

## Special Points of Interest

- PHOTOS FROM VB 2019
- 2020 MERITORIOUS AWARD RECIPIENTS
- VASCULAR BIOLOGY 2020
- COVID-19 AND VASCULAR BIOLOGY



2020 has been an exceptionally challenging year. After having caused enormous damage, the COVID-19 pandemic has shown no signs of disappearing. Some of you may have lost loved ones. What were the major obstacles to acting in a timely fashion to prevent this devastating health threat from spreading? One appears to be that the initial responses of many governments did not reflect scientific predictions that immediate aggressive measures might save many lives. The United States is now also facing the need to address the complex issues associated with the consequences of racism. It is necessary that we, as a scientific community, think about what we can do to help deal with these dual disasters. While we are not immune to the negative consequences of these challenges, they do provide opportunities for us to think about our roles and how to improve this community that we so dearly love.

### Our voices matter

COVID-19 has taken many lives and led to enormous negative economic consequences. Fighting against a pandemic can be thought of as waging a war against an enemy where the whole globe is the battlefield. As is true in all wars, information plays an essential role in winning battles. Scientific evidence is the key weapon against pandemics. On many occasions, however, political leadership ignores or rejects scientific information. We as scientists must work hard to have our voices heard about knowledge and to defend biomedical research so that the knowledge base can constantly expand. This is our responsibility, in addition to conducting and reporting good science. NAVBO acted against the abrupt revocation of the NIH grant for the EcoHealth Alliance, whose research studies coronavirus transmission from species to species. We sent a letter to Dr. Francis Collins, Director of the NIH, urging that federal funding agencies fight to protect research so that the new information needed to win the battle against COVID-19 can continue to be acquired. More recently, NAVBO joined other scientific societies to send the letter to Vice President Mike Pence to urge the White House to follow scientific and public health guidance from the leading experts, including Dr. Anthony Fauci.

Social issues such as racism may not directly hurt all of us. After each incident, media focus fades, public attention shifts, and lawmakers fail to act. As a science community, we have the obligation to continue sending messages to maintain public pressure for action. Dr. Ondine Cleaver, the immediate past NAVBO president, took an initiative to issue a strong message on our website and via social media to state our condemnation of racism and violence and our support for the Black community. While we experience such a challenging time, let's work together to protect our core values and express our opinions.

### We must continue to strive for diversity

While we as a group can send our signal related to any types of disparities to the rest of the world, we also can explore the opportunities within our organization to

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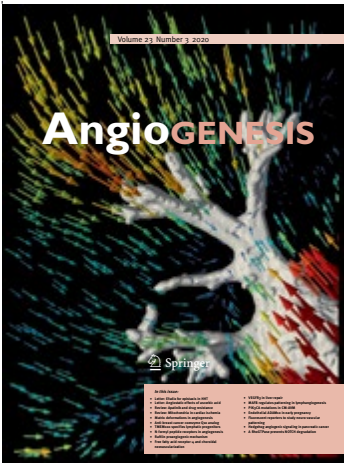


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## Patricia D'Amore is the 2020 Earl P. Benditt Award Recipient

Compiled by William R. Huckle, Editor

The NAVBO Meritorious Awards Committee and Council are pleased to announce the selection of Patricia D'Amore, PhD, MBA, as the 2020 recipient of the Earl P. Benditt Award, in recognition of her numerous contributions to our understanding of vascular development and growth. Dr. D'Amore is currently the Charles L. Schepens Professor of Ophthalmology and Professor of Pathology at Harvard Medical School. She will present the Benditt Lecture and receive the award, one of NAVBO's highest honors, in a live streamed ceremony (date and time to be determined).

Dr. D'Amore earned a PhD in Biology from Boston University in 1977 and pursued postdoctoral research in the Departments of Ophthalmology and Physiological Chemistry at Johns Hopkins, where she was appointed Assistant Professor in 1980. She returned to Boston in 1981 to join Judah Folkman in the Program in Vascular Biology at Boston Children's Hospital, where she remains a Research Associate in the Department of Surgery. Dr. D'Amore rose to the rank of Associate Professor of Pathology (1989) and Professor of Ophthalmology (1998) at Harvard Medical School, assuming the Schepens Professorship as Director of Research at the Schepens Eye Research Institute of Mass. Eye and Ear in 2012. In 2014, she was appointed Professor of Pathology at Harvard Medical School, where she directs the Howe Laboratory and serves as Associate Chief for Ophthalmology Basic and Translational Research in the Department of Ophthalmology.

Dr. D'Amore is recognized internationally as an expert in vascular growth and development, working at the forefront of angiogenesis research for over three decades. Among her foremost contributions is the identification of vascular endothelial growth factor (VEGF) as the elusive causative factor in ocular diseases characterized by over-exuberant blood vessel growth. These investigations proved fundamental in the rationale for development of anti-VEGF therapies, first approved for clinical use in 2004 and currently in use to treat various cancers, diabetic retinopathy, and age-related macular degeneration. Dr. D'Amore also developed the widely-used hyperoxic murine neonate model of retinopathy, enabling numerous basic scientific investigations of vascular development and preclinical studies of vascular-targeting agents. Her current research focuses on understanding the developmental dynamics and maturational stabilization of the microvasculature.

Dr. D'Amore has published more than 160 peer-reviewed papers, dozens of reviews, and is editor or co-editor of four books. She has received numerous honors, including the Alcon Research Institute Award, the Cogan Award and Proctor Medal from ARVO, the Rous-Whipple Award from the American Society of Investigative Pathology, the Endre A. Balazs Award from the International Society for Eye Research, and the António Champalimaud Vision Award, the



Photo by Pierce Harman

Dr. D'Amore's talk is titled, "Understanding capillary growth and pathology using the retina as a model system"

highest distinction in ophthalmology and visual science. Most recently, she was elected as a Fellow of American Academy of Arts & Sciences, Medical Sciences.

Colleagues writing in support of Dr. D'Amore's nomination noted that "...D'Amore is an outstanding teacher, mentor and communicator in the world of vascular biology, locally, nationally and internationally. She is a much sought-after collaborator and colleague, who is passionately committed to the academic mission and presents a wonderful role model for young women trainees in the biomedical sciences. She thus embodies the spirit of Dr. Earl Benditt, as he is remembered for both his scientific contributions and his mentorship."

Please join us for a special online presentation this October to honor Dr. D'Amore as she receives this well-deserved award. Further details will be in the NAVBO NewsBEAT and emailed to NAVBO members.

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Guest Societies:



Kristy Red-Horse is the Judah M. Folkman Award in Vascular Biology Recipient

*Compiled by William R. Huckle, Editor*



Dr. Red-Horse' presentation is titled, "Artery Development and Regeneration."

The NAVBO Meritorious Awards Committee, the Scientific Advisory Board, and the NAVBO Council announce with pleasure the selection of Kristy Red-Horse, PhD, as the recipient of the 2020 Judah Folkman Award in Vascular Biology. This award recognizes outstanding contributions from vascular biologists who are at mid-career (within fifteen years of their first faculty appointment). Dr. Red-Horse will present her Folkman Award Lecture, titled "Artery Development and Regeneration," and receive the award during a live streamed ceremony.

Dr. Red-Horse received a BA in Microbiology from the University of Arkansas (1999), an MS in Biology from San Francisco State University (2001), and PhD from UC-San Francisco (2005). Following post-doctoral stints in Tumor Biology and Angiogenesis at Genentech and Biochemistry at Stanford University, she joined the faculty of Stanford's Department of Biology in 2012, rising to the rank of Associate Professor in 2019. Dr. Red-Horse has earned a number of awards and fellowships, including a K99/R00 Pathway to Independence Award from the NIH/NHLBI, Terman and Chambers Fellowships, and has been designated a Searle Scholar, a New York Stem Cell Foundation Robertson Investigator, and a Brown Faculty Fellow.

Dr. Red-Horse's prior and ongoing research is focused in four major areas: molecular mechanisms and cellular lineages in coronary artery development and regeneration; single cell transcriptomics of the coronary vasculature; support of myocardial growth by the coronary endothelium; and tran-

scriptional and mechanical regulation of coronary artery patterning. Her laboratory's efforts have led to recognition that multiple coronary vessel progenitor sources can compensate for developmental defects and potentially be recruited to effect cardiac repair. Dr. Red-Horse's pioneering work in single-cell transcriptional analysis has led to key and surprising discoveries on the location, molecular mechanisms, and blood flow-dependence of vessel specification and vein-to-artery conversion. She and members of her lab have published a steady stream of well-received papers in top journals, including *Nature*, *Cell*, *Development*, and the *Journal of Clinical Investigation*.

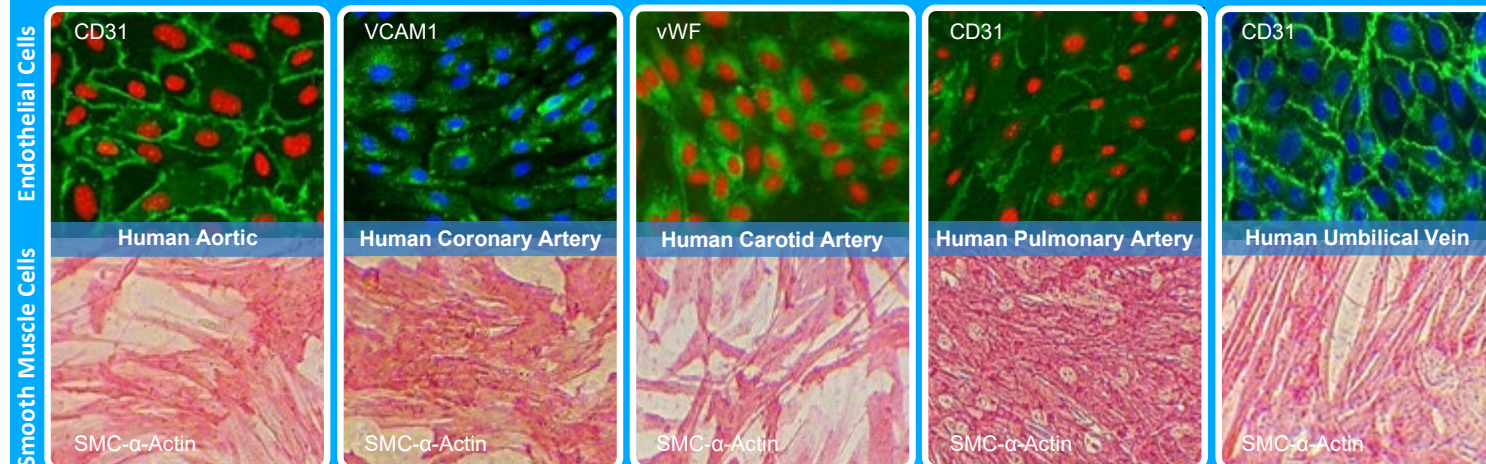
Writing in support of Dr. Red-Horse's nomination for the Folkman Award, her professional colleagues note that "... Kristy is already being included in a select group of elite cardiovascular developmental biologists, even with many years less experience as an independent investigator" and that "[h]er career is still in an upward trajectory in the sense that she has a lot more to offer scientifically and otherwise; yet she has already accomplished a tremendous amount." Moreover, we at NAVBO are presently benefitting from Kristy's service as a member of the NAVBO Council.

Please join us online this October (date and time to be determined) to honor Dr. Red-Horse as she receives the Folkman Award in recognition of her accomplishments...and bright future...as a vascular biologist.





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## Remembering Dr. Stephen Schwartz

Bernadette Englert



Everyone that knew Steve, knew that he was unique to say the least and yes, and I mean that in a good way. I miss him. Steve used to call me quite regularly to discuss new ideas that NAVBO may be able to undertake. They usually concerned education of young people in some way and so we continually evolved Vasculata - adding the study guide, live streaming it to other universities, including high school students enrolled in summer college programs, etc. Our conversations were long, but again, if you knew Steve, did you ever had a short conversation with him? Undoubtedly, most conversations would turn to politics or religion and often to art as well. I often had to decide whether I could spare an hour or more before picking up the phone when Steve called.

When we heard the news of his passing, we at NAVBO wanted to honor him in some way. I'm sure you saw all the messages posted on our website at <http://navbo.org/honoring-steve> (the word cloud below was generated using those statements). We also wanted to recognize Steve, a

NAVBO co-founder, with an award named in his honor. A constant in Steve's career was fostering the education of young investigators - from high school students to postdocs. What better way to honor him than to name a new award for a junior investigator. The Meritorious Awards Committee is currently working on its description and the criteria and the first presentation will be at Vascular Biology 2021. Look for more news about this award in subsequent Newsletters.

In addition to vascular biology, educating the young and a unquenchable thirst for knowledge, Steve had many passions. One of those passions was photography. I thought he would appreciate my sharing of some of his photos as well as some photos of him, which reveal his unique sense of humor. Steve is certainly missed by the entire vascular biology community, I dare say there will not be another like him.







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President’s Message, continued from page 1

support minorities, women, internationally-trained scientists, and other diversity groups. As the first Asian president, one of my focuses is to continue and enhance NAVBO’s mission to embrace and promote diversity by launching the Diversity Committee. NAVBO has been very successful in this mission but there is more to be done. Several enthusiastic members have joined this effort. We will develop innovative ideas to identify ways in which our community and our individual labs can lead the way in building equality and diversity into our scientific lives.

Let’s learn new technologies together

On the scientific front, the speed of technological development is increasing exponentially. New technologies, such as AI, may help us identify more promising therapeutic targets and speed up translation of basic science into the clinic. COVID-19 further accelerated technological development. As many other sectors did, our research community shut down our operations and explored uncharted territories. We have suffered with delays in research projects. Many have struggled to assemble preexisting data and complete grant applications and important manuscripts. I recognized, however, that these challenges forced us to become more independent thinkers and innovators. As we all know, necessity is the mother of invention. We have witnessed new technologies emerging in clinical medicine over the course of just a few months. Telemedicine has been rapidly evolving in the hospitals. The number of virtual visits in the hospitals of Partners HealthCare, including Massachusetts General Hospital and our Brigham and Women’s Hospital, were only 1,600 in February and increased to 89,000 in March and then 242,000 in April! Implementation of AI in clinical medicine was not so fast as compared to other sectors. But, COVID-19 suddenly changed this landscape and pushed the development of AI-powered necessary technologies. If you look on the bright side of this devastating situation, you will recognize various opportunities. In our research community, many laboratories created new styles by working remotely and implemented more computational methods. New prospects to work on the pathogenesis of COVID-19 and its cardiovascular complications also accelerated research innovation. Now is a great time to learn innovative technologies together. We will organize more webinars and sessions at our meetings on emerging approaches and methods so that we can further grow.

I have been a NAVBO member since 1994 when I worked at the University of Tokyo as a PhD student. After 26 years, I as President, look forward to working with all of you to maintain and enhance NAVBO’s traditions and develop new ideas.

Masanori Aikawa

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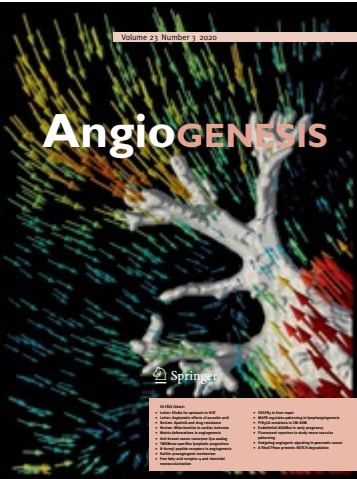
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This is a junior faculty (or equivalent) award and is based on the abstract submitted to VB2020. Watch for the announcement of the 2020 Recipient in an upcoming NewsBEAT

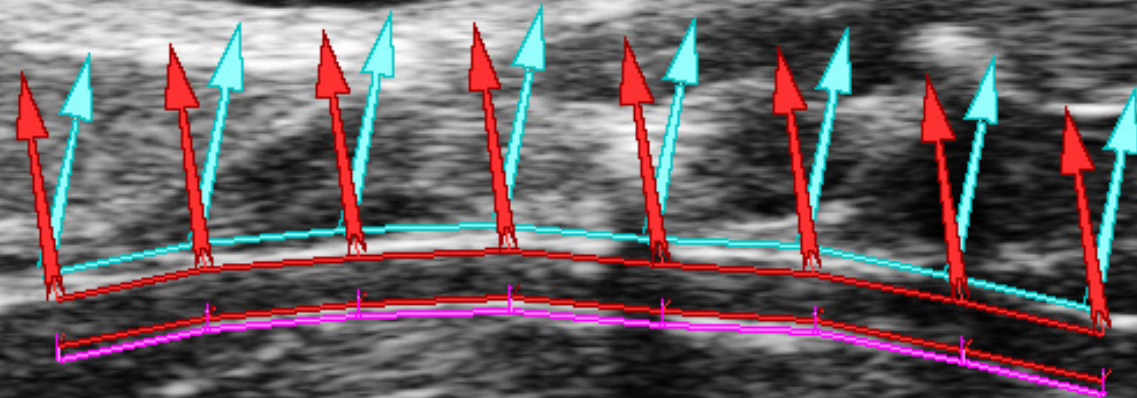
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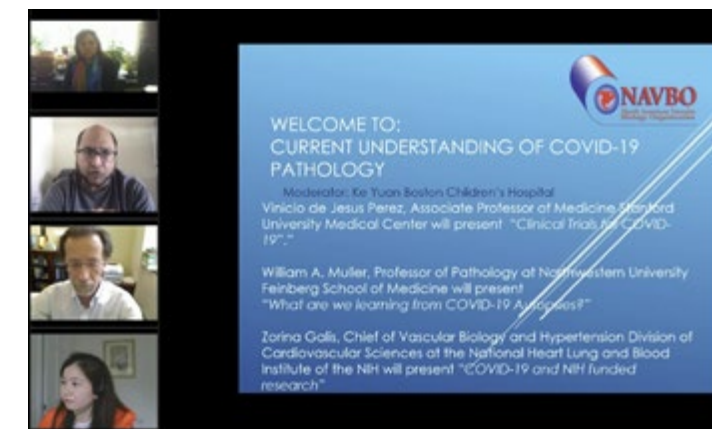
## Vascular Biology's Key Role in the COVID-19 Pandemic

*Ke Yuan, Boston Children's Hospital*

To say that coronavirus disease 2019 (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has greatly impacted health and economy worldwide is an understatement. As of mid-August 2020, over 22 million cases have been confirmed and more than 800,000 patients have died. In most reported cases, infected patients develop ARDS-like symptoms as the disease progresses. Many die from severe pneumonia, in which alveoli swell and fill with fluid.

Patients have diverse clinical outcomes, but those with pre-existing cardiovascular diseases, such as hypertension, diabetes, obesity and related conditions have a more than 5 to 10-fold higher mortality. These data show that, though COVID-19 is primarily a respiratory infection, it heavily impacts the cardiovascular system. In fact, the vasculature may be utilized as a "factory" to shed virus and subsequently a path to cause viremia.

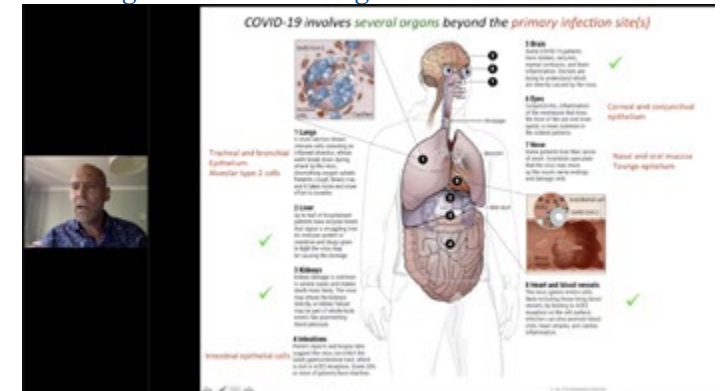
There is anecdotal evidence of SARS-CoV-2 gaining entry to human respiratory cells by attaching to a receptor named angiotensin-converting-enzyme-2 (ACE2). ACE2 mRNA is abundantly present in human lung epithelia, which covers the respiratory tract. For these reasons, efforts to find the mechanism of SARS-CoV-2 infection center mostly on epithelia. Yet endothelial cell infection and endothelitis were reported in COVID-19, and the mechanism of the vasculature-associated manifestations of COVID-19 is poorly understood.



To better serve the community, as well as elucidate the basic biology of SARS-CoV-2 and the pathogenesis of COVID19, the NAVBO educational committee hosted two webinars on COVID19, each of which attracted more than 200 attendees.

The first webinar was hosted on May 8 and featured three phenomenal presentations on understanding the pathobiology of COVID19.

- Dr. Vinicio de Jesus Perez from Stanford University presented a succinct overview of the current state of knowledge on the molecular characteristics, epidemiology, clinical features, and ongoing clinical trials of SARS-CoV-2.
- Dr. Bill Muller from Northwestern University presented his analysis of pulmonary autopsy specimens from patients who died from respiratory failure caused by SARS-CoV-2 infection. He showed stunning lung histological staining images, which not only suggested diffuse alveolar damage, but also severe endothelial injury associated with disrupted vascular structure.
- Dr. Zorina Galis from NHLBI introduced current and future funding resources, restated the mission statement of the NIH, and advocated for global collaboration to fight COVID-19. The recorded webinar can be found here: <https://attendee.gotowebinar.com/register/4966709933337011216>.



The second webinar, "COVID-19 pericyte hypothesis," took place on June 11 and featured Dr. Christer Betsholtz from Uppsala University, Sweden. His presentation was an eye-opening, close examination of COVID-19 disease manifestation in the microvasculature. Brain and heart pericytes (along with venous and arteriolar VSMCs) are the only ACE2-positive cells in the vasculature. This is seen by transcriptomic analysis and tissue staining in both mice and humans.

Christer also proposed an intriguing hypothesis of viral infection of vasculature: the virus does not directly infect endothelia. Rather, viral capsids pass through the loose tight-junctions between endothelial cells, then infect ACE2-expressing pericytes. This renders pericytes dysfunctional, leading to increased and prolonged microvascular inflammation and thrombosis in the neighboring endothelial cells. Thus, pericytes may be a potential novel target for therapeutic anti-coagulants. This COVID-19-pericyte hypothesis could be particularly relevant for vulnerable patients with pre-existing endothelial dysfunction, which is associated with established cardiovascular disease and with

*Continues on page 14*



## NAVBO Education Committee

*Mary Jo Mulligan-Kehoe, Outgoing Committee Chair*

As I end my 3-year chairmanship of the NAVBO Education Committee, I look back with great pleasure at the progress the committee has made in the 6 years since it was initiated. I would like to share the progress with you.

Initially, the committee consisted of 6-8 members, who focused on identifying projects that would advance the education of our members and the vascular biology community as a whole, promote career development, and provide outreach to future, potential vascular biologists.

The group has grown to 19 members consisting of 8 faculty, 8 postdoctoral fellows, a pharmaceutical advisor, and a retiree (me). They are a wellspring of great new ideas, high productivity, and abounding enthusiasm.

We introduced our first project, **Lessons Learned**, in 2016. It is an article written by a junior faculty member, who provides insight into the challenges and rewards of beginning a lab. It appears in the NAVBO Newsletter every other month. We expanded this idea in 2020 with a **Leaders' Lessons** project. In this newsletter article, senior faculty NAVBO members provide advice in response to specific career development questions. Both articles are very thoughtfully written.

Our first **listing of vascular biology training grants** was made available on our NAVBO website in 2017. It is a resource for faculty as well as trainees who may be looking for a good career path match. It is organized based on geographic regions to facilitate an easy search.

We picked up momentum in 2018 with the beginning of our monthly **Webinar Series**. The Education Committee recruits a faculty member from the vascular biology community to present his/her published work followed by a question and answer period. We repurposed the past webinars during the COVID-19 closures. The past presenters were grouped based on a common thread and asked to give a short summary of their presented data. This was followed by a question and answer period. The attendance has been phenomenal. We are delighted to have helped fill the intellectual void during this unusual time. We plan to continue this concept beyond COVID-19.

Additionally, two new resources were made available on the NAVBO website in 2018. They include a **YouTube Channel** that directs members to YouTube videos related to vascular biology. The other resource is a **Fundamental Papers in Vascular Biology database** that includes original fundamental papers by experts in various vascular biology fields.

The papers have recommendations of three experts in each category.

In 2019, we started a **Journal Club**. One of our members presents a vascular biology paper published within 2 months of the meeting. It is followed by a discussion. Initially, it occurred bimonthly, but due to the attendance we decided to make it a monthly event.

Lastly, a **vascular biology course for high school students** is in progress. The intent is to introduce vascular biology at an early age in hopes of stimulating students' interest in pursuing a career in the field or at least in science.

I am confident that you will see several new NAVBO Education Committee projects emerge in the near future. This committee is highly motivated to enhance your vascular biology knowledge as a NAVBO member. We thank you for your participation in some or all of what we offer. Your enthusiastic response to the Education Committee offerings fuels our motivation.

I have genuinely enjoyed the experience of working with this wonderful committee.

*Mary Jo Mulligan-Kehoe*

*COVID-19 Webinars, continued from page 13*

exacerbated outcomes in COVID-19. The recorded webinar can be found here: <https://attendee.gotowebinar.com/register/1152330374280789259>.

This pandemic has placed science and research at the center of conversations worldwide and has had acute impacts on research in all settings. As the spring restrictions on research activity began to relax, NAVBO hosted an online discussion, "Transitioning to the New Normal," with panelists Michelle Bendeck, Ondine Cleaver, Zorina Galis, Bill Huckle, Bill Muller, and Kristy Red-Horse. Conversation explored the logistics of getting back into labs safely, with special focus on trainees' experience and challenges to effective program management. Moreover, the pandemic may reshape our future research and longer-term path immensely. These NAVBO events highlight the need for vascular biologists to expand our work on 1) elucidating the basic biology of SARS-CoV-2 and the pathogenesis and disease progression of COVID-19, 2) developing animal models and other model systems to understand COVID-19 disease development, and 3) leveraging our expertise to design better anti-viral therapies for unmet clinical needs.

## Past President's Message

*Ondine Cleaver*

Dr. Ondine Cleaver helped out at the registration desk at Vascular Biology 2019 at the Asilomar Conference Grounds

It has been an honor and privilege to serve as NAVBO President over the past year. And what a tumultuous year it has been! With a pandemic sweeping the globe, we have seen the rise of innovative and creative approaches to staying connected online, as a scientific community. What was truly remarkable, however, was to witness the enthusiasm of NAVBO members to engage and participate and help our trainees through these difficult times. From NAVBO "Summer Camp", to a new Diversity committee, to panel discussions, to workshops on past seminars, to organic Zoom Happy Hours. Our community is simply exceptional.

Thank you for all of you that contributed, attended online events, volunteered, retweeted us, wrote "Lessons Learned" for our trainees and young faculty, and otherwise participated in the NAVBO community. Thank you to our Education committee, including Kishore Wary and Mary Jo Mulligan-Kehoe, for pulling together such exciting online events, including our Summer camp and Mary Wallingford, Chair of our Membership Committee, for organizing our Emerging Scientist series. Thank you to all the members of our Membership, Communication, and Meritorious Awards Committees. You all support a wide variety of behind-the-scenes work that supports our members. Thank you also

to Sara Vasconcelos, Jeff Hsu, Mabruka Alfaidi and Marie Billaud, my Twitter Team™, for helping to broadcast our activities and events, bringing young people into the fold. Thank you to Bill Huckle for the exceptional newsletter that deftly captures NAVBO scientific life and publications. And finally, importantly, thank you to our fantastic council members Bill Muller, Michelle Bendeck, Masanori Aikawa, Kayla Bayless, Zorina Galis, Jan Kitajewski, Wayne Orr, Kristy Red-Horse, Linda Shapiro and Cyndi St. Hilaire. Our monthly calls were always so productive and fun. Working with a group that cares about its members like you do, was amazing and deeply gratifying. Our new councilors Daniel Greif and Delphine Gomez (welcome!), I predict will enjoy working with such a great team!

I am truly excited for the future of NAVBO and the year ahead. I look forward to working with NAVBO President Masanori Aikawa and President-Elect Courtney Griffin, as well as our dedicated organizer and coordinator Bernadette Englert, to continue to support our members and help create a space for sharing the cutting edge research of our community. I also look forward to how you, our members, will continue to push our science forward and underscore how essential it is to understand vascular biology, and its central importance to human health and disease.

### Look for more online events from NAVBO!

- Webinars
- Journal Club
- Minisymposia
- Symposia
- Live Discussions
- Round Tables





William R. Huckle, Editor

*Congratulations to our 2019 Award and Keynote Lecturers!*



Dr. Bham Ramkhalawon, New York University Langone Medical Center, received the 2019 Springer Junior Investigator Award.



Folkman Award recipient, Dr. Anne Eichmann (left), Yale School of Medicine, with Dr. Karen Hirschi, University of Virginia, a former NAVBO President.



Dr. William C. Sessa, Yale School of Medicine, gives the Earl P. Benditt Award Lecture.



Dr. Hal Dietz, Johns Hopkins Medical Center, is joined by Ondine Cleaver, NAVBO President at the time. Dr. Dietz gave the keynote lecture.

*Celebrating our 25th Anniversary with music, dance and silly hats!  
(after all, it was Halloween!)*





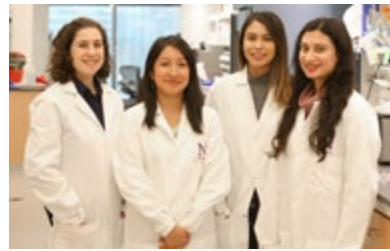
## Member News

*Compiled by William R. Huckle, Editor*



**Patty J. Lee, MD**, Professor of Medicine, Pathology & Cell Biology at Duke University Medical Center, is one of this year's 2020 American Thoracic Society Scientific Achievement Award recipients. The Recognition Award for Scientific Accomplishments recognizes outstanding scientific contributions in basic or clinical research to enhance the understanding, prevention and treatment of respiratory disease or critical illness. Awardees are selected based on contributions made throughout their careers or for major contributions made at a particular point in their careers. Dr. Lee relocated in 2019 to Duke from Yale University, where she was Professor of Internal Medicine and Director of Pulmonary Research in the Section of Pulmonary, Critical Care and Sleep Medicine.

The **Luisa Iruela-Arispe** lab has taken a Northwestern direction. We also have a new lab website. To learn more about the lab: <https://labs.feinberg.northwestern.edu/aripe/>



**Dr. Soumyashree Das**, currently a fifth-year postdoctoral fellow in Kristy Red-Horse's laboratory at Stanford University, has now accepted a faculty position at National Centre for Biological Sciences (NCBS) in Bangalore, India. Dr. Das is excited about returning to India and looks forward to launching a vascular biology program in her own lab at NCBS in November

2020. Her research program will focus on various cellular and molecular mechanisms associated with collateral artery biology and cardiac regeneration processes.

**Mingxia Gu** has recently accepted an Assistant Professor position in the Department of Pediatrics and the Center for Stem Cell & Organoid Medicine at Cincinnati Children's Hospital. The June 4, 2020, issue of Cell Stem Cell included a feature on Dr. Gu and other early-career investigators, pondering their prospects in the time of COVID-19. Dr. Gu notes that



although "...dealing with enormous uncertainty, we are more interconnected as a group, sharing each other's fears and faith, resilience and optimism, and enjoying little cheerful moments every day. Together we will find a path forward."



As of July 1 of this year, **Jorge Castorena Gonzalez** has begun a new position as a Research Assistant Professor in The Department of Pharmacology at Tulane University. Dr. Castorena Gonzalez's research to date has involved examining mechanisms of intercellular communication in the lymphatic wall in the context of normal and aberrant lymphatic contractile function. Wishing you success, Jorge!

A 2019 Individual Biomedical Research Award from The Hartwell Foundation has been awarded to **Richard Pierce, MD**, Assistant Professor of Pediatrics at Yale, for his study Catalyzing Bronchiolitis Therapeutics Through Immune Response Profiling. Dr. Pierce is one of 12 recipients of the award from 11 institutions. Each awardee receives three years of research support amounting to \$100,000 per year. The award also funds a \$50,000 Hartwell Fellowship at Yale for each of two years to support an early-career postdoctoral researcher.



**Kristina Haase** has made the exciting transition from postdoctoral studies with Roger Kamm at MIT to become a new Group Leader at EMBL – specifically at EMBL's newest site in Barcelona. Her new group is working on 3D vascularized in vitro

tissues for disease modeling, drug development and regenerative medicine. Her lab employs a variety of fabrication, microscopy and biological techniques to ultimately increase understanding of complex tissues structures, working closely with clinicians to develop physiological platforms for practical and predictive uses.

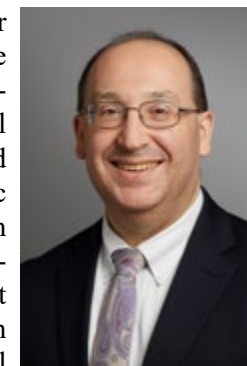
The Latin American Academy of Sciences now counts **Guillermo Oliver** among its members. Dr. Oliver is known for pioneering research on the lymphatic system. Lymphatic vessels now enjoy recognition as active, tissue-specific players in major physiological and pathophysiological processes including obesity and metabolism, cardiovascular diseases, neurological disorders, glaucoma, inflammatory processes and cancer. A native of Uruguay, Guillermo is the Thomas D. Spies Professor of Lymphatic Metabolism and the Director of the Center for Vascular and Developmental Biology at Northwestern's Feinberg Cardiovascular and Renal Research Institute.



**Piotr Kowalski**, Lecturer in Advanced Therapies at University College, Cork, Ireland, has received an Emerging Investigator Award for Health from the Health Research Board. Ireland's HRB seeks with these awards to create a pipeline of researcher leaders who will improve health, influence clinical practice and inform health policy across a broad range of areas.

Dr. Kowalski's research group at Cork will be exploring the therapeutic potential of RNA molecules to treat and prevent multiple organ failure during sepsis. The investigators will also develop new polymers and nano-sized particles to deliver this new class of RNA-based drugs to cells in lungs and kidneys.

**Alan Dardik** has been named Editor of *JVS-Vascular Science*, leading the new journal that features several other NAVBO members on its editorial board. This new journal is devoted to publishing translational and basic vascular biology of relevance to both vascular health and disease. Dr. Dardik is Vice Chair of Yale's Department of Surgery, where he is charged with Faculty Affairs and focuses his clinical practice on teaching at the VA Connecticut. He also serves as President of the Association of VA Surgeons and is President-elect of the New England Society for Vascular Surgery.



**Dai Fukumura** of the Department of Radiation Oncology at the Mass General Research Institute has been recognized as a Highly Cited Researcher for 2019 by the Web of Science Group. Fewer than 0.1% of the world's researchers were named across 21 research fields. The Highly Cited Researchers list identifies scientists and social scientists who have demonstrated significant influence through publication of multiple papers, highly cited by their peers, during the last decade. For the 2019 report, the papers surveyed were those published and cited during 2008-2018, which then were ranked in the top 1% by citations for their essential science indicators (ESI) and year.



**Rama Natarajan**, Professor and Chair in the Department of Diabetes Complications & Metabolism at City of Hope Comprehensive Cancer Center, was selected as the recipient of the American Diabetes Association's 2020 Edwin Bierman Award. The Bierman Award is presented to a researcher who has made outstanding scientific contributions to the understanding

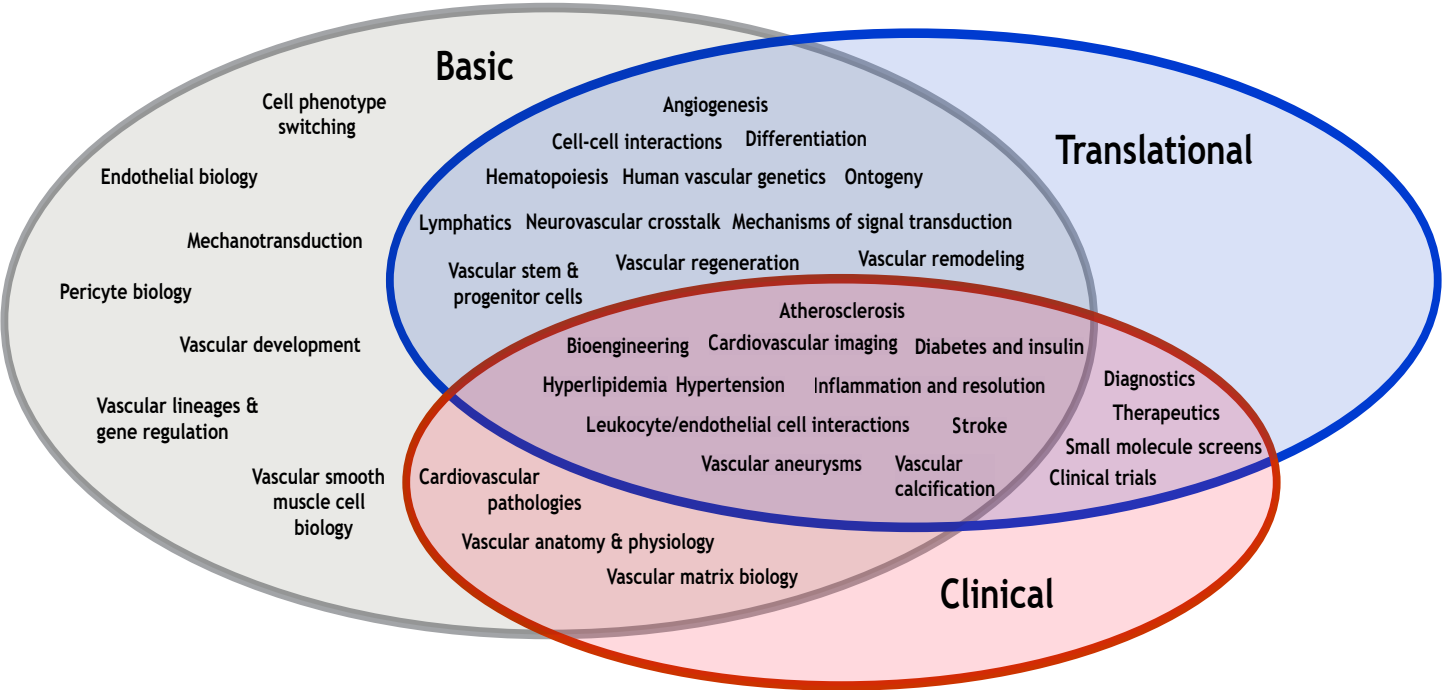
and treatment of diabetes and macrovascular complications. The award was presented at the ADA's 80th Scientific Sessions in Chicago on June 13. In addition to an honorarium, the award includes invitation to present the Edwin Bierman Award Lecture at the meeting.

**Dr. Vinicio de Jesus Perez**, Associate Professor of Medicine in Stanford's Adult Pulmonary Hypertension Clinic, has been elected into the American Society for Clinical Investigation (ASCI). Dr. de Jesus Perez's research examines genetic and molecular mechanisms of pulmonary hypertension and idiopathic pulmonary fibrosis. The ASCI honors some 3,000 physician-scientists from all medical fields, elected in early- or mid-career with outstanding records of scholarly achievement in biomedical research. The membership includes numerous members of the National Academies of Medicine and Sciences, as well as Lasker Award winners and Nobel laureates. Congratulations, Vinicio!





# NAVBO Membership



## Build Your Network

- Meet and interact with colleagues inside and outside your discipline
- Join an online community of vascular biologists
- Participate in NAVBO committees
- Attend meetings with reduced registration rates
- List your online publications on the NAVBO ePub page and in the NAVBO NewsBEAT
- Post your upcoming meeting presentations on the website and in the NAVBO NewsBEAT

## Communicate with Colleagues

- Receive the NAVBO newsletter
- Access the online NAVBO Directory of Members
- Receive notice of upcoming events, meetings, NIH news, and other late-breaking news
- List your online papers on the NAVBO ePub page
- Post your upcoming meeting presentations
- Discounts on subscriptions to certain journals
- Advertise your post-doctoral opportunities, jobs and meetings

## Get Recognition

- Your online publications listed on the website and in the NAVBO NewsBEAT
- Post your upcoming meeting presentations online and in the NewsBEAT
- Your lab featured in the NewsBEAT and home page
- Present your work in an online session
- Receive awards including:
  - Travel Awards
  - Outstanding Poster Awards
  - Springer Junior Investigator Award
  - Judah M. Folkman Award in Vascular Biology
  - Earl P. Benditt Award

## Resources

- Monthly *Vascular Biology Publications Alert*
- Bi-weekly electronic newsletter, the NAVBO NewsBEAT, contains links to relevant science news
- List of Training Grants
- Fundamental Paper Archive
- Access colleagues through LinkedIn group
- Lessons Learned from Junior Faculty
- Leaders' Lessons from Senior Investigators
- YouTube Channel
- NAVBO Career Center (discount for members)
- Plus more on our website (links to other organization, journals and other agencies)

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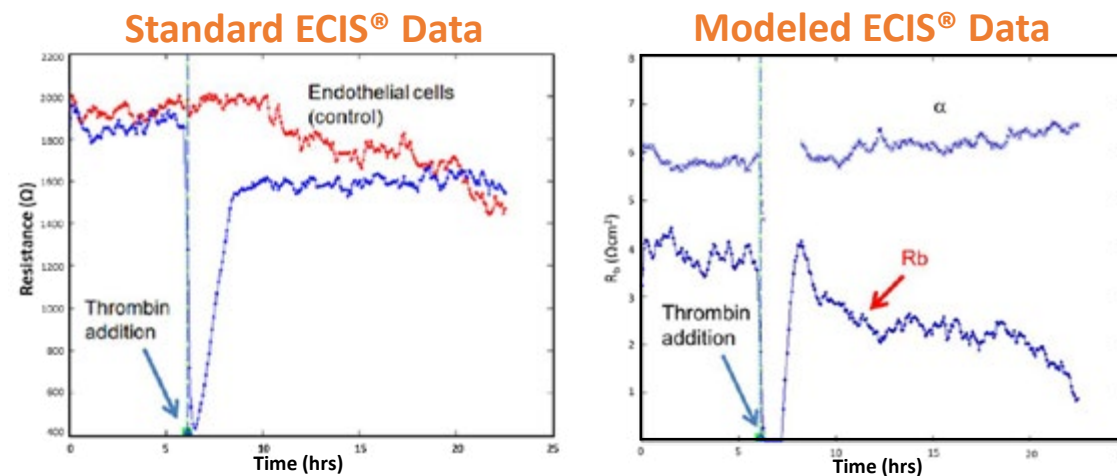


# ECIS® For Label-free Vascular Research

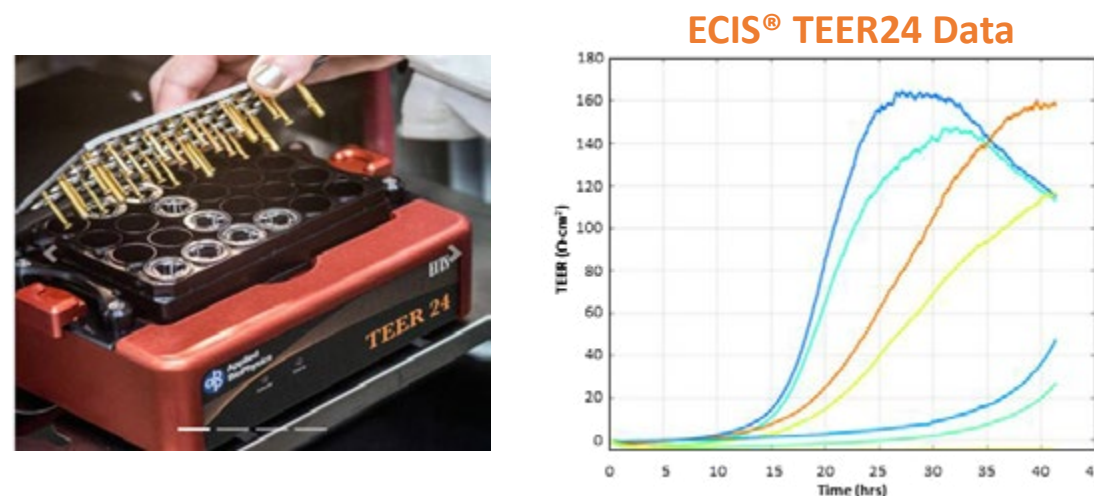
## Barrier Function and TEER Measurements

Applied BioPhysics provides instrumentation to monitor both barrier function (Rb) and TEER\* for endothelial as well as epithelial cell monolayers.

The data below, taken with the ECIS™ Z-theta instrument, show the changes in the impedance as microvascular endothelial cells grown upon gold electrodes are exposed to thrombin. These data have been modeled, confirming that the primary source of the impedance drop is due to changes in Rb – the barrier function associated with the paracellular path.



In addition to studying cells grown upon solid substrates, we now offer TEER measurements of cell layers grown on permeable membrane supports. With the TEER24 instrumentation, data is collected continuously from up to 24 independent wells and reported as real-time changes in ohm-cm<sup>2</sup>. The system accepts all commercially available 24 well membrane inserts



\*Although TEER and Rb are both measured in ohm-cm<sup>2</sup>, they are subtly different. TEER, commonly measured using filter substrates, monitors the resistance of the complete solution path through the cell monolayer, including the flow of current in the cleft between the substrate and the basal membrane on its way to the paracellular space. Whereas barrier function (Rb), acquired with mathematical modeling of impedance data, separates the resistance due only to the paracellular space between adjacent cells

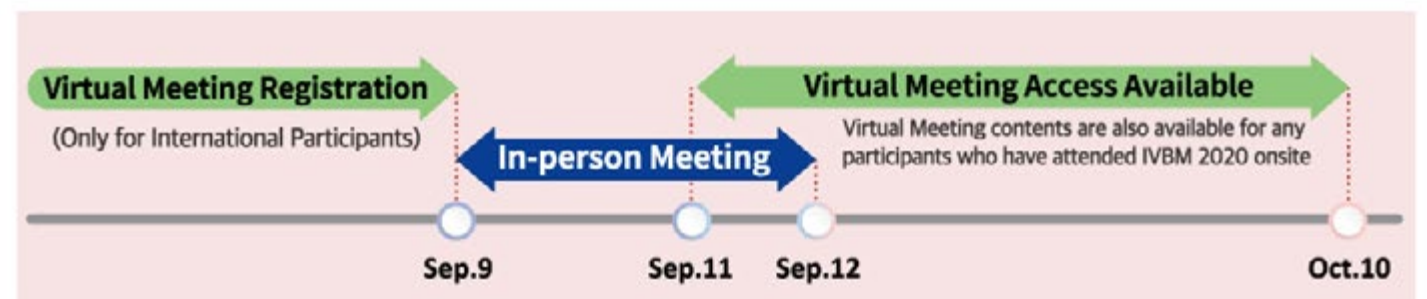
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## The 21<sup>st</sup> International Vascular Biology Meeting

in conjunction with the 9<sup>th</sup> International Congress on Lipid and Atherosclerosis (ICoLA) & the 5<sup>th</sup> Annual Meeting of the Korean Society for Vascular Biology and Medicine (KVBM)

**In-person Meeting: September 9(Wed) ~ 12(Sat), 2020**  
**Conrad Hotel Seoul, Korea**

**Virtual Meeting: September 11(Fri) ~ October 10(Sat), 2020**



### Organizing Committee

#### Co-Presidents



Hyo-Soo Kim, MD, PhD, FAHA  
Seoul National University



Gou-Young Koh, MD, PhD  
KAIST/IBS

#### Secretaries General



Jaong-Yeol Park, MD, PhD  
University of Ulsan



Young-Guen Kwon, PhD  
Yonsei University

### Plenary Lecturers

#### September 9 (Wed)

Donald M. McDonald  
Anne Eichmann  
Ralf H. Adams  
Hyo-Soo Kim

#### September 11 (Fri)

Rakesh K. Jain  
Issei Komuro  
Peter Libby  
Silvio Inzucchi

#### September 10 (Thu)

Kari K. Alitalo  
Mark L. Kahn  
Susan Quaggin

#### September 12 (Sat)

John J. V. McMurray  
Jane E. Freedman





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