Nominations for Appointment to the Grants Working Group (GWG)

NEW APPOINTMENTS

Christopher M. Bono, MD
Professor of Orthopaedic Surgery at Harvard Medical School

Referral: Dr. Bono was identified by the Review team's Senior Science Officer based on assessment of expertise through publications.

Expertise Relevance to CIRM GWG: Dr. Bono's expertise in spine surgery, cervical and lumbar degenerative disorders and evidence-based medicine is helpful in reviewing Clinical program applications, particularly in assessing whether spine surgery proposals are feasible and have the necessary significance and potential for impact.

Prior Service in CIRM Reviews: Dr. Bono has served as a specialist reviewer for CIRM Clinical programs and served on a Clinical Advisory Panel.

Bio:
Christopher M. Bono is a Professor of Orthopaedic Surgery, Executive Vice Chair of the Department of Orthopaedic Surgery and Associate Program Director of the Harvard Orthopaedic Residency Program at Harvard Medical School. He is also a board-certified, fellowship-trained adult spine surgeon in the Orthopaedic Spine Center at Massachusetts General Hospital. He is an experienced adult spine surgeon with particular interest in the management of cervical and lumbar degenerative disorders. He is a national and international leader in spinal research and evidence-based medicine, enabling him to incorporate the latest treatment data into patient discussion for informed surgical decision-making. He specializes in cervical spinal stenosis, cervical myelopathy, cervical disc herniations, lumbar spinal stenosis, lumbar disc herniations, and lumbar spondylolisthesis.

Dr. Bono earned his MD from the State University of New York (SUNY) Health Science Center at Brooklyn (now called SUNY Downstate Medical Center). He completed his orthopaedic residency at the University of Medicine and Dentistry of New Jersey Medical School (now called Rutgers New Jersey Medical School), and he completed a spine surgery fellowship at the University of California, San Diego. He is past president of the North American Spine Society (2015-2016) and continues to be quite active in a number of committees. He is the current Editor-in-Chief of *The Spine Journal*, which holds the highest impact factor among journals dedicated to spine. Dr. Bono is also a member of the American Academy of Orthopaedic Surgeons, Cervical Spine Research Society, and the International Society for the Study of the Lumbar Spine, holding or having held many leadership positions in these societies as well.

Xiaojun (Lance) Lian, PhD
Associate Professor of Biology and Biomedical Engineering at Pennsylvania State University

Referral: Dr. Lian was referred to CIRM by Dr. Glenn Gaudette, a GWG member who has reviewed for Education programs.

Expertise Relevance to CIRM GWG: Dr. Lian's commitment to science education and outreach—including his development of several specialized undergraduate and graduate level courses focused on stem cell engineering technology, the relationship he established between his lab and a local high school to curate after school opportunities for students in advanced genetics class to tour his lab and learn more about stem cells and cutting edge genetic engineering, his efforts at motivating undergraduate students to participate in lab research with one-on-one mentorship from a graduate student, and his plans to use his NSF CAREER Award to highlight artistic, technical and

ethical aspects of stem cell research in order to inspire K-12 students to pursue opportunities in science and engineering area—would be invaluable to assessing the quality and impact of Education program applications. Furthermore, his knowledge of techniques such as small molecule mediated hPSC differentiation and CRISPR-Cas9 reprogramming to efficiently generate cells of the cardiac lineages for regenerative medicine and therapeutic development, would be helpful for reviewing Discovery program applications.

Prior Service in CIRM Reviews: N/A

Bio:
Xiaojun Lance Lian is currently an Associate Professor at Pennsylvania State University, Department of Biomedical Engineering, Department of Biology and the Huck Institutes of the Life Sciences. Dr. Lian holds a PhD degree from University of Wisconsin – Madison, focusing on stem cell engineering. Dr. Lian received postdoctoral training in Harvard University and Karolinska Institutet.

Dr. Lian is internationally known for his work as a stem cell engineer. His laboratory focuses on the differentiation of human pluripotent stem cells into multiple somatic cell lineages, including pancreatic beta cells, cardiac cells and blood cells. His cardiac differentiation papers have been cited for more than 2000 times. His lab is also interested in applying gene editing tools in stem cells to understand diseases.

Dr. Lian has received several awards, including Cozzarelli Prize of the National Academy of Science (the Best biomedical science paper of the year in PNAS), Young Innovator Award of BMES, Junior Investigator Award of Advanced Biomanufacturing conference, Rising Star Award of the Biomedical Engineering Society, NIH Trailblazer Award and National Science Foundation CAREER Award.

Leonid S. Metelitsa, MD, PhD
Professor at Baylor College of Medicine

Referral: Dr. Metelitsa was identified via a literature review for experts in pediatric oncology, solid cancer immunotherapy and NKT cell immunobiology.

Expertise Relevance to CIRM GWG: Dr. Metelitsa has demonstrated a record of productive basic and translational research in the areas of tumor immunology and immunotherapy which is helpful for reviewing Discovery, Translational, and Clinical programs.

Prior Service in CIRM Reviews: Dr. Metelitsa has served as a specialist reviewer for CIRM Clinical programs.

Bio:
Leonid Metelitsa is a Professor in the Department of Pediatrics, Section of Hematology/Oncology, at Baylor College of Medicine, the Director of the newly formed Center for Advanced Innate Cell Therapy (AICT) and Co-Director of the Neuroblastoma Program at Texas Children's Hospital. He has a broad background in tumor biology and immunology with specific training in pediatric oncology, bone marrow transplantation, and tumor immunology. After becoming an independent investigator in 2003, he has focused effort on understanding the mechanisms of NKT-cell localization to the tumor site and their function in the context of the tumor microenvironment. His lab also revealed a previously unanticipated critical role of inflammation in the biology and clinical behavior of neuroblastoma. His research has been continuously supported by grants from NIH/NCI, DoD, CPRIT, LLS, and other competitive sources. The technologies developed in his lab for human NKT-cell isolation, genetic modification with chimeric antigen receptors (CAR), and expansion to clinical scale under cGMP conditions have led to the first-in-human clinical trials of CAR NKT cells and "off-the-shelf" allogeneic NKT cells with licensing to industry.

Dr. Metelitsa earned his MD at Tver State Medical University in Tver, Russia, and he earned his PhD in Hematology/Oncology from the N.N. Blokhin Memorial Cancer Research Center of Russian Federation in Moscow, Russia. He completed his postdoctoral fellowship in Tumor Immunology at Children's Hospital Los Angeles/Keck School of Medicine at University of Southern California, where he stayed on as Assistant Professor in the Departments of Pediatrics and Division of Hematology-Oncology. He then accepted an Associate Professor position at Baylor's Departments of Pediatrics, where he remains today as Professor. Among his honors are the International Award from the Bavaria-California Technology Center, the Caroline Wiess Law Scholar Award, and election to the American Society for Clinical Investigation. He has served as a standing member on an NIH study section for Transplantation, Tolerance, & Tumor Immunology and as an ad hoc reviewer on other NIH and Department of Defense study sections covering the field of cancer immunology and immunotherapy. Dr. Metelitsa has also served as a member and the chair of the scientific advisory board of an NIH-funded consortium for New Therapies for Neuroblastoma.

Elias Sayour MD, PhD
Associate Professor of Neurosurgery and Pediatrics at University of Florida

Referral: Dr. Sayour was identified by the Review team's Senior Science Officer based on assessment of expertise through publications.

Expertise Relevance to CIRM GWG: Dr. Sayour's clinical and research expertise in immunotherapy and neuro-oncology continues to be a source of value to assessing Clinical program submissions, and will continue to be valuable given Proposition 14's allocation for the support of research and the development of treatments for diseases and conditions of the brain and central nervous system, such as brain cancer.

Prior Service in CIRM Reviews: Dr. Sayour has served as a specialist reviewer for CIRM Clinical programs.

Bio:
Elias Sayour, MD, PhD is an Associate Professor of Neurosurgery and Pediatrics at the University of Florida (UF). He spearheaded the creation, and now serves as Director, of UF's Pediatric Cancer Immunotherapy Initiative (PCI2), which is composed of a diverse group of investigators working together to catalyze development of investigator-initiated immunotherapies and develop new physician-scientists in pediatric and AYA oncology. He also serves as Vice Chair of the UFHCC Scientific Review Monitoring Committee and UFHCC pediatric Disease-Site Group Leader. His research focuses on developing nanoparticle vaccines to overcome the limitations of poorly immunogenic local vaccination strategies while reconciling the advent of personalized medicine into a commercial drug formulation; characterizing malignant brain tumors; identifying tumor specific antigen targets, with a focus on viral antigens, surface antigens, tumor specific neoantigens, and total tumor derived RNA, for targeted therapeutic development; and adoptive cellular immunotherapy to meet the need for more effective and less toxic treatment options for patients with refractory malignancies.

Dr. Sayour earned his MD from the University at Buffalo, completed his residency in Pediatrics at Cohen Children's Medical Center in New York, completed his fellowship in Pediatric Hematology-Oncology at Duke University Medical Center, and earned his PhD in Pathology at Duke University. Dr. Sayour is an NIH funded investigator with extensive translational experience. He has served as the sponsor of multiple FDA-IND submissions (BB-19304, BB-20871) and is PI/Study Chair on first-in-human clinical trials utilizing adoptive cell therapy in pediatric patients with high-grade gliomas and RNA-lipid particle vaccines for newly diagnosed pediatric high-grade gliomas and adult glioblastomas. He has been the primary inventor on a number of pending patent applications concerning the immunologic treatment of cancer and he has received a number of prestigious awards for his research including the ASPHO Young Investigator Award, U.S. Department of Defense Career Development Award and recognition as a University of Florida Term Professor.

Monica S. Thakar, MD
Associate Professor at Fred Hutchinson Cancer Research Center

Referral: Dr. Thakar was identified by the Review team's Senior Science Officer based on assessment of expertise through publications.

Expertise Relevance to CIRM GWG: Dr. Thakar's clinical expertise in treating pediatric hematologic disorders and knowledge of using natural killer cells in to prevent or treat high risk cancers is helpful in reviewing Translational and Clinical program applications proposing the use of natural killer cells for treating children and young adults.

Prior Service in CIRM Reviews: Dr. Thakar has served as a specialist reviewer for CIRM Clinical programs.

Bio:
Monica S. Thakar is an Associate Professor at the Fred Hutchinson Cancer Research Center, Associate Professor of Pediatrics at the University of Washington. She is also an Attending Physician and Medical Director of the Inpatient Pediatric Bone Marrow Transplant Services at the Seattle Children's Hospital, and an Attending Physician at the Seattle Cancer Care Alliance. She is a pediatric bone marrow transplant physician with expertise in treating children and young adults with leukemia, lymphoma, and a wide variety of non-malignant diseases. Dr. Thakar's clinical and translational research explores whether certain immune cells called natural killer (also known as NK cells) can prevent relapse and treat high-risk cancers.

Dr. Thakar earned her MD at the Medical University of South Carolina. She completed her pediatric internship and residency at the University of Chicago and then completed a Pediatric Hematology-Oncology Fellowship and Senior

Research Fellowship at the University of Washington and Fred Hutchinson Cancer Research Center. Dr. Thakar was the editor of a *Frontiers in Oncology* special issue, "Current Perspectives, Challenges and Advances in Cell-Based Therapies." She also serves as a manuscript reviewer for many other journals, such as *Blood, Biology of Blood and Marrow Transplantation, Journal of Pediatric Hematology and Oncology, PLOS, Transplantation, Frontiers in Immunology,* and *Experimental Hematology*. She serves on Cellular Therapies working groups and Immune Deficiencies and Inborn Errors of Metabolism working groups for the Center for International Blood and Marrow Transplant Research. She has also co-chaired sessions or symposia on GVHD biology, pediatric alternative donor transplantation, and preclinical studies to improve safety and efficacy of CAR-T cells at the American Society of Hematology Annual Meeting. She has also been part of several grant study sections, including an NIH NCI SPORE Study Section, multiple American Society of Hematology Study Sections (Clinical Research Training Institute, Clinical Scholar Awards, and the HONORS Program), and the Vince Lombardi Cancer Foundation's Medical Advisory Board and Study Section. She has studied NK cells both in the lab and more recently, in novel clinical trials. She is currently the Protocol Chair for a new study run through the Pediatric Transplantation and Cellular Therapy Consortium (PTCTC) studying the use of expanded haploidentical NK cells for prevention of post-transplant relapse in children with AML.

REAPPOINTMENTS

CIRM is seeking the reappointment of the individuals listed in the table below. Their updated biographies follow.

Proposed Reappointments to GWG

Last	First	Term	Years	Expertise
Allickson	Julie	2nd	6	Quality Assurance/Control, Regulatory Affairs, Process Development and GMP Manufacturing
Bartholomew	Amelia	3rd	6	Hematopoietic & Mesenchymal Stem Cells; Transplantation Tolerance; Solid Organ Transplantation
Borlongan	Cesar	2nd	4	Neurological Disorders; Stroke; Stem Cell Therapies
Boulton	Michael	3rd	6	Retinal Disease; Stem Cell Biology
Bulte	Jeff	3rd	6	Molecular and Cellular Imaging; MRI; MPI; CEST; Cell Tracking; Theranostics; Reporter Genes
Cibelli	Jose	3rd	6	Cellular Reprogramming; Stem Cell Biology; Pluripotency
Cowan	Chad	3rd	6	Stem Cell Biology; In Vitro Models of Disease; iPSC; Gene Editing
Flake	Alan	3rd	6	in utero Cell & Gene Therapy; Neonatal Surgery
Glass	Jonathan	3rd	6	Neuromuscular Disorders; Peripheral Neuropathies; Amyotrophic Lateral Sclerosis
Lake	John	3rd	6	Liver; Organ Transplantation; Cell Therapies for Liver Disease
Kuritzkes	Daniel	2nd	4	HIV Therapeutics; HIV Persistence & Eradication; Antiretroviral Drug Resistance
Mummery	Christine	3rd	6	Organ-on-a-Chip Disease Modeling; iPSC; Cardiovascular Development; Cellular Therapy for Cardiovascular Disease
Rosser	Anne	3rd	6	Neurobiology; Cell Therapy for Neurodegenerative Disease; Huntington's Disease; Parkinson's Disease
Rubin	Josh	3rd	6	Pediatric Brain Tumors; Brain Development Mechanisms & Tumorigenesis
Steer	Clifford	3rd	6	Hepatology; Non-viral Gene Therapy; Liver Regeneration, Gene Editing, miRNAs as Therapeutic Agents

Wade-Martins	Richard	3rd	6	Molecular Mechanisms of Neurodegeneration; Gene Therapy
Wirostko	Barbara	3rd	6	Ophthalmology; Glaucoma; Clinical Development
Wilkie	Thomas	2nd	6	Pancreatic Diseases and Cancer; Diabetes; Cell Signaling
Yee	Cassian	2nd	2	Medical Oncology; Immunology; Cancer Immunotherapy; Adoptive T cell Therapy; Melanoma

Julie Allickson, PhD
Dr. Allickson is Chief Manufacturing Development Center Officer at Wake Forest Institute for Regenerative Medicine. She heads the clinical translation team streamlining development to create a robust pipeline of products in development and early phase clinical trials including cellular therapy, genetically engineered cellular therapy, tissue-engineered organs and tissues, biomaterials and devices. Prior to the Institute, she was the Vice President of Research and Development and Laboratory Operations for Cryo-Cell International Inc. Dr. Allickson has 30 years of experience in clinical translation including regulatory affairs, quality assurance/control, manufacturing, business management, technology licensure, and board directorship.

Dr. Allickson was part of the team to perform the first Bone Marrow Transplant at the University of Miami. She has a Doctorate in Health Sciences-Clinical Immunology along with a Master's Degree in Medical Laboratory Sciences. She is one of the founding members of the International Society of Cellular Therapy and a former Board Member for the AABB. She is on the Advisory Board of Alliance for Cell Therapy Now. She is an Associate Editor for *Journal of Translational Medicine*, on the Editorial board of *CELLR4*, Vice Chair for Cord Blood Association Quality Committee, Technical Advisory Board for Tissue Engineered Products under ICCBBA, and serves on the ISCT Commercialization Committee.

Dr. Allickson has served as a GWG member for almost 6 years. She has reviewed for Translational programs.

Amelia Bartholomew, MD, MPH, FACS
Dr. Amelia Bartholomew is a Professor in Surgery and Bioengineering, Chief of Translational Research and Director of the Medical Student Surgical Education and Curriculum at the University of Illinois at Chicago. Her clinical interests are in stem cell biology, organ regeneration and nutrigenomics and exercise. She oversees the Laboratory for Transplant and Regenerative Medicine which aims to develop effective strategies to prevent, treat, and reverse end organ failure. They are studying mesenchymal stem cells for their ability to reduce the inflammatory and destructive processes observed in kidney and heart failure, and the neurologic failures observed in Alzheimer's and stroke; studying the ability of mesenchymal stem cells to induce long-term acceptance to organ transplants such as kidneys and hearts by commandeering and redirecting host immune responses; and studying mesenchymal stem cell responses to debilitating conditions, such as diabetes or radiation, and how impaired mesenchymal stem cell cross-talk with cells of the hematopoietic niche can lead to their dysfunction in tissue repair and regeneration. Dr. Bartholomew's work in mesenchymal stem cells has been widely cited. Her research efforts have resulted in patents licensed by industry for clinical development.

Dr. Bartholomew earned her BS and MD from the Honors Program in Medicine at Northwestern University. She completed her internship and residency in general surgery at the University of Illinois in Chicago and Cook County Hospital, becoming an Administrative Chief Resident in Surgery. Thereafter, she was a fellow in multi-organ transplantation at Massachusetts General Hospital. She then earned her MPH from John Hopkins Bloomberg School of Public Health. She is certified by the American Board of Surgery and is a fellow for the American College of Surgeons. She has participated in scientific study sections/review groups for the National Institutes of Health (NIAID, NCI, NHLBI), the American Society of Hematology, the National Kidney Foundation, and the American Society for Transplantation as well as numerous scientific journals.

Dr. Bartholomew has served as a GWG member for 10 years, serving a 6-year and 4-year appointment. She has served as a GWG member or specialist for Clinical, Discovery, Infrastructure and Translational programs and reviewed for Leadership Awards and Transplantation Immunology awards.

Cesar V. Borlongan, PhD
Dr. Cesar Borlongan is a Professor and Vice-Chairman for Research at the University of South Florida (USF) Department of Neurosurgery and Brain Repair, and Director of USF Morsani College of Medicine's Center of

Excellence for Aging and Brain Repair. He is considered a world leader in stem cell research for stroke therapy, having led the world's first cell therapy in stroke patients. He has a broad background in regenerative medicine, with specific training and expertise in stem cell therapy. He directs the Neural Transplantation Laboratory which focuses on understanding the mechanisms underlying stroke, traumatic brain injury, and other neurological disorders, with an eye towards discovering novel, safe, and effective interventions that facilitate nervous system protection and repair.

Dr. Borlongan earned his PhD in Physiological Psychology at Keio University in Tokyo, Japan. He then pursued fellowships in neuroscience at the University of South Florida and the National Institutes of Health (NIH). Prior to accepting a position at USF, he held the position of Professor in the Department of Neurology at the Medical College of Georgia. Dr. Borlongan is a leader in stem cell therapy for stroke. His translational bench-to-clinic research has led to five FDA-approved clinical trials of cell transplantation, including the world's first cell therapy in stroke patients. He holds 16 U.S. patents. He is an author of more than 370 peer-reviewed publications, lead editor of 2 books, and serves as editorial board member of many scientific journals, including *Stroke, Journal of Cerebral Blood Flow and Metabolism, Stem Cells, PLoS One,* and *Brain Research*. He has been a regular study section member of NIH NOMD and VA NURE, and has been ad hoc member for many other NIH, VA, and DOD study sections, and several other various national and international funding agencies. He has served as the Chairman of the State of Maryland Stem Cell Research Fund for the past 5 years and has Co-Chaired the AHA National Study Group on Regenerative Biology since 2012. He has been served as Vice President of the International Placenta Stem Cell Society, President-Elect of American Society for Neural Therapy and Repair, and International Placenta Stem Cell Society, and is an elected Fellow of AAAS and AIMBE. He was selected as a National Academy of Inventors Senior Member for his pioneering stem cell therapy research for stroke.

Dr. Borlongan has served as a GWG member for almost 6 years. He has reviewed for Clinical, Discovery and Translational programs.

Michael E. Boulton, PhD
Dr. Michael Boulton is a Professor and Susan and Dowd Ritter/RPB Endowed Chair in Ophthalmology Research at the University of Alabama at Birmingham (UAB). The goal of his research is to better understand retinal physiology and how this is dysregulated during aging and pathologies such as age-related macular degeneration (AMD) and diabetic retinopathy. Current research for his lab includes: understanding the regulation of inner and outer blood retinal barrier permeability; response of retinal cells to oxidative stress and how this impacts degeneration/regeneration and angiogenesis; the importance of circadian rhythmicity in retinal physiology, repair and regeneration and pathogenesis of diabetic retinopathy; identifying the signaling pathways and their crosstalk that regulate aberrant ocular neovascularization; using programmed bone marrow-derived cells as a systemic therapy for retinal degeneration. The long-term goals of his projects are to improve understanding of retinal pathophysiology and to improved therapeutic intervention in retinal diseases.

Dr. Boulton earned his BS in Microbiology and Chemistry from Reading University and his PhD in Vision Science at the Polytechnic of Central London. He completed fellowships at the Polytechnic of Central London Division of Science and the Institute of Ophthalmology Department of Visual Science, London. He then moved to the Department of Ophthalmology at the University of Manchester before relocating to Cardiff University as Head of the School of Optometry and Vision Sciences, whereupon he also became Director of the Cardiff Institute of Tissue Engineering and Repair. In 2006, he transitioned to the US as Professor and Director of the AMD Center at University of Texas Medical Branch at Galveston. He subsequently moved to University of Florida to become a Professor of Anatomy and Cell Biology and then Indiana University to serve as Director of Basic and Translational Research in the Department of Ophthalmology, before settling at UAB. His research group has over 30 years of experience in vision research, published over 220 peer review articles and over 40 book chapters and has a long history of sustained funding from NIH and other agencies/commercial sources. He has served on the Editorial Boards of *PloS One, Journal of Cataract and Refractive Surgery, Graefe's Arch Ophthalmology, Molecular Neurobiology and Cells*, and frequently reviews for a wide range of cell biology and vision science journals. He is also a regular grant reviewer for the National Eye Institute and has recently completed a full term of Basic Vision Science Study Section as Chair and continues to ad hoc as a reviewer for a range of NIH programs.

Dr. Boulton has served as a GWG member for almost 12 years, serving 2 6-year appointments. He has reviewed for Clinical, Discovery, and Translational programs as well as Leadership Awards and New Faculty Awards.

Jeff W.M. Bulte, PhD
Dr. Jeff W.M. Bulte is a Professor of Radiology, Oncology, Biomedical Engineering, and Chemical & Biomolecular Engineering at the Johns Hopkins University School of Medicine. He is the inaugural Radiology Director of Scientific Communications and serves as Director of Cellular Imaging in the Johns Hopkins Institute for Cell Engineering. He

specializes in the development of new contrast agents and theranostics as applied to molecular and cellular imaging, with particular emphasis on in vivo cell tracking and regenerative medicine. He has pioneered methods to label cells magnetically, making them visible by magnetic resonance imaging (MRI). His team is developing MRI cell tracking techniques, reporter genes and immunoprotective semi-permeable microcapsules detectable by MRI, computed tomography, ultrasound, and bioluminescent imaging.

Dr. Bulte earned his MS in Tumor Immunology at the Free University of Amsterdam (1987) and his PhD in Biomedical Engineering at the University of Groningen (1991). He subsequently spent 10 years with the National Institutes of Health, first as a postdoctoral fellow and then a staff scientist in the Laboratory of Diagnostic Radiology Research. He has published over 250 peer-reviewed publications and 40 book chapters, which have been cited over 30,000 times. He is a Fellow of the International Society for Magnetic Resonance in Medicine (ISMRM), a Fellow of the World Molecular Imaging Society, a Fellow of the American Institute for Medical and Biological Engineering, and a Distinguished Investigator of the Academy of Radiology Research. He also serves on the editorial boards of Radiology, WIREs Nanomedicine and Nanobiotechnology, Contrast Media and Molecular Imaging, Molecular Imaging, and the Journal of Magnetic Resonance Imaging. He was awarded the Torsten Almen Award for Pioneering Research in Contrast Media Research and the Gold Medal by the ISMRM, the MRI Society's highest honor.

Dr. Bulte has served as a GWG member for 12 years, serving a 6-year, 2-year, then 4-year appointment. He has reviewed for Translational, Discovery, and Education programs.

Jose B Cibelli, PhD, DVM
Dr. Jose Cibelli is a Professor of Animal Biotechnology at Michigan State University (MSU). He is a pioneer in cloning with transgenic somatic cells and embryonic stem cells – he and his team generated the world's first transgenic cloned calves, the first embryonic stem cell line from humans by nuclear transfer, and the first embryonic stem cells by parthenogenesis in primates. His group has recently identified 24 coding and non-coding genes that have the potential to impact the capacity of a cell to acquire pluripotency, with plans to test each novel reprogramming factors (NRFs) in the context of zebrafish SCNT. They are also testing whether they can generate zebrafish capable of expressing any given gene in the oocyte in a dose-dependent manner without compromising their developmental potential, in order to generate a model that can interrogate the function of specific genes during the earliest stages of embryonic development without inducing permanent changes in the genome. He is passionate about understanding the process by which a somatic cell can acquire pluripotency during somatic cell nuclear transfer. As a member of MSU's Reproduction and Development Science Program, he is also passionate about diversity, equity and inclusion initiatives. As Diversity Coordinator of MSU's Training Programs, he hopes to increase the number of underrepresented-minorities (URM) students who pursue graduate studies and research careers in reproductive and developmental biology, continuing to partner with graduating institutions in the US through the MSU-affiliated Minority Serving Institutions Consortium and Puerto Rico.

Dr. Cibelli earned his DVM from University of La Plata, School of Veterinary Medicine, Argentina, and his PhD in Reproductive Physiology from University of Massachusetts, Amherst. Prior to accepting a faculty position at MSU, he served as Vice President of Research at Advanced Cell Technology. In addition to serving on NIH study sections, he has served as a reviewer for grant panels in Belgium, Canada, Czech Republic, Spain, Poland and the UK. He currently serves on the Editorial Board for *BMC Developmental Biology, Cellular Reprogramming, Experimental Biology and Medicine* and *Scientific Reports*. He founded FreezeBack LLC, which provides germplasm banking services for non-mammal animal species, and Gema Diagnostics, Inc., which is dedicated to identifying molecular markers in the cumulus cells of human oocytes to improve the prospects for IVF. He also holds 13 patents, with many more pending. He is internationally recognized as one of the pioneers in the area of cloning for the production of animals and embryonic stem cells. His work has been published in numerous scientific journals including *Science, Nature Biotechnology, Nature Medicine, Nature Methods, PNAS,* and *JAMA*. He has testified about cloning in public forums sponsored by the US Food and Drug Administration, the USA National Academy of Sciences, Canadian House of Commons, the US Department of Agriculture, the United Nations Commission for Human Rights and the British Royal Society.

Dr. Cibelli has served as a GWG member for 10 years, serving a 6-year and then 4-year appointment. He has reviewed for Discovery and Education programs.

Chad A. Cowan, PhD
Dr. Chad Cowan is an Associate Professor at Harvard University in the Harvard Stem Cell Institute. He developed technology designed to protect cells from immune attacks, which can be used to genetically modify and differentiate stem cells to create cell therapies that are cloaked from the immune system. His lab focuses on regenerative medicine and the molecular underpinnings of metabolic diseases such as type 2 diabetes mellitus and coronary

artery disease. His lab aims to identify patients, families and cohorts with disease, use genetic techniques such as genome-wide association studies and exome sequencing to identify novel DNA variants and genes linked to disease, use human cell-based models and mouse models to understand how the DNA variants affect gene and protein function, and use their mechanistic insights to begin the process of developing new therapies that will benefit patients and populations.

Dr. Cowan received his BA and BS, with honors, from Kansas University in 1995 and 1996. He received his PhD from the University of Texas Southwestern at Dallas. He subsequently completed a postdoctoral fellowship with Professor Douglas Melton at Harvard University. Dr. Cowan is a Scientific Founder of CRISPR Therapeutics AG, a company focused on developing transformative gene-based medicines for serious human diseases such as hemoglobinopathies, cancer, and diabetes. He was also co-founder and Chief Scientific Officer at Sana Biotechnology Inc.

Dr. Cowan has served as a GWG member for 10 years, serving a 6-year appointment and then 4-year appointment. He has reviewed for Discovery and Translational programs, as well as for the iPSC Tissue Collection, Derivation and Banking initiative.

Alan Flake, MD, FACS, FAAP
Dr. Alan Flake is an attending surgeon in the Division of Pediatric General, Thoracic and Fetal Surgery and holds the Ruth M. and Tristram C. Colket, Jr. Endowed Chair in Pediatric Surgery at The Children's Hospital of Philadelphia. He serves as Director of CHOP's Center for Fetal Research. Under his leadership, the Center for Fetal Research is exploring innovations in prenatal treatment and it has developed new technologies for physiologic support of the extreme premature infant, a development that could have major implications for the treatment of prematurity. He is also a professor of Surgery and Obstetrics and Gynecology at the Perelman School of Medicine at the University of Pennsylvania.

Dr. Flake's clinical specialties include fetal diagnosis and therapy and neonatal surgery. He is a leader in performing minimally invasive surgery, mostly on neonates, including thoracoscopic and laparoscopic procedures, and he continues to refine and develop these delicate surgical techniques for the unique requirements of pediatric patients. Dr. Flake's research focuses on prenatal treatment ranging from the fetal surgical repair of anatomic anomalies to prenatal stem cell and gene therapy. He was the first to investigate the therapeutic potential of in utero stem cell transplantation (IUSCT) for treating hematopoietic and other genetic disorders, and he was one of the first investigators in the field of in utero gene therapy, helping to define the potential advantages and limitations of the approach. Dr. Flake is committed to discovering ways to help children live disease-free and is currently moving toward a human clinical trial for sickle cell disease, utilizing in utero transplantation of maternal cells to the fetus in order to increase the newborn's tolerance for a successful bone marrow transplant.

Dr. Flake earned his BS degree at the University of Arkansas and his MD from the University of Arkansas for Medical Sciences, Little Rock. He subsequently completed a General Surgery residency program and research fellowship in fetal biology and therapy at the University of California, San Francisco. He then went on to complete a pediatric surgery fellowship at the Children's Hospital Medical Center in Cincinnati, Ohio. Dr. Flake has published extensively with authorship of over 400 peer-reviewed publications and over 100 review articles and book chapters. He is on the editorial board of numerous journals relating to hematology and stem cell biology, pediatric surgery and fetal therapy and is a participant on numerous NIH study sections. He is also Co-Inventor and Clinical Advisor to Vitara Biomedical, a company focused on transforming neonatal care to protect more preterm infants and improve their quality of life by reducing mortality and comorbidities.

Dr. Flake has served as a GWG member for 12 years, serving 2 6-year appointments. He has reviewed for Clinical, Translational, Infrastructure, and Education programs, and for Leadership Awards, New Faculty Awards, Alpha Clinics Awards, Transplantation Immunology Awards, External Partnerships Awards, and Preclinical Development Awards.

Jonathan D. Glass, MD
Dr. Jonathan Glass is a Professor of Neurology and Pathology at Emory University as well as the Director of the Emory ALS Center, which has grown to be one of the largest clinical centers in the Southeastern United States. He is an active clinician and basic scientist working on models and treatments for ALS. Dr. Glass led the recent "first-in-human" clinical trial of spinal cord stem cell transplantation for ALS, which was a groundbreaking effort that set the standard for similar trials around the world. His leadership in promoting new efforts in ALS therapeutics is exemplified by his former position as co-Chair of the Northeast ALS Consortium (NEALS), an organization dedicated to advancing clinical research for ALS patients and their families. His research career includes both clinical and

experimental neuropathology, with extensive work in the biology of axonal degeneration in neurodegenerative diseases. He currently serves as the Director of the Emory Alzheimer's Disease Research Center Brain bank, where he has been able to investigate ALS neuropathology as well as participate in experimental work using tissue proteomics to investigate ALS/FTD pathogenesis. An equally important aspect of his career is his passion for developing and mentoring the next generation who will continue to translate scientific discoveries into clinical therapies. He has a successful track record of training clinical and basic science students, residents, and fellows, the majority of whom have gone on to successful independent careers in clinical and research fields.

Dr. Glass earned his undergraduate degree in Chemistry from Middlebury College, Vermont, and his MD from the University of Vermont. He trained in Neurology and Neuropathology at Johns Hopkins Hospital in Baltimore, where he was a faculty member until being recruited to Emory University in 1996. He is widely known for his research on the pathogenesis and prevention of nerve degeneration in neurological diseases, and for his work in human and experimental neuropathology. His laboratory focuses on the study of ALS and other neurodegenerative diseases using animal models, cell cultures, and human tissues to investigate the causes and potential cures for ALS, and clinically he is a leader in discovery projects on biomarkers and genetics of ALS. He has published >200 research papers in peer-reviewed journals. He has been cited each year since 2001 as one of "America's Top Doctors" (Castle Connelly) and since 2005 as one of "Atlanta's Top Doctors" (Atlanta Magazine). He is also a teacher and mentor to young physicians and served as the director of Emory's Neurology residency training program from 2001-2006.

Dr. Glass has served as a GWG member for 12 years, serving 2 6-year appointments. He has reviewed for Clinical, Translational, Infrastructure, and Leadership Awards.

Daniel R. Kuritzkes, MD
Dr. Daniel Kuritzkes is the Harriet Ryan Albee Professor of Medicine at Harvard Medical School and Chief of the Division of Infectious Diseases at Brigham and Women's Hospital. He also serves as a Principal Investigator of the Boston HIV Clinical Trials Unit, which conducts NIH-sponsored research for the treatment and prevention of HIV and COVID-19. His research focuses on HIV therapeutics, antiretroviral drug resistance, HIV persistence and eradication, and more recently, COVID-19.

He earned his BS and MS degrees in Molecular Biophysics and Biochemistry from Yale University, and his MD from Harvard Medical School. He completed his residency and fellowship in internal medicine and infectious disease at Massachusetts General Hospital. He has published extensively on antiretroviral therapy and drug resistance in HIV-1 infection. He has chaired several multicenter studies of HIV therapy, served as a member of the NIH Office of AIDS Research Advisory Council and served as a member of the U.S. Department of Health and Human Services panel on guidelines for antiretroviral therapy. He has been a member of several editorial boards and is an Associate Editor of the Journal of Infectious Diseases.

Dr. Kuritzkes has served as a GWG member for 6 years. He has reviewed for Clinical programs and COVID-19 panels.

John R. Lake, MD
Dr. John Lake is a Professor of Medicine and Surgery, Chief of Hepatology in the Division of Gastroenterology, and Executive Medical Director of the Solid Organ Transplantation Program at University of Minnesota Medical Center. He is also Senior Staff of the Scientific Registry of Transplant Recipients. As a physician scientist, his research interest lies in all aspects of liver transplantation, including chronic liver disease and indication for liver transplantation, outcomes of liver transplantation and of wait-listed patients and allocation and distribution of donor livers. Given the fundamental problem of donor organ shortage in the field of liver transplantation, much of his research efforts have been towards achieving the equitable allocation and distribution of donor organs in order to equalize access of patients with advanced chronic liver disease to transplantation and promote optimal outcomes. An important part of this goal includes optimizing the management of patients with advanced liver disease. To this end, he has utilized large clinical databases including the NIDDK Liver Transplantation Database, the OPTN Star file, the Scientific Registry of Transplant Recipients and most recently the AASLD Cirrhosis Quality Collaborative.

Dr. Lake earned his BS in Biochemistry and earned his MD at the University of Minnesota, Minneapolis. He completed his internship and residency in Internal Medicine as well as clinical fellowship in Gastroenterology at the University of California, San Francisco. He continued on at UCSF as a Research Fellow, Assistant Professor in Gastroenterology, Medical Director of the Liver Transplant Program, and then Associate Professor in Gastroenterology until he accepted positions at University of Minnesota as Professor of Medicine and Surgery and Director of the Liver Transplant Program. Among many honors, he has been recognized with the AST Career Achievement Award in Clinical Research and the International Liver Transplantation Society Distinguished Service

Award. His research has led to more than 215 articles and 25 reviews in peer-reviewed journals and more than 27 books or book chapters published. He is a past Editor of the journal *Liver Transplantation* and he has served on the Editorial Board of *Transplantation, Hepatology, Nature: Clinical Practice Gastroenterology and Hepatology, Hepatobiliary and Pancreatic Disease International*, and *American Journal of Transplantation.* He has served as past-President of United Network for Organ Sharing (UNOS) and the American Society of Transplantation (AST), and he serves on the Governing Board of the American Association for the Study of Liver Diseases.

Dr. Lake has served as a GWG member for 12 years, serving 2 6-year appointments. He has reviewed for Clinical, Translational, and Education programs.

Joshua Rubin, MD, PhD
Dr. Josh Rubin is Professor of Pediatrics, Professor of Neuroscience, and Professor of Neurology at the Washington University in St. Louis. He is also Co-Leader of the Solid Tumor Therapeutics Program at the Alvin J. Siteman Cancer Center and Associate Director of the Intellectual and Developmental Disability Research Center at the Washington University School of Medicine. He founded the clinical Pediatric Neuro-Oncology Program at St Louis Children's Hospital, a program which has grown to become the region's largest specialty program for children with brain tumors and a key collaborating site for multi-institutional clinical trials. In addition, he is Chair of the Scientific Advisory Committee for the Children's Brain Tumor Foundation, Director of Project Renew: Restoring Cognition in Children with Brain Tumors.

For more than 20 years, Dr. Rubin's combined lab and clinical research goals have been the advancement of pediatric neuro-oncology care. In his clinical research, he has focused on novel therapeutics and cognitive outcomes in pediatric brain tumor patients. This latter work has involved the application of functional MR imaging, neuro-cognitive testing, as well as measurements of brain morphometrics and evaluation of brain vascular health. His laboratory focus has been on the relationship between normal sexual differentiation and brain development, and the genesis of pediatric brain tumors. This work has involved primary murine and human neural, astrocyte and tumor cell cultures, engineered mouse models of pediatric brain tumors and rigorous preclinical paradigms for evaluating novel targeted therapies in combination with chemotherapy and high dose conformal radiation therapy. His lab was the first to utilize firefly luciferase expressing brain tumor cells for bioluminescence-based quantification of intracranial xenograft growth, which is now standard in the field. It was also the first to report cell-intrinsic sex differences in tumor suppressor pathways and their potential connection to disparities in the rates of brain tumors in males and females. His lab was also the first to report sex-specific molecular subtypes of GBM and with Dr. Erik Herzog, the first to describe circadian rhythm in patient-derived GBM cell lines and circadian modulation of response to temozolomide. These lines of investigation and their application to precision medicine approaches to brain tumor treatments are the primary focus of their work.

Dr. Rubin earned his BS in Biology at Yale University (1982), his MSc in Neuroscience at Albert Einstein College of Medicine (1992), his PhD in Neuroscience at Albert Einstein College of Medicine (1994), and his MD at Albert Einstein College of Medicine (1994). He completed his Internship and Residency in Pediatrics at Boston Children's Hospital, his Fellowship in Pediatric Hematology and Oncology at Dana Farber Cancer Institute and Boston Children's Hospital and his Post-Doctoral Fellowship at Dana Farber Cancer Institute. Prior to accepting a position at Washington University School of Medicine, he also served as an Instructor in Pediatrics at Harvard Medical School, Children's Hospital of Boston and Dana Farber Cancer Institute. Among many honors and awards, he has most recently received the Pioneer Award in Neuro-Oncology from the Children's Brain Tumor Foundation.

Dr. Rubin has served as a GWG member for 12 years, serving 2 6-year appointments. He has reviewed for CIRM Clinical, Translational, Discovery, and Education programs as well as the Genomics Center Awards.

Christine Mummery PhD
Dr. Christine Mummery is Professor of Developmental Biology and Chair of the Department of Anatomy and Embryology at Leiden University Medical Centre (LUMC). She is a member of the Royal Netherlands Academy of Science (KNAW) and is currently President of the International Society of Stem Cell Research (ISSCR). She is on several scientific advisory boards including the Hubrecht Institute, the Allen Institute, Mogrify and Sartorius AG. Her current research concerns modelling cardiovascular diseases using stem cells from patients and developing organ-on-chip models of multiple organs for safety pharmacology and potential disease and drug targets. This effort is funded by a multimillion NWO-ZonMW Gravity Grant, the European Research Council Advanced and Proof-of-Concept grants. She co-founded the European Organ on Chip Society and the Netherlands Human Disease Modelling Technology organization (hDMT.technology). She also co-founded NCardia (an iPSC technology company

with facilities in Europe and North America, built on the belief that stem cell technology will help bring better therapies to patients faster and aiming to enable biopharmaceutical companies in drug discovery and cell therapy to better integrate human iPSC technologies in their development process) as an LUMC spin out.

Dr. Mummery has actively pioneered pluripotent stem cell research for nearly 30 years. She was the first to derive human-induced pluripotent stem cells (hiPSC) in the Netherlands and is internationally leading in their use for cardiovascular disease modeling and safety pharmacology. She discovered methods for their directed differentiation to cardiac muscle cells (cardiomyocytes) based on developmental principles, which has resulted in methods for producing the three major contractile cells of the heart (atrial, ventricular and pacemaker) and blood vessels (endothelial cells, pericytes and smooth muscle). Recently, her lab made major advances in maturing cardiovascular derivatives of hPSC a notable hurdle to their use. Her physics background led to focus on characterizing the electrical and mechanical properties of hPSC-cardiomyocytes and how they are affected by genetic disease using hiPSC from patients and precision genetic engineering. Embedding her group in the LUMC enhanced the potential for clinical applications, particularly in using patient hiPSC to identify drug targets and sensitivities and ways to correct disease phenotypes. She developed multiple hiPSC cardiac disease models, demonstrated altered drug sensitivities that reflected drug responses in patients, and showed causal relationships with the mutation; this recently led to the identification of allosteric compounds able to correct the disease phenotype. Through collaboration with the University of Twente, her lab established methods for integrating endothelial-, vascular smooth muscle- and inflammatory cells from hPSC into microfluidic devices to study multiple inherited vascular disorders and with clinical collaborators discovered drugs through repurposing now being prescribed to patients with no other therapeutic options. In 2010, she established the LUMC hiPSC core facility and in 2017 led a successful 18.8M€ bid to generate heart-, gut- and brain on chip models.

Dr. Mummery has a PhD in Biophysics from the University of London. She was group leader and Professor of Developmental Biology at the Hubrecht Institute until 2007. After a sabbatical at the Harvard Stem Cell Institute, she introduced human induced pluripotent stem cells to the Netherlands. In 2008, she became Chair of Developmental Biology at Leiden University Medical Centre in the Netherlands and in 2015, guest professor at the University of Twente. As Head of the Department of Anatomy and Embryology at LUMC, she oversees over 60 research and teaching staff and support and 300 medical and biomedical science students. Her ambitions include promoting women and minorities in stem cell research.

Dr. Mummery has served as a GWG member for 10 years, serving a 6-year and then 4-year appointment. She has reviewed for Discovery, Translational, Clinical, and Education programs, as well as for Genomics Center Awards, Leadership Awards, and New Faculty Awards.

Anne Rosser
Professor Anne Rosser is a Neuroscientist and Honorary Consultant Neurologist with a special interest in neurodegeneration, in particular Huntington's Disease with which she has been involved since 1994. She is current Chair of the European Huntington's Disease Network. She directs the Cardiff University Brain Repair Group, where the key focus is on repair and regeneration in neurodegenerative conditions such as Huntington's and Parkinson's diseases, and led the FP7 Consortium Repair-HD which addressed a range of preclinical and clinical questions important in translating stem cell therapies for Huntington's disease. Along with Professors Gray and Busse, she runs an ongoing clinical trial of fetal cell neural Transplantation in Huntington's Disease (TRIDENT).

Dr. Rosser has served as a GWG member for 10 years, serving a 6-year and then 4-year term. She has reviewed for Clinical, Discovery, and Education programs as well as Alpha Clinics Awards.

Clifford J. Steer, MD
Dr. Clifford Steer is a Professor of Medicine and Genetics, Cell Biology, and Development at the University of Minnesota Medical School, Minneapolis, MN. He is also Director of the Molecular Gastroenterology Program, a member of the Stem Cell Institute, and a member of the Masonic Cancer Center at the University of Minnesota. He has been active in the field of liver research for more than four decades. Dr. Steer's areas of research over the past two decades have included gene therapy, liver regeneration, stem cells, neurodegenerative disorders and microRNA regulation of gene function. His major research focus now is on the development of human livers in large animal models using a combination of CRISPR technology together with blastocyst complementation. The long-term goal of those studies is to address the enormous shortage of livers for transplantation.

Dr. Steer earned his MD at the University of Minnesota School of Medicine, completed his internship in Internal Medicine at the University of Minnesota's St. Paul Ramsey Medical Center, completed his residency in Internal Medicine at the University of Minnesota Medical Center, and completed a hepatology fellowship at the NIH National

Institute of Arthritis, Metabolism, and Digestive Diseases (NIAMDD). Prior to accepting a professorship position and an Institute of Human Genetics membership at the University of Minnesota, he remained on staff at NIH NIAMDD, National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases (NIADDK), and the National Cancer Institute (NCI) as an expert researcher in his field for 14 years. He has been a long-standing member of several NIH Study Sections. He has been co-editor of a major scientific journal in liver diseases and presently serves on the editorial boards of three journals. He has published over 300 scientific articles; and has organized and chaired many national and international scientific conferences. He was elected to the American Society for Clinical Investigation in 1991; and in 2014 was made an inaugural Fellow of the American Association for the Study of Liver Diseases. His work has been written up in newspapers around the world, *Time* magazine, and in 1998 was featured in the *Village Voice*.

Dr. Steer has served as a GWG member for 10 years, serving a 6-year and then 4-year appointment. He has reviewed for Discovery, Translational, and Education programs as well as the Leadership Awards and COVID-19 reviews.

Richard Wade-Martins, MA, DPhil
Dr. Richard Wade-Martins is a Professor of Molecular Neuroscience in the Department of Physiology, Anatomy, and Genetics and head of the Molecular Neurodegeneration Research Laboratory at Oxford University. Since its launch in 2010, he has also headed the Oxford Parkinson's Disease Centre, a multi-disciplinary research initiative supported by the Monument Trust Discovery Award from Parkinson's UK that brings together internationally renowned scientists (who work on the genetics of Parkinson's, the generation of cell and animal models, and the wiring of brain circuits which control movement) with clinical experts in the diagnosis and treatment of Parkinson's. He led the "Neurodegenerative and Neurodysfunctional Diseases" Work Package in StemBANCC, a large €50M European Union Innovative Medicines Initiative Program using stem cells for drug discovery and heads the iPSC Dementia Stem Cell Initiative in the UK Dementia Platform. His research focuses on better understanding the molecular mechanisms underlying neurodegenerative diseases, such as Parkinson's disease and Alzheimer's disease, with a view towards generating novel molecular therapies. His work focuses on the study of the functional and genetic mechanisms underlying key neurodegeneration disease loci, such as alpha-synuclein (SNCA), microtubule associated protein tau (MAPT) and leucine rich repeat kinase 2 (LRRK2). His research group works with stem-cell derived neuronal models from patients, characterizing novel rodent transgenic models carrying mutant or wild-type variants of disease genes, and developing potential small molecule and genetic therapies for disease treatment.

Dr. Wade-Martins graduated from Cambridge University in Natural Sciences taking Part II Genetics in 1995. He then moved to the Wellcome Trust Centre for Human Genetics in Oxford for a DPhil followed by a Wellcome Trust Fellowship. In 2000, he moved to Massachusetts General Hospital, Harvard Medical School as a Wellcome Trust Travelling Research Fellow. He returned to Oxford and in 2004 was awarded a Wellcome Trust Research Career Development Fellowship and started his own group. In 2007, he moved to the Department of Physiology, Anatomy and Genetics, University of Oxford, as a University Lecturer. He gained tenure in 2013, was appointed an Associate Professor in 2014 and Professor in 2015. Dr. Wade-Martins currently serves on the Research Strategy Board for Parkinson's UK (which helps patients and their relatives with the problems arising from Parkinson's, collects and disseminates information on Parkinson's, and encourages and provide funds for research into Parkinson's), and serves as an ad hoc reviewer for the NIH. He was previously the Coordinator for the Alzheimer's Research UK Thames Valley Network Centre (which brings together researchers in and around the Thames Valley region with expertise in dementia and cognition using a range of techniques including imaging, neuropathology, genetics and model systems) and has served on the Scientific Advisory Board for Alzheimer's Research UK (the UK's leading dementia research charity, dedicated to causes, diagnosis, prevention, treatment and cure).

Dr. Wade-Martins has served as a GWG member for 8 years, serving a 6-year and then 2-year appointment. He has reviewed for Education programs and tissue collection, derivation and banking initiatives.

Thomas Wilkie, PhD
Dr. Thomas Wilkie is an Associate Professor in the Department of Pharmacology at the University of Texas Southwestern (UTSW) and Adjunct Faculty of Biological Sciences in the School of Natural Sciences and Mathematics at the University of Texas at Dallas. At UTSW, he is also Co-Director of the Welcome Symposium for first year graduate students and faculty, Faculty Member of the Hamon Center for Regenerative Science and Medicine, a member of the UT Southwestern Harold C. Simmons Comprehensive Cancer Center, a member of the Faculty Collaborative on Racial Equality and Diversity, and on the Steering Committee for the Genetics, Development & Disease Graduate Program. The primary goals of his lab are to determine mechanisms for initiation and progression of intraductal papillary mucinous neoplasm (IPMN) and pancreatic adenocarcinoma (PDA) in people with pancreatitis, metabolic syndrome, obesity, and type 2 diabetes. They are developing rapid screens in vivo and in cell culture to

identify small molecules that regulate GPCR signaling in pancreatic ducts, with the long-term goal of developing drugs for therapeutic treatment of pancreatitis and PDA. They are also testing a novel hypothesis that uveal melanoma (UVM) may be treated with drugs that overcome an endogenous suppressor of calcium toxicity, with the long-term goal of identifying new therapeutics for UVM.

Dr. Wilkie earned his BA in Biochemistry at University of California at Berkeley and his PhD in Biochemistry at the University of Washington. He completed his postdoctoral training at California Institute of Technology. He has been a pioneer in G protein signaling since his postdoctoral studies in the Simon Lab at Caltech. Most recently, his lab has shown that Rgs8-16 are suppressors of acinar-to-ductal metaplasia (ADM) and invasive pancreatic adenocarcinoma (PDA), and they have developed a rapid in vivo screen to identify the most effective therapeutic combinations that inhibit initiation and progression of PDA. He often serves in NIH Study Sections related to cancer or metabolic diseases. In addition to his research pursuits, he is committed to training, mentoring, and promoting an inclusive and supportive scientific research environment for high school, undergraduate, graduate, medical, and postdoctoral trainees. He founded #instaMETSA (to help high school and undergraduate students develop skills in scientific storytelling, writing abstracts, and offering and receiving constructive criticism), he founded the Cancer Discovery (CanDisc) Education Project (a cancer gene expression database intended for young scientists to identify therapeutic targets), he has taught biology to Tibetan monks through the Emory-Tibet Science Initiative, he has conducted science outreach workshops throughout Texas, and he is often invited as a discussant at the Annual Biomedical Research Conference for Minority Students. He was elected to the Southwestern Academy of Teachers which encompasses a group of elite UT Southwestern Medical Center educators who strive to provide an academic and organizational environment that fosters excellence in teaching at all levels, rewards superb teachers, simulates innovation in education and promotes scholarship in education.

Dr. Wilkie has served as a GWG member for almost 6 years. He has reviewed for Discovery and Education programs.

Barbara M. Wirostko, MD, FARVO
Dr. Barbara Wirostko is the Moran's Resident Research Director and Adjunct Professor of Ophthalmology and Biomedical Engineering at the University of Utah Health. She treats glaucoma and comprehensive ophthalmology patients, specializes in clinical research, and advises drug development for glaucoma pharmaceutical therapies. She is a serial entrepreneur for biotech startups, such as Jade Therapeutics which she co-founded and then for which she served as Chief Medical Officer (CMO) when it was acquired by EyeGate Pharmaceuticals. Most recently she cofounded and serves as CMO of Qlaris Bio which had a successful Series A round and is currently in clinical development. As principal investigator, she has received millions in grants from the Department of Defense, National Science Foundation and SBIR. Her research interests lie in novel glaucoma therapeutics, sustained delivery of therapeutics for ocular pathologies, and better understanding the genetics and associated systemic diseases of exfoliative syndrome, a common cause of open-angle glaucoma.

Dr. Wirostko earned her MD at Columbia University, completed her internship at Hackensack Medical Center, completed her residency in Ophthalmology at Columbia Presbyterian Medical Center's Edward S. Harkness Eye Institute, and completed her fellowship in Glaucoma at the New York Hospital, Cornell Medical Center (now referred to as NewYork-Presbyterian/Weill Cornell Medical Center). She is a board-certified ophthalmologist and is a Fellow of the Association of Research in Vision and Ophthalmology (ARVO). Dr. Wirostko has scored in the top 10 percent nationwide for patient satisfaction. Her professional and scientific experience includes serving as associate editor for *Ophthalmology Glaucoma*, *Acta Ophthalmologica,* and *Journal of Glaucoma*. She is an active committee member for ARVO and a scientific advisor for The Glaucoma Foundation, and the Glaucoma Research Foundation. Her honors include Moran's Clinical Faculty of the Year Award in 2015 and the Third Annual Distinguished Alumni Award from the Edward S. Harkness Eye Institute, Columbia University.

Dr. Wirotsko has served as a GWG member or specialist for 2 terms, serving a 6-year then a 4-year appointment. She has reviewed for Clinical and Education programs, and for Leadership Awards.

Cassian Yee, MD
Dr. Cassian Yee is Professor in the Department of Melanoma Medical Oncology, a Professor in the Department of Immunology, Director of the Department of Solid Tumor Cell Therapy at the Center for Cancer Immunology Research, Co-Director of the Adoptive Cellular Therapy Platform and Scientific Director of the Cell Therapy Manufacturing Facility at the University of Texas, MD Anderson Cancer Center. As a physician-scientist, his research converges multi-disciplinary approaches in bioengineering, metabolism, epigenetics and molecular immunology into enabling technologies that render adoptive cell therapy more effective and accessible as a treatment modality for patients. His lab has performed several seminal first-in-human studies using a well-defined, uniform population of ex

vivo expanded antigen-specific T cells to delineate the requirements for effective immune-based therapies. He is a pioneer in the field of adoptive cellular therapy and over the last two decades has developed specialized forms of antigen-specific T cell therapy, known as Endogenous T Cell (ETC) therapy, for the treatment of patients with cancer.

Dr. Yee earned his MD from the University of Manitoba. He completed his General Comprehensive Internship at St. Michael's Hospital in Toronto and a Residency in Internal Medicine at Stanford University. Dr. Yee then moved to the University of Washington and the Fred Hutchinson Cancer Research Center where he completed his training and moved up through the ranks to be appointed as a Professor in the Department of Medicine, Division of Medical Oncology, while also holding membership in the Division of Clinical Research Division Program in Immunology. He holds more than 15 worldwide patents on ex vivo generation of antigen specific T cells, memory reprogramming and antigen discovery in an effort to establish immunotherapy-based cancer treatments on a global scale. He is corresponding or lead author in more than 80 publications, including *The New England Journal of Medicine, Nature, Science, Science Immunology, Science Translational Medicine, Nature Medicine, Journal of Clinical Oncology*, *Journal of Experimental Medicine, Gastroenterology* and *Cancer Immunology Research*. He is an elected member of the American Society of Clinical Investigators, recipient of Clinical Translational Scientist Award from Burroughs Wellcome Fund, CPRIT Clinical Investigator award, co-Leader of the Stand Up to Cancer-American Association for Cancer Research/Cancer Research Institute Immunotherapy Dream Team and Member of the Parker Institute for Cancer Immunotherapy.

Dr. Yee has served as a GWG member for 6 years. He has reviewed for Clinical programs.