

# Gaps and Opportunities in Vascular Dementia Research Virtual Workshop

Sept. 20-21, 2021

## WORKSHOP CO-CHAIRS

- Dr. Luisa Iruela-Arispe, Northwestern University School of Medicine
- Dr. Stacey Rizzo, University of Pittsburgh

## WORKSHOP OVERVIEW

Animal models have long provided important insights into the mechanisms and treatments for a wide spectrum of vascular diseases. However, a significant gap still exists in the understanding of cognitive and dementia-like phenotypes associated with these models. The purpose of this workshop is to explore the current state of the research on vascular disease animal models and to identify gaps and opportunities. Workshop participants will suggest ways to create a comprehensive assessment of cognitive phenotypes in existing mouse models of vascular diseases with an emphasis on rigor and reproducibility.

## AGENDA

DAY 1	SEPTEMBER 20, 2021, 10:00 a.m. - 3:40 p.m., EST
10:00-10:20 a.m.	Opening Remarks – Dr. David Goff, Director of the Division of Cardiovascular Sciences, National Heart, Lung, and Blood Institute (NHLBI), NIH  Workshop Charge – Co-chairs: Dr. Luisa Iruela-Arispe, Northwestern University School of Medicine, and Dr. Stacey Rizzo, University of Pittsburgh School of Medicine
<b>Session 1</b>	<b>Cognition and Vascular Health: From Human to Mice and Back</b>
10:20-10:40 a.m.	Defining Vascular Dementia in Human Patients – Dr. Farzaneh Sorond, Northwestern Medical Center
10:40-11:00 a.m.	Human Hypertension and Cognitive Decline – Dr. Adam Greenstein, University of Manchester, UK
11:00-11:20 a.m.	National Institute of Neurological Disorders and Stroke (NINDS) Perspective on Vascular Contributions to Cognitive Impairment and Dementia – Dr. Rod Corriveau, NINDS, NIH
11:20-11:40 a.m.	National Institute on Aging (NIA) Perspective: Lessons Learned from the Alzheimer’s Field – Dr. Suzana Petanceska, NIA, NIH
11:40-12:20 p.m.	<b>Panel Discussion</b> Moderator: Dr. Stacey Rizzo, University of Pittsburgh School of Medicine <i>What recommendations do you have for the field of vascular dysfunction-induced cognitive decline?</i>
12:20-12:40 p.m.	BREAK
<b>Session 2</b>	<b>Examples of Mouse Models of Vascular Disease</b>
12:40-1:00 p.m.	<i>In vitro/In vivo</i> disease modeling in inherited vascular dementia related diseases – Dr. Manfred Boehm, NHLBI, NIH
1:00-1:20 p.m.	Mouse models of hereditary small vessel diseases of the brain – Dr. Ann Joutel, INSERM, Paris
1:20-1:40 p.m.	Vascular Anomalies and Cavernous Malformations – Dr. Mark Kahn, University of Pennsylvania
1:40-2:00 p.m.	Sickle Cell Disease – Dr. Hyacinth Hyacinth, University of Cincinnati
2:00-2:20 p.m.	Chronic Lung Vascular Disease – Dr. Kurt Stenmark, University of Colorado
2:20-2:40 p.m.	Hypertension – Dr. Alan Daugherty, University of Kentucky
2:40-3:00 p.m.	Atherosclerosis – Dr. Alan Daugherty, University of Kentucky
3:00-3:40 p.m.	<b>Panel Discussion</b> Moderator: Dr. Luisa Iruela-Arispe, Northwestern University School of Medicine <i>What recommendations do you have that would move the field forward or recommendations that would constitute a “representative” set of vascular mouse models?</i>

DAY 2		SEPTEMBER 21, 2021, 10:00 a.m. – 3:00 p.m. EST	
10:00-10:20 a.m.	Review of Day 1 and Goals of Day 2	Dr. Luisa Iruela-Arispe, Northwestern University School of Medicine, and Dr. Stacey Rizzo, University of Pittsburgh School of Medicine	
<b>Session 3</b>	<b>Behavioral and Cognitive Outcome Measures in Mouse Models</b>		
10:20-10:40 a.m.	Challenges, Limitations, and Confounds of Cognitive Assays in Mouse Models – Dr. Stacey Rizzo, University of Pittsburgh School of Medicine		
10:40-11:00 a.m.	Standardized High Throughput Phenotyping Pipelines – Dr. Sara Wells, MRC Harwell Institute, UK		
11:00-11:20 a.m.	Modern Translational Touchscreen Cognitive Testing – Dr. Tim Bussey, Western University, Canada		
11:20-11:40 a.m.	Complexities of Studying Vascular Contributions to Cognitive Impairment in Mouse Models – Dr. Donna Wilcock, University of Kentucky		
11:40-12:00 p.m.	The Advantages and Challenges of Incorporating Aging and Genetic Diversity in Mouse Models to Study Vascular Cognitive Impairment and Dementia – Dr. Gareth Howell, Jackson Laboratories		
12:00-12:40 p.m.	<b>Panel Discussion</b> Moderator: Dr. Stacey Rizzo, University of Pittsburgh School of Medicine <i>What recommendations do you have to move the field of cognitive assessment in preclinical mouse models forward? What set of assays would constitute a “reasonable” cognitive assessment for any given vascular mouse model?</i>		
12:40-1:00 p.m.	BREAK		
1:00-1:40 p.m. Breakout Session/ Working Group	<b>What are the requirements or other factors that should be considered when attempting to associate mouse models of vascular disease/disorder with certain kinds of cognitive dysfunction?</b> <i>Genetics, aging, environmental factors, translatability, imaging</i>  Speakers and Discussants <b>Discussion Leaders:</b> Dr. Beth Kozel, NHLBI, NIH, and Dr. Emily Collins, Eli Lilly		
1:40-2:20 p.m. Breakout Session/ Working Group	<b>How do we ensure rigor, robustness, and reproducibility in outcome measures for vascular dementia related phenotypes in mouse models?</b> <i>Experimental/operational/data coordination issues</i>  Speakers and Discussants <b>Discussion Leaders:</b> Dr. Kent Lloyd, University of California at Davis, and Dr. Larry Refolo, NIA, NIH		
2:20-3:00 p.m.	<b>Highlights, Recommendations, and Closing Remarks</b> Dr. Luisa Iruela-Arispe, Northwestern University School of Medicine, and Dr. Stacey Rizzo, University of Pittsburgh School of Medicine		