

# Arteriosclerosis, Thrombosis, and Vascular Biology

Volume 37 Number 2 February 2017

Key: VB=Vascular Biology AL=Atherosclerosis/Lipoproteins TH=Thrombosis

## Recent Highlights of ATVB

---

### **VB Killing Me Unsoftly: Causes and Mechanisms of Arterial Stiffness**

*Alicia N. Lyle, Uwe Raaz* **Online Only** ..... e1

## Editorials

---

### **AL Monocytosis, Hypercholesterolemia, and the Kinase That Binds Them**

*Ashley M. Fenn, Filip K. Swirski* ..... 173  
See accompanying article on page 237

### **AL ADAM17: A Molecular Switch to Control TNFR2 During Atherogenesis In Vivo**

*Yiting Jia, Wei Kong* ..... 176  
See accompanying article on page 247

### **VB Interleukin-1 $\beta$ Is a Key Biomarker and Mediator of Inflammatory Vascular Calcification**

*Navid Shobeiri, Michelle P. Bendeck* ..... 179  
See accompanying article on page 328

## Insight Into ATVB Authors

---

ATVB Named Lecture Review—Insight Into Author: Karin E. Bornfeldt..... 181

## ATVB Named Lecture Review

---

### **AL 2016 Russell Ross Memorial Lecture in Vascular Biology: Molecular–Cellular Mechanisms in the Progression of Atherosclerosis**

*Ira Tabas* ..... 183  
See Insight Into Ira Tabas on page 190

ARTERIOSCLEROSIS, THROMBOSIS, AND VASCULAR BIOLOGY (ISSN 1079-5642 print / 1524-4636 online) is published monthly by Wolters Kluwer Health, Inc. at 14700 Citicorp Drive, Bldg 3, Hagerstown, MD 21742. Business offices are located at Two Commerce Square, 2001 Market St., Philadelphia, PA 19103. Production offices are located at 351 West Camden Street, Baltimore, MD 21201-2436. Individuals may subscribe for their personal use at the following rates for print subscriptions: \$225 for AHA/ASA Domestic and International Members (excluding General Membership level), or \$669 for domestic non-members and \$793 for international non-members. AHA membership information can be found online at professional.heart.org. Periodicals postage paid at Hagerstown, MD and additional mailing offices. POSTMASTER: Send address changes to ARTERIOSCLEROSIS, THROMBOSIS, AND VASCULAR BIOLOGY, American Heart Association, Wolters Kluwer Health, Inc., PO Box 1610, Hagerstown, MD 21740.

## Insight Into ATVB Authors

---

<b>AL ATVB Named Lecture Review—Insight Into Author: Ira Tabas</b> .....	190
--	-----

## ATVB in Focus: Vascular Calcification in Diabetes

---

<b>AL Pathology of Human Coronary and Carotid Artery Atherosclerosis and Vascular Calcification in Diabetes Mellitus</b> <i>Kazuyuki Yahagi, Frank D. Kolodgie, Christoph Lutter, Hiroyoshi Mori, Maria E. Romero, Alope V. Finn, Renu Virmani</i> .....	191
<b>VB Arterial Calcification in Diabetes Mellitus: Preclinical Models and Translational Implications</b> <i>John N. Stabley, Dwight A. Towler</i> .....	205

## Brief Review

---

<b>AL NADPH Oxidase-2 and Atherothrombosis: Insight From Chronic Granulomatous Disease</b> <i>Francesco Violi, Roberto Carnevale, Lorenzo Loffredo, Pasquale Pignatelli, John I. Gallin</i> .....	218
--	-----

## Basic Sciences




---

<b>AL Role of KCa3.1 Channels in Macrophage Polarization and Its Relevance in Atherosclerotic Plaque Instability</b> <i>Rende Xu, Chenguang Li, Yizhe Wu, Li Shen, Jianying Ma, Juying Qian, Junbo Ge</i> .....	226	
<b>AL Map3k8 Modulates Monocyte State and Atherogenesis in ApoE<sup>-/-</sup> Mice</b> <i>Carlos Sanz-Garcia, Ángela Sánchez, Constanza Contreras-Jurado, Carmela Cales, Cristina Barranquero, Marta Muñoz, Ramón Merino, Paula Escudero, Maria-Jesús Sanz, Jesús Osada, Ana Aranda, Susana Alemany</i> .....	237	
See accompanying editorial on page 173		
<b>AL Adam17 Deficiency Promotes Atherosclerosis by Enhanced TNFR2 Signaling in Mice</b> <i>Alexandros Nicolaou, Zhen Zhao, Bernd H. Northoff, Kristina Sass, Andreas Herbst, Alexander Kohlmaier, Athena Chalaris, Christian Wolfrum, Christian Weber, Sabine Steffens, Stefan Rose-John, Daniel Teupser, Lesca M. Holdt</i> .....	247	
See accompanying editorial on page 176		
<b>AL Tracking Monocyte Recruitment and Macrophage Accumulation in Atherosclerotic Plaque Progression Using a Novel hCD68GFP/ApoE<sup>-/-</sup> Reporter Mouse—Brief Report</b> <i>Eileen McNeill, Asif J. Iqbal, Daniel Jones, Jyoti Patel, Patricia Coutinho, Lewis Taylor, David R. Greaves, Keith M. Channon</i> <b>OPEN</b> .....	258	
<b>TH Novel Thrombotic Function of a Human SNP in STXBP5 Revealed by CRISPR/Cas9 Gene Editing in Mice</b> <i>Qiuyu Martin Zhu, Kyung Ae Ko, Sara Ture, Michael A. Mastrangelo, Ming-Huei Chen, Andrew D. Johnson, Christopher J. O'Donnell, Craig N. Morrell, Joseph M. Miano, Charles J. Lowenstein</i> .....	264	
<b>TH Contraction of Blood Clots Is Impaired in Acute Ischemic Stroke</b> <i>Valerie Tutwiler, Alina D. Peshkova, Izabella A. Andrianova, Dina R. Khasanova, John W. Weisel, Rustem I. Litvinov</i> .....	271	
See cover image		

<b>VB MicroRNA-146a Induces Lineage-Negative Bone Marrow Cell Apoptosis and Senescence by Targeting Polo-Like Kinase 2 Expression</b> <i>Shanming Deng, Huilan Wang, Chunling Jia, Shoukang Zhu, Xianming Chu, Qi Ma, Jianqin Wei, Emily Chen, Wei Zhu, Conrad J. Macon, Dushyantha T. Jayaweera, Derek M. Dykxhoorn, Chunming Dong</i> .....	280 
<b>VB The Paraoxonase Gene Cluster Protects Against Abdominal Aortic Aneurysm Formation</b> <i>Yun-Fei Yan, Jian-Fei Pei, Yang Zhang, Ran Zhang, Fang Wang, Peng Gao, Zhu-Qin Zhang, Ting-Ting Wang, Zhi-Gang She, Hou-Zao Chen, De-Pei Liu</i> .....	291 
<b>VB Telomerase Reverse Transcriptase Deficiency Prevents Neointima Formation Through Chromatin Silencing of E2F1 Target Genes</b> <i>Elizabeth B. Endorf, Hua Qing, Jun Aono, Naoto Terami, Geneviève Doyon, Eric Hzyny, Karrie L. Jones, Hannes M. Findeisen, Dennis Bruemmer</i> .....	301 
<b>VB Protective Aptitude of Annexin A1 in Arterial Neointima Formation in Atherosclerosis-Prone Mice—Brief Report</b> <i>Renske J. de Jong, Nicole Paulin, Patricia Lemnitzer, Joana R. Viola, Carla Winter, Bartolo Ferraro, Jochen Grommes, Christian Weber, Chris Reutelingsperger, Maik Drechsler, Oliver Soehnlein</i> .....	312 


## Translational Sciences

---

<b>AL Local Vascular Gene Therapy With Apolipoprotein A-I to Promote Regression of Atherosclerosis</b> <i>Bradley K. Wacker, Nagadhara Dronadula, Jingwan Zhang, David A. Dichek</i> .....	316 
<b>AL Rac2 Modulates Atherosclerotic Calcification by Regulating Macrophage Interleukin-1<math>\beta</math> Production</b> <i>Nicolle Ceneri, Lina Zhao, Bryan D. Young, Abigail Healy, Suleyman Coskun, Hema Vasavada, Timur O. Yarovinsky, Kenneth Ike, Ruggero Pardi, Lingfen Qin, Li Qin, George Tellides, Karen Hirschi, Judith Meadows, Robert Soufer, Hyung J. Chun, Mehran M. Sadeghi, Jeffrey R. Bender, Alan R. Morrison</i> .... See accompanying editorial on page 179	328 
<b>VB Increased Proangiogenic Activity of Mobilized CD34<sup>+</sup> Progenitor Cells of Patients With Acute ST-Segment–Elevation Myocardial Infarction: Role of Differential MicroRNA-378 Expression</b> <i>Christian Templin, Julia Volkmann, Maximilian Y. Emmert, Pavani Mocharla, Maja Müller, Nicolle Kraenkel, Jelena-R. Ghadri, Martin Meyer, Beata Styp-Rekowska, Sylvie Briand, Roland Klingenberg, Milosz Jaguszewski, Christian M. Matter, Valentin Djonov, Francois Mach, Stephan Windecker, Simon P. Hoerstrup, Thomas Thum, Thomas F. Lüscher, Ulf Landmesser</i> .....	341 

## Clinical and Population Studies

---

<b>AL Ezetimibe in Combination With Statins Ameliorates Endothelial Dysfunction in Coronary Arteries After Stenting: The CuVIC Trial (Effect of Cholesterol Absorption Inhibitor Usage on Target Vessel Dysfunction After Coronary Stenting), a Multicenter Randomized Controlled Trial</b> <i>Susumu Takase, Tetsuya Matoba, Soichi Nakashiro, Yasushi Mukai, Shujiro Inoue, Keiji Oi, Taiki Higo, Shunsuke Katsuki, Masao Takemoto, Nobuhiro Suematsu, Kenichi Eshima, Kenji Miyata, Mitsutaka Yamamoto, Makoto Usui, Kenji Sadamatsu, Shinji Satoh, Toshiaki Kadokami, Kiyoshi Hironaga, Ikuyo Ichi, Koji Todaka, Junji Kishimoto, Kensuke Egashira, Kenji Sunagawa; for the QcVIC Investigators</i> .....	350 
<b>AL Resting Heart Rate Trajectory Pattern Predicts Arterial Stiffness in a Community-Based Chinese Cohort</b> <i>Shuohua Chen, Weijuan Li, Cheng Jin, Anand Vaidya, Jingli Gao, Hui Yang, Shouling Wu, Xiang Gao</i> .....	359 

**TH Prothrombotic Fibrin Clot Phenotype Is Associated With Recurrent Pulmonary Embolism After Discontinuation of Anticoagulant Therapy**

*Michal Zabczyk, Krzysztof Plens, Wioletta Wojtowicz, Anetta Undas* ..... 365 

**VB Longitudinal Impact of Smoking and Smoking Cessation on Inflammatory Markers of Cardiovascular Disease Risk**

*Cecile C. King, Megan E. Piper, Adam D. Gepner, Michael C. Fiore, Timothy B. Baker, James H. Stein* ..... 374 

---

Correction **Online Only** ..... e12

**On the cover:** Scanning electron microscopy of platelets from ischemic stroke patients reveals shape change corresponding to initially activated circulating cells; the functional exhaustion of activated platelets comprises a potential mechanism for impaired clot contraction in stroke patients. (See pages 271–279.)

Instructions to the Authors are available online at <http://atvb.ahajournals.org/site/misc/ifora.xhtml>.

Some figures may appear in color in the online issue, while appearing in black and white for the print issue.

 This article contains online supplementary information that is available at <http://atvb.ahajournals.org>.

# Arteriosclerosis, Thrombosis, and Vascular Biology



JOURNAL OF THE AMERICAN HEART ASSOCIATION

37 (2)

*Arterioscler Thromb Vasc Biol.* 2017;37:e12-379

*Arteriosclerosis, Thrombosis, and Vascular Biology* is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231

Copyright © 2017 American Heart Association, Inc. All rights reserved.

Print ISSN: 1079-5642. Online ISSN: 1524-4636

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://atvb.ahajournals.org/content/37/2>

**Permissions:** Requests for permissions to reproduce figures, tables, or portions of articles originally published in *Arteriosclerosis, Thrombosis, and Vascular Biology* can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the [Permissions and Rights Question and Answer](#) document.

**Reprints:** Information about reprints can be found online at:

<http://www.lww.com/reprints>

**Subscriptions:** Information about subscribing to *Arteriosclerosis, Thrombosis, and Vascular Biology* is online at:

<http://atvb.ahajournals.org/subscriptions/>