

The Interstellar Initiative Workshop 2

Presented by the Japan Agency for Medical Research and Development and
the New York Academy of Sciences

Day 1: Tuesday, August 1, 2017

- 8:30 AM Registration and Breakfast
- 9:15 AM **OPENING REMARKS**
Aikichi Iwamoto, MD, DMSci, Japan Agency for Medical Research and
Development (AMED)
Alison Carley, PhD, The New York Academy of Sciences
- 9:35 AM **CROSS-DISCIPLINARY NETWORKING SESSION**
*Mentors and Early Career Investigators in cancer, regenerative medicine, and
neuroscience will convene in mixed groups to encourage interdisciplinary networking
and collaboration.*
- 10:35 AM Morning Networking Break
- 11:05 AM **KEYNOTE ADDRESS (Cancer)**
Mary Helen Barcellos-Hoff, PhD, University of California, San Francisco
- 11:35 AM **KEYNOTE ADDRESS (Regenerative Medicine)**
Mahendra S. Rao, PhD, MBBS, New York Stem Cell Foundation
- 12:05 AM **KEYNOTE ADDRESS (Neuroscience)**
Takao Hensch, PhD, Harvard University
- 12:35 PM Networking Luncheon
- 2:00 PM **BREAKOUT GROUPS**
*Mentors and Early Career Investigators in cancer, regenerative medicine, and
neuroscience will convene by discipline in three separate rooms. Mentors will
welcome the ECIs back and provide an overview summary of the goals for the second
conference.*
Cancer: Auditorium; Neuroscience: Board Room; Regenerative Medicine: Conference Room
- 2:15 PM *ECIs reassemble into their dream teams to refine the presentations that they were
remotely collaborating on between conferences before the talks are delivered on Day
2.*
- 4:00 PM Afternoon Networking Break



- 4:30 PM *"EDITOR'S GUIDE TO WRITING AND PUBLISHING YOUR PAPER"*
Career development lecture with helpful information for investigators submitting their work for consideration to peer-reviewed journals.
Orla Smith, PhD, Science Translational Medicine
- 5:15 PM Day 1 CLOSING REMARKS
- 5:30 PM Evening Welcome Cocktail and Hors D'oeuvres Networking Reception
- 7:00 PM Day 1 Ends

Day 2: Wednesday, August 2, 2017

- 8:30 AM Breakfast
- 9:00 AM Day 2 WELCOME
Mentors and Early Career Investigators in cancer, regenerative medicine, and neuroscience will convene. An Academy staff member will welcome everyone back, and provide a brief overview of the scheduled Day 2 activities.
- 9:10 AM HUMAN FRONTIER SCIENCE PROGRAM VIDEO PRESENTATION AND QUESTION AND ANSWER
Barbara Pauly, PhD, Human Frontier Science Program
Geoffrey Richards, PhD, Human Frontier Science Program
- 10:00 AM Morning Networking Break
- 10:30 AM EARLY CAREER INVESTIGATOR PRESENTATIONS
Mentors and Early Career Investigators in cancer, regenerative medicine, and neuroscience will convene by discipline in three separate rooms. Each dream team of Early Career Investigators will provide a 15 minute presentation that provides an overview of their funding proposal, including: the team's research concept (with preliminary data from their labs, if relevant), a description of the target audience (e.g., potential funding sources), and any pain points/problems. An additional 5 minutes will be provided for Q&A with the group and feedback from the mentors (20 minutes total).
Cancer: Auditorium; Neuroscience: Board Room; Regenerative Medicine: Conference Room
- 12:50 PM Networking Luncheon



- 2:00 PM **NEXT STEPS TEAM DISCUSSIONS**
Mentors and Early Career Investigators in cancer, regenerative medicine, and neuroscience will convene by discipline in three separate rooms. Each dream team of Early Career Investigators will reassemble to discuss next steps for working collaboratively post-event.
Cancer: Auditorium; Neuroscience: Board Room; Regenerative Medicine: Conference Room
- 2:50 PM **AWARD ANNOUNCEMENTS**
Mentors will announce which teams have been selected for special awards, and provide feedback regarding why these groups were chosen.
- 3:15 PM **Afternoon Networking Break**
- 3:45 PM **TOP EARLY CAREER INVESTIGATOR PRESENTATIONS**
The top teams from Cancer, Neuroscience, and Regenerative Medicine will present to all workshop participants.
- 4:45 PM **CLOSING REMARKS**
Makoto Suematsu, President, The Japan Agency for Medical Research and Development
Melanie Brickman Borchard, PhD, MSc, The New York Academy of Sciences
- 5:00 PM **Day 2 Ends**

Mentors

Cancer

Mary Helen Barcellos-Hoff, PhD
University of California, San Francisco

Dr. Barcellos-Hoff received an undergraduate degree from the University of Chicago and earned a doctoral degree in experimental pathology from the University of California, San Francisco (UCSF). She conducted postdoctoral research on extracellular matrix mediated functional differentiation at the Lawrence Berkeley National Laboratory (LBNL), which she joined as a staff scientist and rose to Senior Scientist and Associate Director of the Life Sciences Division before joining the the Department of Radiation Oncology of New York University School of Medicine in 2008. In 2015, she joined UCSF as Professor and Vice Chair of Research in the Department of Radiation Oncology. The Barcellos-Hoff laboratory studies breast cancer, mammary biology radiation carcinogenesis, and mechanisms to biologically augment radiotherapy. We are also interested in the application of systems biology approaches to problems in radiation research.

Suzie Chen, PhD
Rutgers Robert Wood Johnson Medical School

The focus of my research is to study how expression of an otherwise normal neuronal gene in a melanocytic cellular environment results in spontaneous melanoma development in vivo.

The detection of this neuronal receptor, GRM1, in about 60% of human melanoma cell lines and biopsies prompted us to investigate the oncogenic potential of GRM1 in human melanocytes in vitro and in vivo. Using an FDA approved drug that inhibits the release of glutamate, a natural ligand for GRM1 led to a decrease in the number of viable melanoma cells in vitro and in vivo. These laboratory-based findings were translated to the clinic for stages III/IV melanoma patients in one Phase 0 Clinical Trial, one Phase I Trial and one Phase II Trial at CINJ. All were supported by R21 grants from NCI. We showed that riluzole as a monotherapy as modest anti-tumor activities and no adverse reactions were found in patients. Combining riluzole with a multi-kinase inhibitor, sorafenib yielded synergistic responses in human melanoma cell xenografts in immuno-deficient mice. Results from this pre-clinical study were translated to a Phase I/II trial initially for late-stage melanoma patients and recently this trial is extended to other solid tumors.

Li Li, MD, PhD
Ochsner Clinic Foundation

Li Li, female, received her MD and Master's Degree in Immunology from the Shanghai Second Medical University, China, Ph.D from the Lübeck Medical University, Germany, and her postdoctoral studies in the Laboratory of Cellular Immunology at Ochsner Clinic Foundation, New Orleans, LA, USA. She has authored over 30 papers in peer reviewed journals and shares a patent ownership. Her research projects are supported by various research grants including a R01 NIH grant. As a Director of Translational Cancer Research Laboratory at Ochsner Clinic Foundation, her research interests include cancer stem cell and tumor microenvironment in drug resistance and metastasis of colon cancer, renal cell carcinoma, bladder cancer, and B cell lymphoma. In collaboration with other scientists, surgeons, and physicians from local and international institutions, she developed many novel in vitro and in vivo models including various orthotopic patient-derived xenograft models to investigate the functional roles that cancer stem cell and tumor microenvironment play in cancer metastasis. In addition to her research interests, she also mentored many MPhil, MD and PhD students, post-doc, resident, and fellows for their basic science and/or translational research projects.

Noriyuki Kasahara, MD, PhD
University of Miami

Dr. Noriyuki Kasahara graduated in 1986 from Tokyo Medical & Dental University, and completed residency and Board certification in Laboratory Medicine / Clinical Pathology at the University of California, San Francisco (UCSF), where he also obtained his Ph.D. in 1994 from the Interdepartmental Program in Endocrinology. After starting his faculty career at the University of Southern California (USC), he moved to the University of California, Los Angeles

(UCLA), where he was tenured Professor of Medicine and Molecular & Medical Pharmacology, and Director of the UCLA Vector Core facility for over a decade. In 2014, he was recruited to the University of Miami as Professor of Cell Biology and Pathology, and Co-Leader of Viral Oncology. Dr. Kasahara has published over 130 peer-reviewed research articles and is an inventor on 9 issued patents. He is a Past-President of the International

Society for Cell & Gene Therapy of Cancer, currently serves on the American Society of Gene & Cell Therapy's Scientific Committee on Cancer Gene & Cell Therapy, and on the Board of Directors for the Japan Society of Gene & Cell Therapy. His research focuses on genetic engineering strategies applied to cancer, transplantation, and regenerative medicine. In particular, a tumor-selective retroviral replicating vector (RRV) that he developed for suicide gene therapy and immunotherapy of cancer is currently being evaluated in first-in-human clinical trials for recurrent high-grade glioma.

Neuroscience

Jaime Grutzendler, MD
Yale University School of Medicine

Dr. Grutzendler obtained his MD at Universidad Javeriana in Bogota, Colombia where he was born and raised. He completed a medical internship in Internal Medicine and a residency in Neurology at Washington University/Barnes-Jewish Hospital in St. Louis. This was followed by a combined clinical and research fellowship in the Alzheimer Disease Research Center and the Department of Neurobiology at Washington University and further neurobiology research training at the Skirball Institute of New York University. Dr. Grutzendler's clinical interests focus on neurodegenerative disorders with special emphasis in dementias such as Alzheimer's disease. He also leads a research laboratory focused on understanding brain function and the cellular basis of neurological diseases. His lab uses advanced microscopy to visualize neurons, endothelium, astrocytes, pericytes, microglia and oligodendrocytes in living animals with the goal of exploring their dynamic behavior and learning how cell-cell interactions develop. He aims to understand how these interactions are disrupted in disease states such as in Alzheimer's disease, stroke and demyelination with the ultimate goal of designing new therapies for these conditions.

Takao Hensch, PhD
Harvard University

Takao K. Hensch, PhD, is a joint Professor of Neurology, Harvard Medical School at Boston Children's Hospital, and of Molecular Cellular Biology at Harvard's Center for Brain Science. After undergraduate studies at Harvard, he trained at the University of Tokyo (MPH) and the Max-Planck Institute for Brain Research (Fulbright Fellow), before earning a PhD in Neuroscience (1996) at the University of California, San Francisco. He then helped to launch the RIKEN Brain Science Institute as lab head for Neuronal Circuit Development, and served as Group Director (and now special advisor) before returning to the United States in 2006. Hensch has received several honors including the Society for Neuroscience Young

Investigator Award both in Japan (2001 Tsukahara Prize) and the United States (2005); an NIH Director's Pioneer Award (2007); and most recently the Mortimer D. Sackler Prize for Distinguished Achievement in Developmental Psychobiology (2017). Hensch has served on the editorial board of various journals, including *Frontiers in Neural Circuits* (Chief editor), *Journal of Neuroscience* (Reviewing editor), *Neural Development*, and *Neuron*. He is a

core member of the US National Scientific Council and the Harvard Center on the Developing Child, as well as faculty affiliate of the Reischauer Institute of Japanese Studies. He currently directs the NIMH Silvio O. Conte Center for Basic Mental Health Research at Harvard.

Francis Lee, MD
Weill Cornell Medical College

Dr. Francis Lee obtained an MD and PhD from the University of Michigan, followed by Psychiatry residency training at Payne Whitney Clinic, Weill Cornell Medical College. He completed further postdoctoral training in molecular neuroscience at the Skirball Institute, New York University and the University of California, San Francisco.

Currently, he is the director of a laboratory whose main area of research is in basic molecular and neural mechanisms that are relevant to neuropsychiatric disorders. In particular, his research is focused on using genetic models to delineate the role of growth factors, such as BDNF, in complex behaviors related to the pathophysiology and treatment of affective disorders.

Akira Sawa, MD, PhD
Johns Hopkins University

Akira Sawa, MD, PhD is the S&R Innovation Endowed Chair and the Director of the Johns Hopkins Schizophrenia Center. Dr. Sawa is also a Professor of Psychiatry, Mental Health, Neuroscience, and Biomedical Engineering at Johns Hopkins University School of Medicine and Bloomberg School of Public Health. After initial clinical training in psychiatry (residency and fellowship) at the University of Tokyo Hospital, he also completed research training of molecular neuroscience under Sol Snyder at Johns Hopkins. Since he became a faculty member in psychiatry, his major focus in both clinical and research activities is on adult onset psychiatric disorders, such as schizophrenia and mood disorders. Since 2011, Dr. Sawa serves as the Director of the Johns Hopkins Schizophrenia Center where he aims for a constructive integration of patient care, research, professional education, and public reach. Dr. Sawa is a fellow and member of several academic societies, including American Psychiatric Association (APA), American College of Neuropsychopharmacology (ACNP), and Society for Neuroscience (SFN).

Koko Ishizuka, MD, PhD
Johns Hopkins University

I received my MD and PhD in neuropsychiatry from Kumamoto University, and worked as a psychiatrist at Kumamoto University Hospital. Then, I had further training of basic/translational neuroscience as a fellow at Laboratory for Alzheimer's Disease in RIKEN, and the Department of Psychiatry in Johns Hopkins University. I am currently conducting research at the interface of clinical psychiatry and basic neuroscience as an Assistant Professor of the Johns Hopkins Schizophrenia Center at Johns Hopkins University.

Regenerative Medicine

Mahendra S. Rao, PhD, MBBS
New York Stem Cell Foundation

Mahendra Rao received his MD (MBBS) from Bombay University in India and his PhD in Developmental Neurobiology from the California Institute of Technology. He is internationally known for his research involving induced pluripotent stem cells (iPSC), human embryonic stem cells (hESCs), and other somatic stem cells; and has worked in the stem cell field for more than twenty years with stints in academia, government and regulatory affairs, and industry. Dr. Rao has an extensive background teaching medical and graduate students, as well as postdoctoral fellows at institutions including Johns Hopkins University School of Medicine, The National Centre for Biological Sciences in Bangalore, India, and the University of Utah School of Medicine. Dr. Rao has published more than 350 papers on stem cell research and is the co-founder of a neural stem cell company Q therapeutics based in Salt Lake City (Utah), and, more recently, NxCell based in California. Dr. Rao has also served on advisory panels to the governments of the U.S., Singapore and India on hESC and iPSC policy.

Until 2010 Dr. Rao led the Stem Cell and Regenerative Medicine division at LiFE Technologies and also served as the Chair of the CBER (FDA) advisory committee (CTGTAC). Dr. Rao was the founding Director of the NIH Center of Regenerative Medicine, and also the Chief of the Laboratory of Stem Cell Biology at the NIH until 2014.

Dr. Rao is currently the CEO at Neuro-Q, a subsidiary of Q therapeutics, and serves as a consultant on Regenerative Medicine for the New York Stem Cell Foundation, and several companies in the regenerative medicine field. Dr. Rao also serves on several scientific advisory boards, journal editorial boards and oversight committees and advisory panels for large-scale projects related to stem cell biology. His clients include several stem cell and regenerative medicine companies such as Stempeutics, Eyestsem, CESCO, CBR/AMAG and Megakaryon. He also contributes his expertise on regulatory affairs by serving on regulatory forums, and as the CIRM and ISSCR liaison to the ISCT.

Dr. Rao was recently named one of the top ten influential people in the stem cell field, was honored by the Federation of Biologists (FABA) India for his achievements in the stem cell field, and awarded the NBRI Medal (India) for his contributions to neuroscience research.

Toshio Suda, MD, PhD

Cancer Science Institute of Singapore (CSI), National University of Singapore (NUS) and International Research Center for Medical Sciences (IRCMS), Kumamoto University.

Dr. Suda became Professor in 1992 at the Institute of Molecular Embryology and Genetics, Kumamoto University and at The Sakaguchi Laboratory, Keio University in 2002. In 2014, he began to serve as Director at IRCMS, Kumamoto University. Dr. Suda's research interest is in stem cell biology, especially in hematopoietic stem cells (HSCs) and haematological malignancies. HSCs give rise to stem cells (self-renewal) and progenitor cells (differentiation). The fate of HSCs is determined both by the cell autonomous programs and by the surrounding microenvironment, or niche. Dr. Suda's previous work encompasses the study of the intrinsic and extrinsic regulation of stem cells (paired daughter cell experiments) and identification of HSC niche signaling such as Ang1/Tie2. After moving to CSI, NUS since 2014 as a Senior Principal Investigator, he has been exploring the new horizons in the field of oxidative stress and stem cell metabolism.

Yashuhiko Tabata, PhD, DMedSci, DPharm
Kyoto University

Dr. Yasuhiko Tabata is the Professor and Chairman of the Department of Biomaterials at the Institute for Frontier Medical Sciences, Kyoto University and serves as adjunctive professor at 14 different universities. He received his B.D. (1981) in Polymer Chemistry, Ph.D. (1988) in Technology, D.Med.Sc. (2002), and D.Pharm. (2003) all at Kyoto University. He received the Young Investigator Award (1990), the Scientific Award from the Japanese Society for Biomaterials (2002), the Scientific Award from the Japan Society of Drug Delivery System (2011), the Scientific Award from the Japanese Society for Regenerative Medicine (2014), Merit Award Winners for Industry-Academia-Government Collaboration, President of Science Council of Japan Award (2016), and several additional awards. He has published 1,280 scientific papers, including 120 book chapters and review articles, and has 130 patents. Dr. Tabata is the Board member of 5 Japanese Academic Societies and an associate member of the Science Council of Japan, Cabinet Office; a fellow of the New York Academy of Science and American Institute for Medical and Biological Engineering; the Founding Fellow for Tissue Engineering and Regenerative Medicine; and the Editorial member of 7 scientific journals. His research interests include biomaterials, drug delivery system (DDS), tissue engineering, stem cell technology, and medical diagnostics.