

blood



VOLUME 123
NUMBER 5
30 JANUARY 2014

MGUS patients have increased bone porosity and fracture risk (p 603, p 647)

Eosinophils in airways provide potent antiviral protection (p 609, p 743)

Worldwide anemia prevalence contributes to global burden of disability (p 611, p 615)

Exosomes from stored red cell units are immunostimulatory (p 687)

Bone marrow stromal secretion of GDF15 enhances myeloma cell proliferation (p 725)

20150

BLOOD : ADDITIONAL PRINT ONLY

2014 VOLUME 123 ISSUE 5

SISAC



3128087

Genome & Co. v. Univ. of Chicago
PGR2019-00002
UNIV. CHICAGO EX. 2011



Free
blood app

COVER FIGURE

Targeted deletion of mouse Tmod3 leads to embryonic lethality with anemia due to defects in definitive erythropoiesis in the fetal liver. Native erythroblastic island formation was impaired in *Tmod3*^{-/-} fetal livers, with Tmod3 required in both erythroblasts and macrophages. Tmod3-mediated actin remodeling may be required for erythroblast-macrophage adhesion as well as coordination of cell cycle with differentiation, and F-actin assembly and remodeling during erythroblast enucleation. This image shows erythroblast-macrophage islands in wild-type fetal livers, which were stained with Alexa Fluor-488 phalloidin (green) for F-actin, rabbit anti-Tmod3 (red) for Tmod3, and Hoechst 33258 (blue) for nuclei. See the article by Sui et al on page 758.

INSIDE BLOOD

- 601 **Enucleate or replicate? Ask the cytoskeleton**
Stefano Rivella
- 602 **Is rituximab one for all ages and each sex?**
Thomas M. Habermann
- 603 **Less strength and more fractures for MGUS bones**
Evangelos Terpos and Meletios A. Dimopoulos
- 605 **Delta-1 provides pleasant stem cell environs**
Louis M. Pelus and Pratibha Singh
- 606 **Inhibitory Fc γ RIIb and CD20 internalization**
Ian Dransfield
- 608 **Hanging tough: CMV-specific CD8 $^{+}$ T cells in CLL**
John C. Riches and John G. Gribben
- 609 **28 days later: eosinophils stop viruses**
Paige Lacy
- 611 **Anemia: a comprehensive global estimate**
Sant-Rayn Pasricha

BLOOD WORK

- 613 **BCGitis induced inflammatory granuloma of the bone marrow**
Zhaodong Xu and Virginia R. Roth
- 614 **Green neutrophilic inclusions could be a sign of impending death!**
Tarek Jazaerly and Ali M. Gabali

PLENARY PAPER

- 615 **A systematic analysis of global anemia burden from 1990 to 2010**
Nicholas J. Kassebaum, Rashmi Jurasaria, Mohsen Naghavi, Sarah K. Wulf, Nicole Johns, Rafael Lozano, Mathilda Regan, David Weatherall, David P. Chou, Thomas P. Eisele, Seth R. Flaxman, Rachel L. Pullan, Simon J. Brooker, and Christopher J. L. Murray

REVIEW ARTICLE

- 625 **Oxidative stress in angiogenesis and vascular disease**
Young-Woong Kim and Tatiana V. Byzova

Mutation of NRAS but not KRAS significantly reduces myeloma sensitivity to single-agent bortezomib therapy

George Mulligan, David I. Lichten, Alessandra Di Bacco, Stephen J. Blakemore, Allison Berger, Erik Koenig, Hugues Bernard, William Trépicchio, Bin Li, Rachel Neuwirth, Nibedita Chattopadhyay, Joseph B. Bolen, Andrew J. Dorner, Helgi van de Velde, Deborah Ricci, Sundar Jagannath, James R. Berenson, Paul G. Richardson, Edward A. Stadtmauer, Robert Z. Orlowski, Sagar Lonial, Kenneth C. Anderson, Pieter Sonneveld, Jesús F. San Miguel, Dixie-Lee Esseltine, and Matthew Schu

640 Suboptimal dosing of rituximab in male and female patients with DLBCL

Michael Pfleiderer, Carsten Müller, Samira Zeynalova, Evelyn Kuhnt, Martin H. J. Wiesen, Gerhard Held, Tanja Rixecker, Viola Poeschel, Carsten Zwick, Marcel Reiser, Norbert Schmitz, and Niels Murawski

647 Brief Report**Altered cortical microarchitecture in patients with monoclonal gammopathy of undetermined significance**

Joshua N. Farr, Wei Zhang, Shaji K. Kumar, Richard M. Jacques, Alvin C. Ng, Louise K. McCready, S. Vincent Rajkumar, and Matthew T. Drake

Blood stem cell fate regulation by Delta-1-mediated rewiring of IL-6 paracrine signaling

Elizabeth Csaszar, Weijia Wang, Tatiana Usenko, Wenlian Qiao, Colleen Delaney, Irwin D. Bernstein, and Peter W. Zandstra

Inhibitors of apoptosis proteins (IAPs) are required for effective T-cell expansion/survival during antiviral immunity in mice

Ian E. Gentle, Isabel Moelter, Nadja Lechner, Sarah Bambach, Smiljka Vucikuja, Georg Häcker, and Peter Aichele

Inhibitory Fc γ RIIb (CD32b) becomes activated by therapeutic mAb in both cis and trans and drives internalization according to antibody specificity

Andrew T. Vaughan, Chisako Iriyama, Stephen A. Beers, Claude H. T. Chan, Sean H. Lim, Emily L. Williams, Vallari Shah, Ali Roghanian, Bjorn Frendéus, Martin J. Glennie, and Mark S. Cragg

Anti-KIR antibody enhancement of anti-lymphoma activity of natural killer cells as monotherapy and in combination with anti-CD20 antibodies

Holbrook E. Kohrt, Ariane Thielen, Aurelien Marabelle, Idit Sagiv-Barfi, Caroline Sola, Fabien Chanuc, Nicolas Fuseri, Cécile Bonnafous, Debra Czerwinski, Amanda Rajapaksa, Erin Waller, Sophie Ugolini, Eric Vivier, François Romagné, Ronald Levy, Mathieu Bléry, and Pascale André

Exosomes from red blood cell units bind to monocytes and induce proinflammatory cytokines, boosting T-cell responses in vitro

Ali Danesh, Heather C. Inglis, Rachael P. Jackman, Shiquan Wu, Xutao Deng, Marcus O. Muench, John W. Heitman, and Philip J. Norris

Potent antimyeloma activity of the novel bromodomain inhibitors I-BET151 and I-BET762

Aristeidis Chaidos, Valentina Caputo, Katerina Gouvedenou, Binbin Liu, Ilaria Marigo, Mohammed Suhail Chaudhry, Antonia Rotolo, David F. Tough, Nicholas N. Smithers, Anna K. Bassil, Trevor D. Chapman, Nicola R. Harker, Olena Barbasch, Peter Tummino, Niam Al-Mahdi, Andrea C. Haynes, Leanne Cutler, BaoChau Le, Amin Rahemtulla, Irene Roberts, Maurits Kleijnen, Jason J. Witherington, Nigel J. Parr, Rab K. Prinjha, and Anastasios Karadimitris

706	A novel small molecule inhibitor of deubiquitylating enzyme USP14 and UCHL5 induces apoptosis in multiple myeloma and overcomes bortezomib resistance Ze Tian, Padraig D'Arcy, Xin Wang, Arghya Ray, Yu-Tzu Tai, Yiguo Hu, Ruben D. Carrasco, Paul Richardson, Stig Linder, Dharminder Chauhan, and Kenneth C. Anderson
717	CMV-specific CD8⁺ T-cell function is not impaired in chronic lymphocytic leukemia G. Doreen te Raa, Maria Fernanda Pascutti, Juan J. García-Vallejo, Emilie Reinen, Ester B. M. Remmerswaal, Ineke J. M. ten Berge, René A. W. van Lier, Eric Eldering, Marinus H. J. van Oers, Sanne H. Tonino, and Arnon P. Kater
725	Growth differentiating factor 15 enhances the tumor-initiating and self-renewal potential of multiple myeloma cells Toshihiko Tanno, Yiting Lim, Qiuju Wang, Marta Chesi, P. Leif Bergsagel, Geoff Matthews, Ricky W. Johnstone, Nilanjan Ghosh, Ivan Borrello, Carol Ann Huff, and William Matsui
<hr/>	
MYELOID NEOPLASIA	
734	MUC1-C oncoprotein promotes FLT3 receptor activation in acute myeloid leukemia cells Suiyang Liu, Li Yin, Dina Stroopinsky, Hasan Rajabi, Alexandre Puissant, Kimberly Stegmaier, David Avigan, Surender Kharbanda, Donald Kufe, and Richard Stone
<hr/>	
PHAGOCYTES, GRANULOCYTES, AND MYELOPOIESIS	
743	Activated mouse eosinophils protect against lethal respiratory virus infection Caroline M. Percopo, Kimberly D. Dyer, Sergei I. Ochkur, Janice L. Luo, Elizabeth R. Fischer, James J. Lee, Nancy A. Lee, Joseph B. Domachowske, and Helene F. Rosenberg
<hr/>	
PLATELETS AND THROMBOPOIESIS	
753	Brief Report High-level transgene expression in induced pluripotent stem cell-derived megakaryocytes: correction of Glanzmann thrombasthenia Spencer K. Sullivan, Jason A. Mills, Sevasti B. Koukouritaki, Karen K. Vo, Randolph B. Lyde, Prasuna Paluru, Guoha Zhao, Li Zhai, Lisa M. Sullivan, Yuhuan Wang, Siddharth Kishore, Eyad Z. Gharabeih, Michele P. Lambert, David A. Wilcox, Deborah L. French, Mortimer Poncz, and Paul Gadue
e1	e-Blood Time-resolved characterization of cAMP/PKA-dependent signaling reveals that platelet inhibition is a concerted process involving multiple signaling pathways Florian Beck, Jörg Geiger, Stepan Gambaryan, Johannes Veit, Marc Vaudel, Peter Nollau, Oliver Kohlbacher, Lennart Martens, Ulrich Walter, Albert Sickmann, and René P. Zahedi
<hr/>	
RED CELLS, IRON, AND ERYTHROPOIESIS	
758	Tropomodulin3-null mice are embryonic lethal with anemia due to impaired erythroid terminal differentiation in the fetal liver Zhenhua Sui, Roberta B. Nowak, Andrea Bacconi, Nancy E. Kim, Hui Liu, Jie Li, Amittha Wickrema, Xiu-li An, and Velia M. Fowler
<hr/>	
THROMBOSIS AND HEMOSTASIS	
768	Polyphosphate suppresses complement via the terminal pathway Jovian M. Wat, Jonathan H. Foley, Michael J. Krisinger, Linnette Mae Ocariza, Victor Lei, Gregory A. Wasney, Emilie Lameignere, Natalie C. Strynadka, Stephanie A. Smith, James H. Morrissey, and Edward M. Conway
777	A meta-analysis of genome-wide association studies identifies ORM1 as a novel gene controlling thrombin generation potential Ares Rocanin-Arjo, William Cohen, Laure Carcaillon, Corinne Frère, Noémie Saut, Luc Letenneur, Martine Alhenc-Gelas, Anne-Marie Dupuy, Marion Bertrand, Marie-Christine Alessi, Marine Germain, Philipp S. Wild, Tanja Zeller, Francois Cambien, Alison H. Goodall, Philippe Amouyel, Pierre-Yves Scarabin, David-Alexandre Trégoüët, Pierre-Emmanuel Morange, and the CardioGenes Consortium

786 Plasma CXCL9 elevations correlate with chronic GVHD diagnosis

Carrie L. Kitko, John E. Levine, Barry E. Storer, Xiaoyu Chai, David A. Fox, Thomas M. Braun, Daniel R. Couriel, Paul J. Martin, Mary E. Flowers, John A. Hansen, Lawrence Chang, Megan Conlon, Bryan J. Fiema, Rachel Morgan, Prae Pongtornpipat, Kelly Lamiman, James L. M. Ferrara, Stephanie J. Lee, and Sophie Paczesny

CORRESPONDENCE**794 Correcting 2 more myths regarding transplants for AML in second remission**

Robert Peter Gale and Hillard M. Lazarus

794 Association of a single-nucleotide polymorphism in the SH2B3 gene with JAK2V617F-positive myeloproliferative neoplasms

Elodie Lesteven, Marie Picque, Carole Conejero Tonetti, Stéphane Giraudier, Nadine Varin-Blank, Laura Velazquez, Jean-Jacques Kiladjian, Bruno Cassinat, and Fanny Baran-Marszak

796 Hepatitis E transmission by transfusion of Intercept blood system–treated plasma

Lisette Hauser, Anne-Marie Roque-Afonso, Alexandre Beylouné, Marion Simonet, Bénédicte Deau Fischer, Nicolas Burin des Roziers, Vincent Mallet, Pierre Tiberghien, and Philippe Bierling

ERRATA**798 Duh EJ. Sema 3A resists retinal revascularization. *Blood*. 2011;117(22):5785-5786.****798 Hole PS, Darley RL, Tonks A. Do reactive oxygen species play a role in myeloid leukemias? *Blood*. 2011;117(22):5816-5826.****798 Hsu LL. Hydroxyurea makes inflammation “just right”? *Blood*. 2012;119(8):1796-1798.**

OTHER DEPARTMENTS**xxiii Author Guide****ib Classifieds**

SUBMISSION INSTRUCTIONS

All manuscripts, including figures, should be submitted electronically at <http://submit.bloodjournal.org> to Editor-in-Chief Bob Löwenberg, MD, PhD. Before submitting your paper, review *Blood's* Author Guide at <http://bloodjournal.hematologylibrary.org/site/authors/authorguide.xhtml>. If you need help during the submission process, contact the Editorial Office by phone at 202-776-0548 or via e-mail at editorial@hematology.org.

Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.