYSTEM DEVELOPMENT

Human Regulatory B Cells Combine Phenotypic and Genetic Hallmarks with a Distinct Differentiation Fate
Wenyu Lin, Daniela Cerny, Edmond Chua, Kaibo Duan, June Tai Jing Yi, Nurbidaya Binte Shadan, Josephine Lum, Maud Maho-Vaillant, Francesca Zolezzi, Siew Cheng Wong, Anis Larbi, Katja Fink, Philippe Musette, Michael Poidinger, and Sébastien Calbo

IL-2-Inducible T Cell Kinase Tunes T Regulatory Cell Development and Is Required for Suppressive Function
Weishan Huang, Ah-Reum Jeong, Arun K. Kannan, Lu Huang, and Avery August
IMMUNOGENETICS

2273 Salmonids Have an Extraordinary Complex Type I IFN System: Characterization of the IFN Locus in Rainbow Trout Oncorhyncus mykiss Reveals Two Novel IFN Subgroups

IMMUNOTHERAPY AND VACCINES

2287 Vector-Encoded Helicobacter pylori Neutrophil-Activating Protein Promotes Maturation of Dendritic Cells with Th1 Polarization and Improved Migration
Mohanj Ramachandran, Chuan Jin, Di Yu, Fredrik Eriksson, and Magnus Esand

2297 Nanoparticle-Mediated Combinatorial Targeting of Multiple Human Dendritic Cell (DC) Subsets Leads to Enhanced T Cell Activation via IL-15-Dependent DC Crosstalk
Kartik Sehgal, Ragy Ragheb, Tarek M. Fahmy, Madhaus V. Dhodaphkar, and Kasita M. Dhodaphkar

2306 A Novel Murine Cytomegalovirus Vaccine Vector Protects against Mycobacterium tuberculosis
Peter C. L. Beverley, Zolt Ruasics, Arianny Hey, Claire Hutchings, Simone Boos, Beatrice Bolinger, Emanuele Marchi, Geraldine O’Hara, Paul Kleenerman, Ulrich H. Koszinowski, and Elma Z. Tchilian

INFECTIONOUS DISEASE AND HOST RESPONSE

2330 Prostaglandin E 2 Negatively Regulates the Production of Inflammatory Cytokines/Chemokines and IL-17 in Visceral Leishmaniasis
Amrita Saha, Arunima Biswas, Supriya Srivastav, Madhuchanda Mukherjee, Pijush K. Das, and Anindita Ukil

2340 PTX3 Binds MD-2 and Promotes TRIF-Dependent Immune Protection in Aspergillosis
Silvia Bozza, Silvia Campo, Brunilde Arseni, Antonio Inforzato, Lindstedt Ragnar, Barbara Bottazzi, Alberto Mantovani, Silvia Moretti, Vasileios Oikonomou, Rita De Santis, Giovanna Salvatori, and Luigi Romani

2349 Macrophage Depletion Abates Porphyromonas gingivalis–Induced Alveolar Bone Resorption in Mice

2363 Leishmania Promastigotes Induce Cytokine Secretion in Macrophages through the Degradation of Synaptotagmin XI
Guillermo Arango Duque, Mitsunori Fukuda, Salvatore J. Turco, Simona Stäger, and Albert Descoteaux

INNATE IMMUNITY AND INFLAMMATION

2373 Modulation of TNF-Induced Macrophage Polarization by Synovial Fibroblasts
Laura T. Donlin, Arundathi Jayatilleke, Eugenia G. Giannopoulou, George D. Kalliolias, and Lionel B. Iavashkiv

2384 Matrix Metalloproteinase-8 Plays a Pivotal Role in Neuroinflammation by Modulating TNF-α Activation
Eun-Jung Lee, Jeong Eun Han, Moon-Sook Woo, Jin A. Shin, Eun-Mi Park, Jihee Lee Kang, Pyong Gon Moon, Moon-Chang Baek, Woo-Sung Son, Young Taeg Ko, Ji Woon Choi, and Hee-Sun Kim

2394 The DNA Sensor, Cyclic GMP–AMP Synthase, Is Essential for Induction of IFN-β during Chlamydia trachomatis Infection
Yugen Zhang, Lacomi Yeruva, Anthony Marinov, Daniel Prantner, Priscilla B. Wyrick, Vladimir Lupashin, and Uma M. Nagarajan

2405 CaMKIV-Dependent Preservation of mTOR Expression Is Required for Autophagy during Lipopolysaccharide-Induced Inflammation and Acute Kidney Injury
Xianghong Zhang, Gina M. Howell, Lanping Guo, Richard D. Collage, Patricia A. Loughran, Brian S. Zuckerbraun, and Matthew R. Rosengart
Macrophage- and Neutrophil-Derived TNF-α Instructs Skin Langerhans Cells To Prime Antiviral Immune Responses
Olivier Epaulard, Lucille Adam, Candice Poux, Gerard Zurawski, Nina Salabert, Pierre Rosenbaum, Nathalie Deraudre-Bouquet, Sandra Zurawski, Anne-Laure Flamar, Sanghyun Oh, Gabrielle Romain, Catherine Chapon, Jacques Banchereau, Yves Lévy, Roger Le Grand, and Frédéric Martinon

Rapid Remodeling of Tight Junctions during Paracellular Diapedesis in a Human Model of the Blood–Brain Barrier
Ryan C. Winger, Jennifer E. Kobliński, Takashi Kanda, Richard M. Rasnoff, and William A. Muller

Neutrophils Mediate Blood–Spinal Cord Barrier Disruption in Demyelinating Neuroinflammatory Diseases
Benoit Aubé, Sébastien A. Lévesque, Alexandre Paré, Émilie Chamma, Hania Kébir, Ross Gorina, Marc-André Lécuyer, Jorge I. Altavera, Yves De Koninck, Britta Engelhardt, Alexandre Prat, Daniel Côté, and Steve Lacroix

Essential Role for the Lectin Pathway in Collagen Antibody–Induced Arthritis Revealed through Use of Adenovirus Programming Complement Inhibitor MAp44 Expression

ADAM9 Is a Novel Product of Polymorphonuclear Neutrophils: Regulation of Expression and Contributions to Extracellular Matrix Protein Degradation during Acute Lung Injury
Robin Roychaudhuri, Anja H. Hergueter, Francesca Polverino, Maria E. Laubo-Contreras, Kushagra Gupta, Niels Borregaard, and Caroline A. Owen

Scavenger Receptor Function of Mouse Fcγ Receptor III Contributes to Progression of Atherosclerosis in Apolipoprotein E Hyperlipidemic Mice
Xinmei Zhu, Hang Pong Ng, Yen-Chun Lai, Jodi K. Craigo, Pruthvi S. Nagilla, Pooja Raghani, and Shanmugam Nagarajan

Independent of Plasmacytoid Dendritic Cell (pDC) infection, pDC Triggered by Virus-Infected Cells Mount Enhanced Type I IFN Responses of Different Composition as Compared to pDC Stimulated with Free Virus
Therea Frenz, Lukas Graalmann, Claudia N. Detje, Marius Döring, Elena Graboki, Stefanie Schew, and Ulrich Kalinke

CD326CD103CD11b Dermal Dendritic Cells Are Activated by Thymic Stromal Lymphopoietin during Contact Sensitization in Mice
Sotaro Ochiai, Ben Roediger, Arby Ablin, Elena Shklovskaya, Barbara Fazekas de St. Groth, Hidehiro Yamane, Wolfgang Weninger, Graham Le Gros, and Franca Ronchese

Acute and Chronic Effects of IL-22 on Acetaminophen-Induced Liver Injury
Dechun Feng, Yan Wang, Hua Wang, Honglei Weng, Xiaoni Kong, Brittany V. Martin-Murphy, Yongmei Li, Ogyi Park, Steven Dooley, Cynthia Ju, and Bin Gao

Caspase-8 Modulates Dectin-1 and Complement Receptor 3–Driven IL-1β Production in Response to β-Glucans and the Fungal Pathogen, Candida albicans

Inducible Nitric Oxide Synthase in Neutrophils and Endothelium Contributes to Ischemic Brain Injury in Mice
Lidia Garcia-Bonilla, Jamie M. Moore, Gianfranco Racchumi, Ping Zhou, Jason M. Butler, Costantino Iadecola, and Joseph A. Swerdlow

Differential Requirement for the IKKβ/NF-κB Signaling Module in Regulating TLR- versus RLR-Induced Type 1 IFN Expression in Dendritic Cells
Xingyu Wang, Junning Wang, Hong Zheng, Mengyu Xie, Emily L. Hoppel, Randy A. Albrecht, Shoko Nogusa, Adolfo Garcia-Sastre, Siddharth Balachandran, and Amer A. Beg
MOLECULAR AND STRUCTURAL IMMUNOLOGY

2546 Zfp318 Regulates IgD Expression by Abrogating Transcription Termination within the Ighm/Ighd Locus
Peter D. Pioli, Irina Debnath, Janis J. Weis, and John H. Weis

MUCOSAL IMMUNOLOGY

2554 Inhibition of Two Temporal Phases of HIV-1 Transfer from Primary Langerhans Cells to T Cells:
The Role of Langerin
Najla Nasr, Joey Lai, Rachel A. Botting, Sarah K. Mercier, Andrew N. Harman, Min Kim, Stuart Turville, Rob J. Center,
Teresa Domagala, Paul R. Gorry, Norman Olbourne, and Anthony L. Cunningham

TRANSPLANTATION

2565 Programmed Death-1 Pathway in Host Tissues Ameliorates Th17/Th1-Mediated Experimental Chronic
Graft-versus-Host Disease
Hideaki Fujiwara, Yoshinobu Maeda, Koichiro Kobayashi, Hisakazu Nishimori, Ken-ichi Matsuoka, Nobuharu Fujii,
Eisei Kondo, Takehiro Tanaka, Lieping Chen, Miyuki Azuma, Hideo Yagita, and Mitsune Tanimoto

TUMOR IMMUNOLOGY

2574 Noncanonical NF-kB Activation Mediates STAT3-Stimulated IDO Upregulation in Myeloid-Derived
Suppressor Cells in Breast Cancer
Jinpu Yu, Yue Wang, Fang Yan, Peng Zhang, Hui Li, Hua Zhao, Cihui Yan, Fan Yan, and Xiubao Ren

2587 Specific Increase in Potency via Structure-Based Design of a TCR
Karolina Malecek, Arsen Grigoryan, Shi Zhong, Wei Jun Gu, Laura A. Johnson, Steven A. Rosenberg, Timothy Cardozo,
and Michelle Krogsgaard

NOVEL IMMUNOLOGICAL METHODS

2600 Laser Ablation–Inductively Coupled Plasma Mass Spectrometry: An Emerging Technology for Detecting
Rare Cells in Tissue Sections
Amy J. Managh, Robert W. Hutchinson, Paloma Riquelme, Christiane Broichhausen, Anja K. Wege, Uwe Ritter,
Norbert Ahrens, Gudrun E. Koehl, Lisa Walter, Christian Florian, Hans J. Schlitt, Helen J. Reid, Edward K. Geissler,
Barry L. Sharp, and James A. Hutchinson

CORRECTIONS

2609 Correction: Derivation and Maintenance of Virtual Memory CD8 T Cells
Adovi D. Akue, June-Yong Lee, and Stephen C. Jameson

2610 AUTHOR INDEX