



Vascular Research Initiatives Conference (VRIC) 2022

Translational Immunology and Cardiovascular Disease

Full presentations – 10 minutes, 7-minute presentations with 3 minutes of discussion

Quick shot presentations – 5 minutes, 4-minute presentations with 1 minute of discussion

WEDNESDAY, MAY 11, 2022

ROOM

7:00 AM **REGISTRATION AND CONTINENTAL BREAKFAST** **WILLOW A/B FOYER**

8:00 AM **INTRODUCTORY REMARKS** **WILLOW A/B**

Katherine A. Gallagher, MD, Chair, SVS Basic and Translational Research Committee
Peter F. Lawrence, MD, Chair, SVS Foundation
Alan Dardik, MD, PhD, Editor, JVS-Vascular Science

ABSTRACT SESSION I - ARTERIAL REMODELING AND DISCOVERY SCIENCE FOR VENOUS DISEASE

Moderator: Kimberly Malka, MD, PhD
Moderator: Kevin W. Southerland, MD

8:15 AM **The Histone Methyl Transferase (SUV39H1) Promotes Smooth Muscle Cell Dedifferentiation**
Full **Payel Chatterjee (presenting)**, Yale Univ, New Haven, CT; Raja Chakraborty, Yi Xie, Yale University, New Haven, CT; Ashley Sizer, John Hwa, Yale School Medicine, New Haven, Ct; Kathleen A Martin, Yale School of Medicine, New Haven, CT

8:25 AM **Single Cell Gene Expression Of Brachial Artery In Response To Increased Shear Stress**
Quick shot **Jared Rozowsky (presenting)**, Qiongyao Hu, Kerri O'Malley, Erik Anderson, Brian Fazzino, Scott A Berceci, University of Florida, Gainesville, FL

8:30 AM **The Epigenetic Enzyme KMT2A/MLL1 Is A Driver Of Coronavirus Associated Coagulopathy**
Full **Sriganesh B Sharma (presenting)**, William J Melvin, Christopher O Audu, Yogendra Kanthi, NHLBI, Natl Insts of Health, Bethesda, MD; Jason S Knight, Nicole Rhoads, Reheman Adili, Michael A Holinstat, Bethany B Moore, Peter K Henke, Thomas W Wakefield, Katherine A. Gallagher, Andrea T Obi, Univ of Michigan, Ann Arbor, MI

8:40 AM **Thrombospondin-5 Is Necessary For Males But Not Females In Hindlimb Ischemia Recovery**
Quick shot **Melissa M Rangel (presenting)**, Rush Univ Medical Ctr, Chicago, IL; Corinne Bunn, Xuerong Wang, Xianzhong Ding, Loyola Medical Ctr, Chicago, IL; Kristopher Maier, Loyola Stritch Sch of Med, Maywood, IL; Vivian Gahtan, Loyola Medical Ctr, Maywood, IL

8:45 AM **Microvessel Oxidative Stress Predicts Changes In Leg Function Of Patients With Peripheral Arterial Disease After Supervised Exercise Therapy**
Full **Molly Schieber* (presenting)**, Sara A Myers, Shuai Li, Iraklis I Pipinos, George Casale, Univ of Nebraska Medical Ctr, Omaha, NE

8:55 AM Quick shot **Using Deep Convolutional Neural Networks To Automate Classification Of Carotid Plaques From Ultrasound Imaging**
Nitish Bhatt (presenting), Rashmi Nedadur, Blair Warren, Univ of Toronto, Toronto, ON, Canada; Sebastian Mafeld, Univ Health Network, Toronto, ON, Canada; Sheha Raju, Univ of Toronto, Toronto, ON, Canada; Jason E Fish, Univ Health Network, Toronto, ON, Canada; Bo Wang, Peter Munk Cardiac Ctr, Toronto, ON, Canada; Kathryn L Howe, Univ Health Network, Toronto, ON, Canada

9:00 AM Full **TGF-beta Signaling Mediates Endothelial-to-mesenchymal Transition During Arteriovenous Fistula Remodeling In The Chronic Kidney Disease Environment**
Weichang Zhang (presenting), Yale Sch of Med, New Haven, CT; Luis Gonzalez, Satam Keyuree., Yale Univ, New Haven, CT; Yuichi Ohashi, Hamden, CT; yukihiko aoyagi, Hamden, CT, Hamden, CT; Ocean Setia, Yale New Haven Hosp, New Haven, CT; Destina Jodhel, Yale Sch of Med, New Haven, CT; Li Xin, Shu Chang, The Second Xiangya Hosp of Central South Univ, Changsha, China; Alan Dardik, Yale School of Medicine, New Haven, CT

9:10 AM Full **Altered Macrophage Response Associated With Impaired Skeletal Muscle Regeneration In Murine Model Of Limb Ischemia**
Derek Peters (presenting), Yueyuan Xu, Xin Lin, Xiaolin Wei, Yarui Diao, Kevin Southerland, Duke Univ, Durham, NC

9:20 AM BREAK

ABSTRACT SESSION II - VASCULAR REGENERATION, STEM CELLS AND WOUND HEALING

Moderator: Alan Dardik, MD, PhD
 Moderator: Kathleen A. Martin, PhD

9:35 AM Full **Mixed-lineage Leukemia 1 Regulates T Cell Phenotype And Inflammation In Diabetic Wounds**
 William J Melvin, **Christopher Audu (presenting)**, Emily Barrett, Amrita Joshi, Kevin Mangum, Sonya Wolf, Sriganesh Sharma, Andrea T Obi, Bethany Moore, Katherine Gallagher, University Michigan, Ann Arbor, MI

9:45 AM Quick shot **Distinct Satellite Cell Trajectories Characterize Regenerative And Non-regenerative Responses In The Ischemic Limb**
Yueyuan Xu (presenting), Derek Peters, Xin Lin, Xiaolin Wei, Kevin Southerland, Yarui Diao, Duke Univ, Durham, NC

9:50 AM Full **Sex Differences In Limb Ischemia Recovery Following Conditional Endothelial Overexpression Of Cept1**
Rodrigo Meade (presenting), Connor Engel, Larisa Belaygorod, LI Yin, Clay F Semenkovich, Mohamed A Zayed, Washington Univ, St. Louis, MO

10:00 AM Quick shot **Sex Hormones Mediate Sex Differences In Hemodynamics And Inflammation During Arteriovenous Fistula Maturation**
Keyuree Satam (presenting), Yuichi Ohashi, Luis Gonzalez, Yukihiko Aoyagi, Ocean Setia, Weichang Zhang, Alan Dardik, Yale Sch of Med, New Haven, CT

10:05 AM Quick shot **MOF Expression Regulates Interferon β In Diabetic Wound Macrophages And Impairs Tissue Repair**
 Emily Barrett, William Melvin, Christopher Audu, Frank Davis, **Kevin Mangum* (presenting)**, Amrita Joshi, Sonya Wolf, Katherine Gallagher, University Michigan, Ann Arbor, MI

10:10 AM Quick shot **Upregulation Of The Absent-in-melanoma 2 Inflammasome Correlates With Markers Of DNA Damage And Cell Cycle Dysregulation In Peripheral Arterial Disease**
Edwyn J Assaf (presenting), Bowen Xie, Ricardo Ferrari, Kristin Morder, Ryan M McEnaney, VA PHS, Pittsburgh, PA; Edith Tzeng, Ulka Sachdev, University Pittsburgh UPMC, Pittsburgh, PA

10:15 AM Full **Modifiable Mesenchymal Stem Cell Defects In Veterans With Diabetes Mellitus**
Carson Hoffmann* (presenting), Emory Univ, Atlanta, GA; Maiko Sasaki, Atlanta VA Medical Ctr, Decatur, GA; Sara Bitarafan, Georgia Technical Inst, Atlanta, GA; Yoonhee Jung, Dylan McLaughlin, Feifei Li, Victor Corces, Emory Univ, Atlanta, GA; Levi Wood, Georgia Technical Inst, Atlanta, GA; Luke Brewster, Emory Univ, Atlanta, GA

10:25 AM Quick shot **Phosphodiesterase 10A Regulates Medial Artery Calcification**
Yujun Cai (presenting), Yangzhouyun Xie, Alexa Berezowitz, Yale Univ Sch of Med, New Haven, CT; Alyssa M Flores, Xue-Lin Wang, Beth Israel Deaconess Medical Ctr, Boston, MA; Raul J Guzman, Yale Univ Sch of Med, New Haven, CT

10:30 AM BREAK

ALEXANDER W. CLOWES DISTINGUISHED LECTURE

10:55 AM Moderator: Katherine A. Gallagher, MD, Chair, SVS Basic and Translational Research Committee

11:00 AM **Epigenetic Regulation of Vascular Smooth Muscle Plasticity**

Kathleen A. Martin, PhD
 Professor of Medicine and Pharmacology
 Yale University School of Medicine
 Co-Director Yale Cardiovascular Research Center
 Yale Cardiovascular Research Center

11:30 AM LUNCH & POSTER PREVIEW

GRAND BALLROOM D

SVS FOUNDATION UPDATE AND AWARDS CEREMONY

WILLOW A/B

Moderator: Peter F. Lawrence, MD, Chair, SVS Foundation

12:30 PM **VRIC Trainee Awardees**

Mario Figueroa
 Carson Hoffmann
 Kevin Mangum
 Molly Schieber

SVS FOUNDATION MENTORED CLINICAL SCIENTIST RESEARCH CAREER DEVELOPMENT AWARD

Moderator: Katherine A. Gallagher, MD, Chair, SVS Basic and Translational Research Committee

12:40 PM **The Function of PARP1 in Diabetic Wound Healing**

Bao-Ngoc Nguyen MD, FACS
 Associate Professor of Surgery
 Chief of Vascular Surgery
 George Washington University

12:50 PM **Tension-induced SGK-1 Signaling in AAA**
Jean Marie Ruddy, MD
 Associate Professor of Surgery, Division of Vascular Surgery
 Medical University of South Carolina

TRANSLATIONAL PANEL

1:00 PM Moderator: Katherine A. Gallagher, MD, Chair, SVS Basic and Translational Research Committee

1:05 PM **Cholesterol, Inflammation and Atherosclerosis: Expecting the Unexpected**

Katey Rayner, PhD, FAHA
 Associate Professor, Dept of Biochemistry, Microbiology & Immunology
 Assistant Dean, Research & Special Projects
 Faculty of Medicine, University of Ottawa
 University of Ottawa Heart Institute

1:35 PM **Bench to Bedside Translation of Pro-Efferocytic Therapies**

Nicholas Leeper, MD
 Professor and Chief of Vascular Medicine
 Stanford University

2:05 PM **BREAK**

ABSTRACT SESSION III - ATHEROSCLEROSIS AND ROLE OF THE IMMUNE SYSTEM

Moderator: Kathryn L. Howe, MD, PhD
 Moderator: Lars Maegdefessel, MD, PhD

2:20 PM **Role Of Cellular Communication Network Factor 2 (ccn2) And Male Sex On Flow-mediated Arterial Remodeling And Atherosclerotic Plaque Formation**
Full
Luke P Brewster (presenting), Feifei Li, Emory University Hospital, Atlanta, GA; Victor Omojola, Georgia Inst of Technology, Atlanta, GA; Sandeep Kumar, Emory Univ, Atlanta, GA; Rudolph L Gleason, Georgia Institute of Technology, Atlanta, GA; Hanjoong Jo, Emory University, Atlanta, Ga

2:30 PM **Association Of Influenza Pneumonia With Abdominal Aortic Aneurysm (aaa) Disease**
Quick shot
Baohui Xu (presenting), Ronald L Dalman, Stanford University Medical CE, Stanford, CA

2:35 PM **A Chimeric Antigen Receptor Targeting MDA-LDL Activates Regulatory T Cells In The Presence Of Human Atherosclerotic Plaque**
Full
Sonali Shaligram (presenting), Jose Luis Lopez, Pei-Yu Lin, Patrick Ho, April Huang, Qizhi Tang, Adam Z Oskowitz, UC, San Francisco, San Francisco, CA

2:45 PM **Inhibition Of Tlr-7 Signaling Attenuates TAAD Formation**
Quick shot
 Xiaoyan Qi, Mingmei Liao, Alex Hung, George Arnaoutakis, UF Health Shands Hosp, Gainesville, FL; Gilbert R Upchurch Jr., **Zhihua Jiang (presenting)**, University of Florida COM, Gainesville, FL

2:50 PM
Full **Integration Of Coronary Artery Disease GWAS With Bulk And Single-cell Transcriptomics From Atherosclerotic Plaques By Deconvolution, Reveals Novel Smooth Muscle Cell Genes**

Sampath Narayanan, PhD, Karolinska Instt, Stockholm, Sweden; Sofija Vuckovic, Uppsala Univ, Uppsala, Sweden; Robert Wirka, Univ of North Carolina, Chapel Hill, NC; Mariette Lengquist, Karolinska Instt, Stockholm, Sweden; Thomas Quertermous, Stanford Sch of Med, Stanford, CA; **Ulf Hedin (presenting)**, Ljubica Matic, Karolinska Instt, Stockholm, Sweden

3:00 PM
Quick shot **Transcriptional Profiling Of Human Abdominal Aortic Aneurysm Tissue Reveals Distinct Extracellular Vesicle-Derived MicroRNA Cargo**

Steven R Botts (presenting), Sneha Raju, Kamalben Prajapati, Leandro C Breda, Jason E Fish, Kathryn L Howe, Univ Health Network, Toronto, ON, Canada

3:05 PM
Full **Single-cell And Spatially Resolved Transcriptome Analysis Reveals Cellular Heterogeneities And Novel Regulators Of Atherosclerotic Plaque Destabilization**

Jessica Pauli (presenting), Zhiyuan Wu, Technical Univ Munich, Munich, Germany; Chika Yokota, Stockholm Univ, Stockholm, Sweden; Greg Winski, Karolinska Instt, Stockholm, Sweden; Valentina Paloschi, Anne Dueck, Technical University Munich, Munich, Germany; Stefan Engelhardt, Hans-Henning Eckstein, Inst.of Pharmacol. a. Toxicol. TUM, Munich, Germany; Muredach P Reilly, Columbia University Medical Center, New York, NY; Lars Maegdefessel, Columbia University Medical Center, New York, NY

3:15 PM
Quick shot **Systematic Review And Mendelian Randomization Of Plasma Biomarkers To Predict Their Causal Role In Peripheral Artery Disease Pathophysiology**

Pranav Sharma (presenting), Drexel Univ Coll of Med, Philadelphia, PA; Michael Levin, Univ of Pennsylvania, Philadelphia, PA; Derek Klarin, Stanford Univ Medical Ctr, Palo Alto, CA; Benjamin F Voight, Scott M Damrauer, Univ of Pennsylvania, Philadelphia, PA

3:20 PM **BREAK**

ABSTRACT SESSION IV - AORTOPATHIES AND NOVEL VASCULAR DEVICES

Moderator: Alan Daugherty, PhD
Moderator: Bhama Ramkhelawon, PhD
Moderator: Jean Marie Ruddy, MD

3:35 PM
Full **Ketosis Prevents Abdominal Aortic Aneurysm Progression And Rupture In Male Rats**

Santiago Elizondo Benedetto, **Mohamed Zaghloul (presenting)**, Batool Arif, Sergio Sastriques Dunlop, Mohamed A Zayed, Washington University School Medicine, Saint Louis, MO

3:45 PM
Quick shot **Effects Of Human Angiotensinogen And Human Renin In Proximal Tubule Cells On Development Of Atherosclerosis In Hypercholesterolemic Mice**

Naofumi Amioka (presenting), Masayoshi Kukida, University of Kentucky, SAHA CVRS, Lexington, KY; Deborah A Howatt, Jessica J Moorlegghen, Alan Daugherty, Hong Lu, University Kentucky, Lexington, KY

3:50 PM
Full **Regulatory T Cells Suppress Aortic Aneurysm Growth In Mice Through Local Tissue Changes And Lymph Node Colonization**

Jose Luis Lopez, Pei-Yu Lin, Sonali Shaligram, April Huang, Pierce Hadley, Qizhi Tang, **Adam Oskowitz (presenting)**, UC, San Francisco, San Francisco, CA

4:00 PM Quick shot **A Magnetic Sensor-Equipped Retrievable Aortic Rescue Stent Graft For Non-Compressible Torso Hemorrhage**
Dahlia M. Kenawy (presenting), The Ohio State Univ Wexner Medical Ctr, Columbus, OH; Yifan Zhang, Moataz Elsisy, Youngjae Chun, Univ of Pittsburgh Swanson Sch of Engineering, Pittsburgh, PA; Marlene I. Garcia-Neuer, The Ohio State Univ Coll of Med, Columbus, OH; Mahmoud Abdel-Rasoul, The Ohio State Univ Wexner Medical Ctr, Columbus, OH; William C. Clark, Univ of Pittsburgh Swanson Sch of Engineering, Pittsburgh, PA; Bryan W. Tillman, The Ohio State Univ Wexner Medical Ctr, Columbus, OH

4:05 PM Full **Vascular Smooth Muscle Cell Mechanotransduction Through Serum And Glucocorticoid Inducible Kinase -1 Promotes Interleukin-6 Production And Macrophage Accumulation In Murine Hypertension**
Mario Figueroa* (presenting), Victoria Mattia, Ying Xiong, Rupak Mukherjee, Jeffrey A Jones, Jean M Ruddy, Medical Univ of South Carolina, Charleston, SC

4:15 PM Quick shot **Blood Protein Predictors Of Lower Extremity Vein Bypass Graft Failure And Remodeling**
Yong He (presenting), University Florida, Gainesville, FL; Kerri O'Malley, Dan Neal, University Florida, Gainesville, FL; Roger Tran-Son-Tay, Scott A Berceci, University of Florida, Gainesville, FL

4:20 PM Full **Methyl Transferase Inhibitor 5-azacytidine Suppresses Experimental Abdominal Aortic Aneurysms**
 Toru Ikezoe, Yingbin Ge, Nanjing Medical Univ, Nanjing; Jia Guo, Takahiro Shoji, **Baohui Xu (presenting)**, Ronald L Dalman, Stanford University Medical CE, Stanford, CA

4:30 PM Quick shot **Monitoring Tissue Oxygen Dynamics With A Novel Implantable Hydrogel Sensor In Patients With Pad**
 James C Iannuzzi, Michael S Conte, Kerstin Rebrin, Profusa, Inc., Emeryville, CA; Monica M Lozano, Profusa, Emeryville, CA; Laura Menke, David Cheng, San Francisco VA Medical Ctr, San Francisco, CA; Eric Smith, San Francisco VA Medical Ctr, San Francisco, CA, Peter Schneider, San Francisco VA Medical Ctr, San Francisco, CA, **Shant Vartanian (presenting)**, UC, San Francisco, San Francisco, CA

4:35 PM Quick shot **Comparative Assessment Of Peripheral Stent Abrasiveness Under Cyclic Deformations Experienced During Limb Flexion**
 Courtney Keiser, Kaspars Maleckis, Jason N Mactaggart, **Alexey Kamenskiy (presenting)**, Univ of Nebraska Omaha, Omaha, NE

5:00 PM POSTER COMPETITION AND RECEPTION GRAND BALLROOM D

Moderator: Karen J. Ho, MD
 Moderator: Mohamed Zayed, MD, PhD
 Instructions / Announcements

	<u>Poster ID</u>	<u>Poster Category</u>	<u>Presenter</u>	<u>Title</u>
5:05 PM	1	Atherogenesis	Wa Du	Genetic Ablation Of CCDC92 Protects Against Vascular Inflammation And Atherosclerosis
5:05 PM	5	Vascular Medicine	Somayya J Mohammad	African American Women With Cyp3a4/5 Polymorphisms Have Increased Statin Intolerance.

5:05 PM	9	Aneurysmal Disease	Chetan P Hans	Mangiferin Conjugated Gold Nanoparticles Protect Against The Development Of Abdominal Aortic Aneurysm In Apoe ^{-/-} Mouse Model
5:05 PM	13	Inflammation in Vascular Disease	Lucas Marinho	Plasma Interleukin-6 Levels And Cardiovascular Events In The Cirt Trial: Consistent Associations For Incident Coronary, Cerebrovascular, And Peripheral Artery Disease
5:05 PM	17	Models for Vascular Disease	Pengyu Zong	<i>Trpm2</i> Deficiency In Macrophages Protects Mice Against Atherosclerosis
5:09 PM	2	Atherogenesis	Prakash Doddapattar	Myeloid Cell PKM2 Deletion Enhances Efferocytosis And Reduces Atherosclerosis
5:09 PM	6	Vascular Medicine	Minh T.H. Nguyen	Novel Athero-protective Role Of Chk1-induced Senp2 S344 Phosphorylation Under Laminar Flow
5:09 PM	10	Aneurysmal Disease	Baohui Xu	Natural Vascular Scaffolding Suppresses Experimental Abdominal Aortic Aneurysms
5:09 PM	14	Inflammation in Vascular Disease	Connor Engel	<i>Ccr2</i> Expression Is Increased In Patients With Symptomatic Carotid Arterial Occlusive Disease
5:09 PM	18	Models for Vascular Disease	Christopher O. Audu	Epigenetically Altered Diabetic Wound Plasmacytoid Dendritic Cells (pDCs) Direct Wound CD4 T-cells Towards A Th17 Phenotype
5:13 PM	7	Vascular Medicine	Brandon C Applewhite	Periadventitial Lysyl Oxidase Inhibition Using Electrospun Nanofibers Improves Arteriovenous Fistula Maturation
5:13 PM	11	Aneurysmal Disease	Jackie M Zhang	LRP1 Prevents Aortic And SMA Aneurysms By Modulating Excessive Ang-II Signaling
5:13 PM	15	Inflammation in Vascular Disease	Jun Yu	Lack Of Map Kinase Phosphatase-5 In Macrophages Protects Ldlr-null Mice Against Atherogenesis
5:13 PM	19	Models for Vascular Disease	Joseph Giacolone	Impaired Ischemic Myocutaneous Wound Revascularization And Transdermal H ₂ S Emissions In Diabetic Rats
5:17 PM	4	Atherogenesis	Holly C Sucharski	Imatinib Promotes Reverse Cholesterol Transport And Elevates Sr-bi
5:17 PM	8	Vascular Medicine	Panagiotis Koutakis	Heavy Alcohol Use Worsens Peripheral Artery Disease-Associated Myopathy

5:17 PM	12	Aneurysmal Disease	Kameel Khabaz	Prediction Of Adverse Events Following Stent Graft Repair Of Type B Aortic Dissection From Imaging Modalities
5:17 PM	16	Inflammation in Vascular Disease	Hui-Chun Huang	Monocyte-mimicking Nanoparticles For Atherosclerosis-targeted Therapy
5:17 PM	20	Models for Vascular Disease	Rebecca N Treffalls	Utilization Of Intra-Arterial Contrast For Computed Tomography Aortography In A Swine Model

5:30 PM Winners announced

6:00 pm Reception ends. **Presenters, please remove posters by 6PM, or they will be discarded.** *If you have a poster that will be at the AHA's Vascular Discovery, you are responsible to move it.*

***SVS Foundation Vascular Research Initiatives Conference Trainee Awardee**