


## EDITORIAL

# Onward and upward

Sharona E. Gordon 

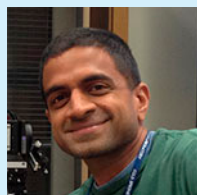
Now that our 100th anniversary celebrations are drawing to a close, it is time to look ahead to future developments at *JGP*. In January, *JGP* published its first special issue, a collection of articles from attendees of the 2018 Myofilament Meeting in Madison, Wisconsin. Together with a second installment that will appear later in the year, these papers outline recent progress in understanding the regulation of myofibrillar function. A separate special issue, which arose from the 2018 Annual Symposium of the Society of General Physiologists, will provide a computational and experimental perspective on the molecular physiology of cell membranes in the March edition of the journal.

Because papers in these special issues represent the most up-to-date research from a particular community and reflect the consensus of opinion from a recent meeting, they provide readers with a snapshot of the current state of a particular field. They also provide authors with an opportunity to publish research findings alongside complementary research from other laboratories. For these reasons, we are aiming to make special issues an annual feature and welcome invitations from organizers of meetings that we might collaborate with. We look forward to working with the community to bring future special issues to fruition.

The beginning of each calendar year is also the time when new members are appointed to *JGP*'s Editorial Advisory Board. Although *JGP* might now be considered a senior citizen amongst scientific journals, the appointments are as exciting as ever. Our new appointees are based in five different continents: Australia, Asia, Europe, South America, and North America. Although their expertise is broad, covering fields from the molecular (e.g., protein folding) to the cellular (e.g., membrane trafficking) and organ level (e.g., muscle physiology), they are all united by their quantitative approaches to understand physiology. Importantly, our group of 23 new members includes a mixture of junior and established faculty, 17 of whom are women. Continuing the drive that began in 2015, these new appointments further improve the diversity of our Editorial Advisory Board and raise the representation of women to 35%.

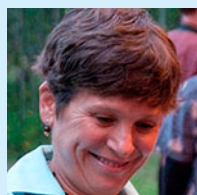
It is my pleasure to introduce you to our new members by way of their biographies below and to formally welcome these outstanding scientists to *JGP* as it drives forward its mission to publish mechanistic and quantitative physiology while providing a first-rate author service and nurturing future generations of independent researchers. What a formidable foundation to begin our second century of publishing your best scientific work!

## New Editorial Advisory Board members



### Arun Anantharam

Arun graduated from Columbia University in New York City with a double major in Neurobiology and English Literature. He completed his PhD at Cornell in 2007 in the laboratory of Dr. Lawrence Palmer, focusing primarily on the structure and function of the epithelial sodium channel (ENaC). Arun then moved to the University of Michigan for his postdoctoral training. There, under the guidance of Drs. Ronald W. Holz and Daniel Axelrod, he learned to develop and apply optical approaches to study the process of calcium-triggered exocytosis. Arun's initial faculty appointment was in the Department of Biological Sciences at Wayne State University. He returned to the University of Michigan in 2016, where he is now a faculty member in the Department of Pharmacology. His lab uses multiple levels of quantitative analysis, from super-resolution and polarization-based TIRF imaging to biochemistry and electrophysiology, to explore issues related to secretory vesicle biosynthesis, trafficking, and fusion. The overarching goal of these studies is to gain a better understanding of how the secretory response is regulated to maintain health and how it may be dysregulated in pathophysiological states. Photo courtesy of John D. Lueck.



### Christine Cremo

Christine Cremo is a Professor of Pharmacology at the University of Nevada, Reno, School of Medicine. She obtained her PhD in Biophysics and Biochemistry at Oregon State University, where she studied the muscarinic receptors in the heart with Dr. Mike Schimerlik. Postdoctoral studies with Dr. Ralph Yount at Washington State University concerned the mechanisms of action of skeletal muscle myosin. Her present focus is on the biophysics of acto-myosin systems in smooth, cardiac, and skeletal muscles. She applies kinetic and fluorescence imaging approaches to understanding the underlying basis of muscle contraction. Photo courtesy of Joe Muretta.

Editor-in-Chief, *Journal of General Physiology*.

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#### Karen Fleming

Karen Fleming is a Professor in the T.C. Jenkins Department of Biophysics at the Johns Hopkins University. She received a degree in French from the University of Notre Dame and a PhD in Biochemistry & Molecular Biology from Georgetown University Medical Center. As an NIMH NRSA predoctoral scholar, her thesis focused on the sorting of the neuroendocrine biosynthetic enzyme, dopamine beta-hydroxylase. She conducted postdoctoral work in the group of Don Engelman at Yale University as an NRSA postdoctoral fellow, where she developed methods to measure the association energetics of transmembrane alpha-helices. In her own lab at Johns Hopkins, Karen uses solution biophysics methods to probe the fundamental forces in membrane protein folding, lipid solvation energies, and chaperone interactions with unfolded membrane proteins during their biogenesis. Photo courtesy of Karen Fleming.



#### Rachelle Gaudet

Rachelle Gaudet is Professor of Molecular and Cellular Biology at Harvard University. Her research interests are in the structural biology of transport and signaling across cell membranes. Her research program includes mechanistic investigations of two types of transporters (the NRAMP family of divalent-metal transporters and ABC transporters), transient receptor potential (TRP) ion channels, and cadherins involved in cell-cell signaling. She completed her PhD at Yale University with the late Paul B. Sigler, determining crystal structures of proteins in the phototransduction signaling cascade, and a postdoctoral fellowship at Harvard University with the late Don C. Wiley, further honing her skills in x-ray crystallography by working on proteins in the MHC class I pathway. Her lab continues to use crystallography, as well as other biochemical, biophysical, and computational approaches to uncover the molecular mechanisms of proteins of interest. Photo courtesy of MCB Graphics.



#### Ulrik Gether

Ulrik Gether is Professor of Molecular Neuropharmacology and Head of Department of Neuroscience at University of Copenhagen (UCPH). After obtaining his MD from UCPH in 1990, Ulrik worked as a research fellow for three years in the laboratory of Professor Thue W. Schwartz with focus on mapping binding sites for peptides and non-peptide ligands in G protein-coupled peptide receptors (GPCRs). His postdoctoral work was carried out in the laboratory of Nobel Laureate Professor Brian Kobilka at Stanford University. Here, Ulrik developed fluorescent techniques that permitted direct measurements of ligand-induced conformational changes in purified preparation of GPCRs. In 1996, Ulrik received the Ole Roemer Award, which enabled him to start his own laboratory back at UCPH. In 2001, he was appointed full professor, and in 2017 he became Head of a new Department of Neuroscience. Ulrik's research group has built up strong expertise in studying the molecular, cellular, and physiological function of neurotransmitter receptors and transporters. A main focus has been on the monoamine transporters and their role as targets for antidepressants, ADHD medication, and psychostimulants (cocaine/amphetamine). The lab has also, by use of e.g., both genetic mouse models and fluorescently tagged cocaine analogues, contributed to the understanding of cellular mechanisms controlling targeting and trafficking of these proteins. The laboratory has moreover an interest in the molecular and cellular function of neuronal scaffold proteins including PDZ-domain proteins and membrane-binding BAR domain proteins. The most recent efforts include employment of super-resolution microscopy to study the molecular architecture of monoaminergic synapses, as well as discovery and characterization of disease-associated monoamine transporter missense mutations both in vitro and in knock-in mouse models. Photo courtesy of Claus Bjørn.



#### Ryan Hibbs

Ryan Hibbs is an Assistant Professor of Neuroscience and Biophysics at UT Southwestern Medical Center. He has a long-standing interest in the structure, pharmacology, and function of ligand-gated ion channels. He received his PhD working with Palmer Taylor in the Department of Pharmacology at UC San Diego, using solution-based and crystallographic methods to study molecular recognition and dynamics. He then trained with Eric Gouaux at the Vollum Institute in membrane protein crystallography, where he worked on structure-function studies of eukaryotic pentameric ligand-gated ion channels. Currently his group uses structural approaches like cryo-EM in combination with studies of pentameric channels in reconstituted systems to understand heteromeric channel assembly, pharmacology, and ion permeation. Photo courtesy of UT Southwestern.



#### Cecilia Hidalgo

Cecilia Hidalgo is Professor at the Department of Neuroscience, Faculty of Medicine, Universidad de Chile. She obtained both her master's degree in Biochemistry and her PhD degree from the Universidad de Chile; in her PhD thesis, she studied the energetics requirements of calcium and sodium transport in the giant axon of the squid. Cecilia did her postdoctoral work as a Fogarty Fellow at the National Institutes of Health in Bethesda, MD, in Howard Nash's laboratory, where she complemented her training in biophysics and cell physiology by working in molecular biology and studying the methylation pattern of lambda phage DNA. On returning to Chile, she joined the Faculty of Medicine, Universidad de Chile, but after two years she returned to the United States to work at the Department of Muscle Research, Boston Biomedical Research Institute (BBRI), where she worked for almost 10 years before her definitive return to Chile. The central focus of Cecilia's research has been the study of calcium signaling in excitable cells. At BBRI, she studied how the physical properties of the lipids surrounding the sarcoplasmic reticulum calcium pump conditions the rotational motion and the activity of this enzyme, and isolated and characterized the properties of transverse tubule membranes from skeletal muscle. After her return to Chile, Cecilia joined the Faculty of Medicine, Universidad de Chile, where she became Professor, and started her current research on the properties of the intracellular ryanodine receptor (RyR) calcium channels from excitable cells. Her research group has shown that the oxidative state of RyR channels conditions their activation by calcium, a key factor of the RyR-mediated calcium-induced calcium release response. In addition, her group has reported that under physiological conditions, RyR-mediated calcium release plays a key role in hippocampal synaptic plasticity and spatial memory processes and that aging and neurodegenerative conditions significantly affect RyR channel activity. Photo courtesy of Biomedical Neuroscience Institute, ICM, Chile.



### Heedeok Hong

Heedeok obtained his bachelor's degree in biochemistry at Yonsei University, Seoul, South Korea. He went on to study protein folding dynamics using time-resolved fluorescence spectroscopy for his master in physical chemistry at the same university. In 1999, he started his PhD study in biophysics at University of Virginia. There, he was fascinated by membrane proteins and their folding problem. Under the guidance by Professor Lukas Tamm, he developed a reversible folding system to measure the thermodynamic stability of the  $\beta$ -barrel membrane protein OmpA in lipid bilayers, and quantified several types of molecular driving forces in membrane protein folding. After receiving his PhD in 2006, he joined Professor James Bowie's laboratory at UCLA as a postdoctoral scholar and the Leukemia and Lymphoma Society postdoctoral fellow. With Professor Bowie and the colleague Tracy Blois, he developed a biophysical method called "steric trapping" to measure strong protein-protein interactions of helical membrane proteins in lipid bilayers. These methods opened up possibilities to quantitatively analyze the role of lipid bilayers, and individual and pairwise side-chain interactions in membrane protein stability. Since 2012, he started his independent career as an assistant professor in Chemistry and Biochemistry & Molecular Biology at Michigan State University. His research team has developed several steric trapping-based methods to elucidate the folding energy landscape of helical membrane proteins and the conformational nature of their denatured states directly under native lipid and solvent conditions. His team is also seeking answers to how the intrinsic folding properties of membrane proteins determine their susceptibility to degradation in cells. He hopes these efforts will help in understanding the quality control mechanisms of membrane proteins and related conformational diseases on the basis of the fundamental understanding of folding. Photo courtesy of Yool Choi.



### Susy C. Kohout

Susy C. Kohout is an Assistant Professor of Cell Biology and Neuroscience at Montana State University. She originally studied organic chemistry, receiving her BS from the California Institute of Technology. During that time, she took a class from Henry Lester and discovered the fascinating field of voltage-gated ion channels. Deciding she wanted to change her focus, she switched fields for her PhD. She worked with Joseph J. Falke at the University of Colorado, Boulder and studied calcium-binding and membrane-binding proteins. During her studies, she learned how critical the membrane barrier is to the normal functioning of cells and how proteins transmit information from one side of the membrane to another. She then combined her fascination with membranes, voltage, and proteins when she tackled a newly discovered protein VSP, the voltage-sensing phosphatase, for her postdoctoral fellowship with Ehud Y. Isacoff at the University of California, Berkeley. VSP is a unique protein, combining a voltage-sensing domain with a lipid phosphatase, thus translating the electrical signaling of a cell into a chemical signal. She started her own lab at Montana State University, where she continues to study the biophysics as well and the biological function of VSP. She remains intrigued by the complexities of cell signaling at the interface of the electrical and chemical pathways in neurons. Photo courtesy of Trudy Kohout.



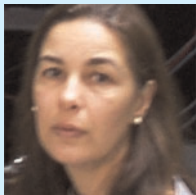
### Nagomi Kurebayashi

Nagomi Kurebayashi is an Associate Professor in Department of Cellular and Molecular Pharmacology, Faculty of Medicine, at Juntendo University in Tokyo, Japan. After receiving an undergraduate degree in Biology, she received her PhD at Juntendo University in 1987. Her first work was on the regulation of  $\text{Ca}^{2+}$ -ATPase and  $\text{Ca}^{2+}$  release channels in skeletal muscle, supervised by Yasuo Ogawa. During 1990–1991, she did postdoctoral work with Stephen M. Baylor at University of Pennsylvania, where she learned to measure and analyze very fast  $\text{Ca}^{2+}$  transients in single skeletal muscle cells. After returning to Japan, she studied  $\text{Ca}^{2+}$  entry pathway in skeletal muscle. She has been also interested in  $\text{Ca}^{2+}$  dynamics in cardiac cells in multicellular system. She uses live-cell  $\text{Ca}^{2+}$  and membrane potential imaging techniques to explore arrhythmogenic mechanisms in the heart. Currently, she and her colleagues are focusing on mechanisms and therapeutic strategies for diseases caused by abnormal ryanodine receptors. Photo courtesy of Nagomi Kurebayashi.



### Johanna Lanner

Johanna Lanner is Assistant Professor at the Department of Physiology and Pharmacology at Karolinska Institutet (Stockholm, Sweden). She received her master's degree in Chemistry from the Stockholm University. She then joined the Biotech company Biovitrum (now Sobi), before she started in Prof. Håkan Westerblad's physiology lab at Karolinska Institutet for her doctoral work. Her PhD thesis focused on the interplay between  $\text{Ca}^{2+}$  and insulin in skeletal and cardiac muscle fibers. She then trained as postdoctoral fellow in Prof. Susan Hamilton's lab at Baylor College of Medicine (Houston, TX), where she worked on inherited disorders linked to the ryanodine receptor and its functional role for altered  $\text{Ca}^{2+}$  release and dysfunction in skeletal muscle. Johanna has now returned to the Karolinska Institutet, where she established her own group in 2014. Research in her laboratory explores the molecular details behind contractile dysfunction in skeletal muscle, with a special interest in oxidative stress and inflammatory conditions, such as rheumatoid arthritis. Photo courtesy of Mats Rundgren.



### Isabel Llano

Isabel Llano is a Research Director at the CNRS, the French National Research Center in France. She is currently head of the Laboratory of Cerebral Physiology located at the Université Paris Descartes. She received her PhD in Physiology in 1983 from the University of California, Los Angeles (UCLA), where she studied the biophysical properties of voltage-gated ion channels from the squid giant axon at the single channel level, under the direction of Francisco Bezanilla. Her first postdoctoral work in the laboratory of Clay Armstrong at the University of Pennsylvania followed the biophysical squid tradition with emphasis on voltage-K channels in neurons of the squid giant lobe. During this time, she developed an interest in studying biophysical properties of neurons in the mammalian central nervous system, a project that became her main research interest in the Laboratory of Neurobiology of the École Normale Supérieure (ENS) in Paris, which she joined in 1986 as a postdoctoral fellow. She became a permanent researcher of the CNRS in 1988, and her career path includes several years of work at the ENS followed by a six-year period in the Max Planck Institut of Biophysical Chemistry (Göttingen) to work in an independent team headed by Alain Marty in the Department of Erwin Neher. She returned to France in 2000 and, in collaboration with Alain Marty, developed the Cerebral Physiology laboratory where she remains at present. Her research in central neurons has focused on the mammalian cerebellar cortex with the overall aim to decipher the function of synaptic contacts and how specific types of synapses shape neuronal activity. This research has uncovered unexpected functional modes including depolarization-induced suppression of inhibition (DSI, a form of retrograde signaling) and axonal calcium waves dependent on intracellular calcium stores. Presently, this work encompasses electrophysiological and calcium imaging studies in brain slices as well as imaging neuronal activity with genetically encoded calcium indicators in the cerebellum of behaving mice. Photo courtesy of the Laboratory of Cerebral Physiology.



**Ellen A. Lumpkin**

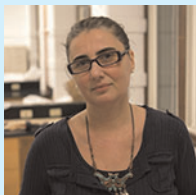
Ellen A. Lumpkin is a sensory neurobiologist whose research has yielded insights into fundamental mechanisms of mammalian touch reception. She performed her PhD training in sensory neuroscience at UT Southwestern Medical Center and The Rockefeller University under the mentorship of A. James Hudspeth, a pioneer in the field of auditory and vestibular physiology. She completed postdoctoral research in physiology and biophysics in Jonathon Howard's laboratory at the University of Washington, where she turned her attention to the cellular and physiological basis of touch sensation. Prior to joining the faculty of Columbia University in 2010, she launched her independent research program at UC San Francisco Medical Center through the Sandler Fellows Program and was an Assistant Professor of Neuroscience, Physiology & Molecular Biophysics and Molecular & Human Genetics at Baylor College of Medicine. Photo courtesy of John Pinderhughes.

**Alicia Mattiazzi**

Alicia Mattiazzi is a consultant professor of Physiology and Biophysics at the Faculty of Medicine of the University of La Plata and Emeritus Researcher of the National Research Council in Argentina. After her graduation as a medical doctor at the University of La Plata, she did postdoctoral studies with professor Paul Edman, at the University of Lund, Sweden. After receiving the Guggenheim Fellowship, she performed studies on excitation–contraction coupling in cardiac and skeletal muscle at the Department of Physiology of the University of Philadelphia and as an invited researcher at the Department of Bioengineering at the University of Washington. She established her own group at the University of La Plata in 1985, with focus on the mechanisms of cardiac contraction and relaxation. Her current research includes  $\text{Ca}^{2+}$  signaling and excitation–contraction coupling in isolated cardiac myocytes and the intact heart with a specific interest on the role of Ca calmodulin dependent protein kinase (CaMKII) in physiological and pathological conditions like cardiac damage and arrhythmias during ischemia reperfusion. Photo courtesy of Ramiro Martínez Quiroga.

**Lorin Milescu**

Lorin Milescu is an Assistant Professor in the Division of Biological Sciences at the University of Missouri. Following undergraduate studies in Physical Chemistry and Chemical Engineering at the Polytechnic University of Bucharest, Lorin started his long-term adventure with ion channels at SUNY Buffalo. There, he first worked on ACh receptor gating mechanisms with Tony Auerbach, then switched to develop algorithms for molecular kinetics and the QuB software with Fred Sachs, with whom he earned a PhD in computational biophysics. After his graduate work, Lorin went for postdoctoral training with Jeff Smith at NINDS/NIH and with Bruce Bean at Harvard Medical School, where he learned how voltage-gated ion channels, particularly sodium channels, work in the context of neurons and neural circuits. In his lab at the University of Missouri, Lorin and his crew continue to explore the magic world of ion channel biophysics and neurophysiology, using a variety of preparations and approaches. They also continue to develop the QuB program as an integrated platform for building ion channel models and testing them in live neurons and for 3-D data mapping and real-time experiment control and visualization. Photo courtesy of Lorin Milescu.

**Mirela Milescu**

Mirela Milescu is an Assistant Professor in the Division of Biological Sciences at the University of Missouri. She received a degree in Biochemistry from University of Bucharest, Romania, and a PhD in Molecular Biology from SUNY Buffalo. During her graduate work, she studied the kinetic mechanisms of transcription regulation in *Bacillus* sp. Next, Mirela moved into ion channel biophysics research, and trained in Molecular Biophysics as a postdoctoral fellow with Kenton Swartz at NINDS/NIH. There, she worked on the interactions of venom toxins with potassium channel voltage sensors and the surrounding lipid environment. In 2011, she started her lab at the University of Missouri, where she investigates the mechanism of voltage sensing and its regulation by gating modifier toxins, membrane lipids, and auxiliary subunits, with an emphasis on voltage-gated calcium channels (Cav). More recently, Mirela has begun working on a novel family of temperature-sensitive proteins from *Drosophila* sp. Photo courtesy of Mirela Milescu.

**Yasuko Ono**

Yasuko Ono is an associate director at the Tokyo Metropolitan Institute of Medical Science (TMiMS). She received her PhD in Biochemistry at the University of Tokyo with Koichi Suzuki, working on the function of calpain, a family of intracellular cysteine protease. As a postdoctoral fellow, she worked in Carol Gregorio's lab at the University of Arizona to learn the molecular function of sarcomeric proteins. Her research focuses on the physiological impact of calpain-mediated proteolysis on cellular function and how the activity of calpain is regulated. Photo courtesy of Yasuko Ono.

**Medha M. Pathak**

Medha received her BSc and MSc degrees in India, and moved to the United States to pursue graduate work with Ehud Isacoff at UC Berkeley. In her doctoral work, she used a combination of electrophysiological and fluorescence measurements to determine how voltage gates an ion channel. She moved on to studying mechanically activated ion channels responsible for hearing and balance as a postdoctoral fellow in David Corey's lab at Harvard Medical School. Finding that she was allergic to furry laboratory animal models, she returned to working in cellular systems in a second postdoc with Francesco Tombola at UC Irvine, where she continued to study voltage gating and mechanical gating of ion channels. Her postdoctoral work, on the mechanically activated ion channel Piezo1 in neural stem cells, brought to light the channel's role in determining neural stem cell fate. She started her own lab in 2016, which focuses on how Piezo1 shapes neural development and repair at a molecular, cellular, and organismal level. Medha is a recipient of the Helen Hay Whitney Postdoctoral Fellowship and the NIH Director's New Innovator Award. Photo courtesy of the UCI School of Medicine.



### Jen Pluznick

Jen Pluznick is an Associate Professor of Physiology at Johns Hopkins University School of Medicine. She received her PhD at the University of Nebraska Medical Center in the Department of Cellular and Integrative Physiology in 2005, where she worked with Dr. Steven Sansom to study the role of BK channels in the mammalian kidney. She then trained as a postdoctoral fellow (2005–2010) in the lab of Michael Caplan at Yale University in the Department of Cellular and Molecular Physiology, where she developed a strong interest in the roles of sensory receptors (olfactory receptors, taste receptors, and other orphaned GPCRs) in the kidney. Work in her lab currently focuses on a role for sensory receptors, particularly olfactory receptors, in renal and cardiovascular function. In addition, some of the receptors that the Pluznick Lab studies are activated by microbial metabolites and act to modulate blood pressure control; therefore, the lab has also developed a strong interest in the interplay between host blood pressure control and the gut microbiota. Photo courtesy of Tabi Paschall.



### Padmini Rangamani

Padmini Rangamani is an Associate Professor in Mechanical Engineering at the University of California, San Diego. She joined the department in July 2014. Earlier, she was a UC Berkeley Chancellor's Postdoctoral Fellow, where she worked on lipid bilayer mechanics. She obtained her PhD in biological sciences from the Icahn School of Medicine at Mount Sinai. She received her BS and MS in Chemical Engineering from Osmania University (Hyderabad, India) and Georgia Institute of Technology, respectively. The research in Rangamani's lab focuses on the development of mathematical and computational models for biological processes in close concert with experimentalists. Specifically, her lab focuses on the study of endocytosis and membrane-actin mechanics associated with this process. Another area of research in the lab is the study of the biophysical processes associated with the postsynaptic dendritic spine, including the events leading up to long-term potentiation. She is the recipient of the ARO, AFOSR, and ONR Young Investigator Awards, and a Sloan Research Fellowship for Computational and Molecular Evolutionary Biology. She is also the lead PI for a MURI award on Bio-inspired low energy information processing from the AFOSR. Photo courtesy of UC San Diego.



### Show-Ling Shyng

Show-Ling Shyng is Professor in the Department of Biochemistry and Molecular Biology at the Oregon Health & Science University. She received her BS in zoology from National Taiwan University and her PhD in neurobiology from Cornell University with Mika Salpeter. In 1999, she established her own lab to study molecular and cellular mechanisms of ion channel regulation in health and disease. Current research in her lab follows two major directions. The first is to elucidate the structure-function relationship of the ATP-sensitive potassium channel using single-particle cryo-EM, electrophysiology, and biochemical approaches. The second is to dissect the signaling mechanism by which leptin regulates trafficking of potassium channels in pancreatic  $\beta$ -cells to regulate insulin secretion. Outside the lab, she enjoys hiking, backpacking, and cooking. Photo courtesy of Bruce Patton.



### Dimitrios Stamou

Dimitrios Stamou is a Professor in the Department of Chemistry and the Nanoscience Center at the University of Copenhagen. He received his primary education in Greece, and his bachelor's in physics from Leeds University in England. During his PhD and postdoc at the Swiss Federal Polytechnique School in Lausanne, he worked on surface patterning of self-assembled monolayers, bilayers, and vesicles under the guidance of Claus Duschl and Horst Vogel. He established his own group at the University of Copenhagen in 2004 with a focus on the biophysics of membranes and membrane proteins. His is interested in investigating transporters and G protein-coupled receptors at the single molecule level. This led him to develop a method with atto-ampere ionic current sensitivity that can resolve the activity of individual transporter molecules. He entertains a long-standing fascination about how membrane composition and shape effect membrane protein localization and function. His lab is developing and using quantitative fluorescence microscopy techniques and actively seeks collaboration with theorists in order to pin down physical and molecular mechanisms. Photo courtesy of the University of Copenhagen.



### Jolanda van der Velden

Van der Velden is Professor of Physiology at the Amsterdam University Medical Center. She received her PhD in 1998 on the role of sarcomeric proteins in heart failure. As mutations in sarcomeric proteins are a frequent cause of heart disease at young age, research on this topic was initiated with funding from European and national grants. To define the physiologic role of (mutant) sarcomeric proteins exchange experiments of mutant proteins are performed in single human cardiac myocytes and iPSC-derived cardiomyocytes. Basic cell and tissue analyses are combined with in vivo cardiovascular imaging in mouse models and human patients. Photo courtesy of DigiDaan.