Harvard Chinese Life Science Annual Symposium 2023

June 24, 2023

Folkman Auditorium, Enders Building

320 Longwood Ave, Boston

Organized by CSSA HMS
Chinese Scientists and Scholars Association at Harvard Medical School

About Us

Harvard Medical School – Chinese Scientists & Scholars Association (HMS-CSSA) is a non-profit, non-political club registered at Harvard Medical School, which provides support and services for the people originated from China who are studying and working at Harvard Medical School and all of the affiliated institutes and hospitals. The core values of CSSA at HMS are dedicated to making contributions towards the prosperity of our motherland as well as the local community. We also aim to create a platform for networking, cooperation, and career development among our members, hence serving as a bridge for intercultural communication between China and US.

Agenda

08:00 – 08:50	**Check-in and Breakfast**

08:50 – 09:00   **Opening Remarks**

Dr. Laurie H. Glimcher, *President and CEO of Dana-Farber Cancer Institute, Richard and Susan Smith Professor of Harvard Medical School*

Morning Session

Session I: Immuno-oncology

Moderator   **Dr. Lee Zou**, *Professor and Chair of Pharmacology and Cancer Biology at Duke University School of Medicine*

09:00 – 09:35   **Designing immunotherapies that activate T cells and NK cells**

Dr. Kai W. Wucherpfennig, *Professor of Neurology, Brigham and Women's Hospital & Harvard Medical School, Chair of the Department of Cancer Immunology and Virology at Dana-Farber Cancer Institute*

09:35 – 10:10   **Why does the virus change its spots?**

Dr. Stephen J. Elledge, *Gregor Mendel Professor, Brigham and Women's Hospital & Harvard Medical School, HHMI Investigator*

10:10 – 10:45   **Break through cancer with "two birds one stone": Integrating targeted therapy and immunotherapy in cancer treatment**

Dr. Jean Zhao, *Professor of Dana-Farber Cancer Institute & Harvard Medical School*

10:45 – 11:00	**Coffee break**

Session II: Bioenginnering

Moderator   **Dr. Wei Zhang**, *Assistant Professor of Boston Children's Hospital, Harvard Medical School*

11:00 – 11:35   **Designing vaccines for natural and synthetic T cells**

Dr. Darrell J. Irvine, *Underwood-Prescott Professor of MIT, HHMI Investigator*

11:35 – 12:10   **RNA nanomedicine for cancer immunotherapy and beyond**

Dr. Jinjun Shi, *Associate Professor of Brigham and Women's Hospital & Harvard Medical School*

12:10 – 12:30   **Sponsor Lunch Talks**

12:30 – 13:45   **Lunch break**

Afternoon Session

Session III: Neuroscience

Moderator   *Dr. August Yue Huang*, *Principal Investigator, Boston Children's Hospital & Harvard Medical School*

13:45 – 14:20   **You contain multitudes: somatic mutation and genomic diversity in human brain from development to disease**

Dr. Christopher A. Walsh, *Bullard Professor of Pediatrics and Neurology at Harvard Medical School & Boston Children's Hospital, HHMI Investigator*

14:20 – 14:55   **Dissecting neurobiological mechanisms of autism spectrum disorders: from genes to circuits**

Dr. Guoping Feng, *Poitras Chair Professor of Neuroscience, McGovern Institute for Brain Research, Department of Brain and Cognitive Sciences, MIT. Institute Member, Broad Institute of MIT and Harvard*

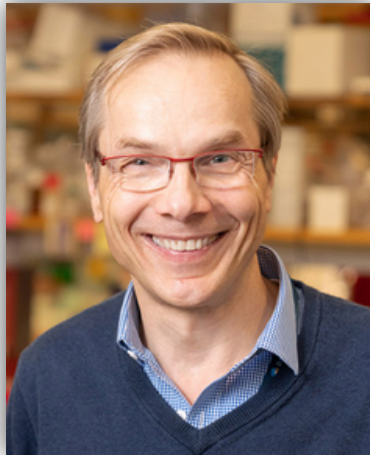**14:55 – 15:30**   **Neuroimmune interactions shaping social behavior**

Dr. Gloria Choi, *Mark Hyman Jr. Career Development Associate Professor in the Picower Institute at MIT*

15:30 – 15:45   **Coffee break**

15:45 – 16:00   **Award Ceremony of 2023 HCLS Distinguished Research Award**

16:00 – 16:15   **Lightening Talk of 2023 HCLS Distinguished Research Award**

Invited Speakers

Kai W. Wucherpfennig, M.D., Ph.D.

Chair, Department of Cancer Immunology and Virology, Dana-Farber Cancer Institute

Nancy Lurie Marks Professor of Neurology in the Field of Medical Oncology

Professor of Immunology, Harvard Medical School

Professor of Neurology, Brigham and Women's Hospital & Harvard Medical School

Co-director, Parker Institute for Cancer Immunotherapy (PICI) at DFCI

Director, Center for Cancer Immunotherapy Research, Dana-Farber Cancer Institute

Dr. Kai W. Wucherpfennig is Chair of the Department of Cancer Immunology and Virology at Dana-Farber Cancer Institute, Professor of Neurology in the Department of Neurology at Brigham and Women's Hospital, and Professor of Immunology at Harvard Medical School. He is the Nancy Lurie Marks Professor of Neurology in the Field of Medical Oncology and Co-director of the Parker Institute for Cancer Immunotherapy (PICI) at DFCI. His research focuses on the role of cytotoxic T cells and NK cells in cancer immunotherapy. His lab studies mechanisms of resistance to cancer immunotherapies and devises novel immunotherapy approaches based on these molecular insights.

Dr. Wucherpfennig has served in a number of leadership roles in cancer immunology at DF/HCC and DFCI. He has been a co-leader of the Cancer Immunology Program of DF/HCC since 2004 and has chaired a number of junior faculty search committees in cancer immunology at DFCI since 2013. He was appointed as chair of the Department of Cancer Immunology and Virology in 2015.

He has been elected as a member of the American Society for Clinical Investigation (2006), the Henry Kunkel Society at Rockefeller University (2007) and as Fellow of the American Society for the Advancement of Science (2009). Dr. Wucherpfennig received a MD and PhD degree from the University of Göttingen in Germany, and did his postdoctoral training at the Brigham & Women's Hospital and at Harvard College. He has been a faculty member at Dana-Farber since 1995.

Stephen J. Elledge, Ph.D.

Gregor Mendel Professor, Brigham and Women's Hospital & Harvard Medical School
Investigator, Howard Hughes Medical Institute

Dr. Stephen J. Elledge is the Gregor Mendel Professor of Genetics and Medicine at Harvard Medical School and the Brigham and Women's Hospital Division of Genetics, and is a Howard Hughes Medical Institute Investigator. He received his B.S. in chemistry from the University of Illinois and his Ph.D. in biology from the Massachusetts Institute of Technology. He began his laboratory at the Baylor College of Medicine in Houston and moved in 2003 to the Brigham and Women's Hospital and Harvard Medical School Department of Genetics. He is an elected member member of the National Academy of Sciences, National Academy of Medicine, and American Academy of Arts and Sciences. His many awards include the Dickson Prize (2010), Lewis S. Rosenstiel Award for Distinguished Work in the Basic Medical Sciences (2013), Gairdner Foundation International Award (2013), Albert Lasker Basic Medical Research Award (2015), Breakthrough Prize in Life Sciences (2017) and the Gruber Prize in Genetics (2017).

Dr. Elledge's research interests center on genetic approaches to biological problems including the study of proteins that sense and respond to DNA damage, and regulate the

cell division cycle and cancer. Through this work he uncovered a protein kinase cascade that is now known as the DNA Damage Response. He discovered F-box proteins and Skp1 and along with Dr. Wade Harper, uncovered the two largest families of E3 ubiquitin ligases: the cullin-RING ligases (CRL), starting with the Skp1-Cul1-F-box sub-family, and the RING domain ligases. He has also worked in unraveling the role of cancer drivers in the evolution of cancer through aneuploidy and how tumor suppressors allow cancers to evade the immune system. More recently Dr. Elledge has developed a suite of immunological methods, such as T-Scan, VirScan and EpiScan, that allows the genome-wide identification of epitopes recognized by B and T cells. He has used these tools to investigate the role of viruses in human disease such as Measles, MS and COVID-19.
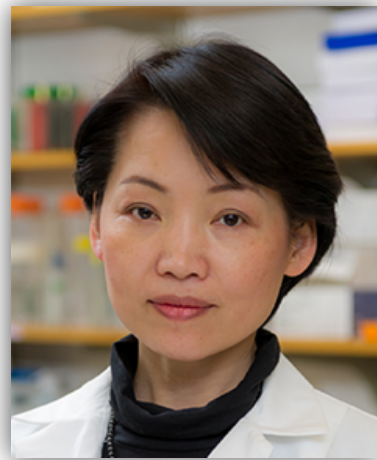
Jean Zhao, Ph.D.

Professor, Biological Chemistry and Molecular Pharmacology, Harvard Medical School
Professor, Cancer Biology, Dana-Farber Cancer Institute

Dr. Jean Zhao is Professor of Biological Chemistry and Molecular Pharmacology at Harvard Medical School and Dana-Farber Cancer Institute (DFCI). She is also an investigator of the Breast Cancer Research Foundation and an Associate Member of the Broad Institute of MIT and Harvard. Dr. Zhao has over 20 years of research experience in cancer biology and translational medicine. Her research program based on integrating cutting-edge technologies in genomic and molecular profiling with mouse genetics and pharmacology approaches not only addresses important basic science questions, but also has significant clinical impact. She has co-authored more than hundred articles that consistently include top-tier journals such as Nature, Nature Medicine, Cell, and Cancer Cell. She is a recipient of numerous prestigious awards, including the National Cancer Institute Outstanding Investigator

Award, the V Scholar Award, the Starr Foundation Award and the Department of Defense Cancer Research Breakthrough Award. She served and has been serving on multiple scientific boards and committees, including the Executive Committee for Research at DFCI, the Steering Committee of Breast Cancer at Dana-Farber/Harvard Cancer Center and the Advisory Council of the National Brain Tumor Society. In addition to her academic research, Jean has co-founded Crimson Biopharm Inc. and Geode Therapeutics Inc. focusing on translating science and discoveries from academic settings into the clinic to make truly meaningful impact on the lives of patients with cancer.


Darrell J. Irvine, Ph.D.

Professor, Departments of Biological Engineering and Materials Science & Engineering
Koch Institute for Integrative Cancer Research
Massachusetts Institute of Technology
Ragon Institute of MGH, MIT, and Harvard
Investigator, Howard Hughes Medical Institute

Dr. Darrell Irvine is a Professor at the Massachusetts Institute of Technology and an Investigator of the Howard Hughes Medical Institute. He also serves on the steering committee of the Ragon Institute of MGH, MIT, and Harvard. His research is focused on the application of engineering tools to problems in cellular immunology and the development of new materials for vaccine and drug delivery. Major efforts of the laboratory are directed toward vaccine development for HIV and cancer immunotherapy. Dr. Irvine's work has been recognized by numerous awards, including election as a Fellow of the Biomedical Engineering Society, election as a fellow of the American Institute for Medical and Biological Engineering, and appointment as an investigator of the Howard Hughes Medical Institute. He is the author of over 200 publications, reviews, and book chapters and an inventor on numerous patents.
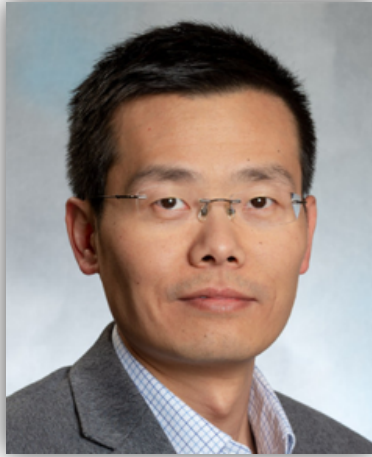
Jinjun Shi, Ph.D.

Associate Professor of Brigham and Women's Hospital & Harvard Medical School

Dr. Jinjun Shi is an Associate Professor at Harvard Medical School and a faculty member in the Center for Nanomedicine and Department of Anesthesiology, Perioperative and Pain Medicine at Brigham and Women's Hospital. His laboratory has a broad interest in nanomedicine, drug delivery, RNA therapy, and immunotherapy for transformative biomedical applications. Notably, the immuno-nanotherapeutic technology developed by him and colleagues has led to several clinical trials by Selecta Biosciences. His research is currently focusing on i) RNAi delivery for gene silencing; ii) mRNA delivery for protein restoration; iii) immuno-nanotherapy; and iv) development of stimuli-responsive biomaterials. He is an elected Fellow of the American Institute of Medical and Biological Engineering (AIMBE) and a Clarivate's Highly Cited Researcher.
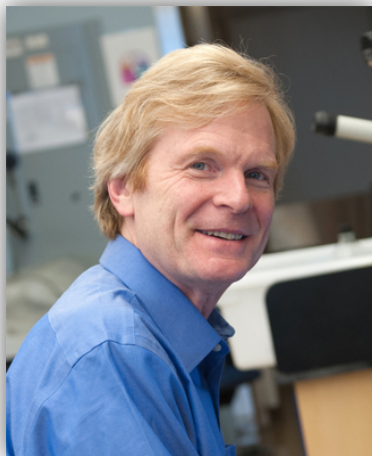
Christopher A. Walsh, M.D., Ph.D.

Bullard Professor of Pediatrics and Neurology, Harvard Medical School
Chief, Division of Genetics and Genomics, Boston Children's Hospital
*Investigator, Howard Hughes Medical Institute*
Director and co-PI, Allen Discovery Center for Human Brain Evolution
Associate Member, Broad Institute of MIT and Harvard

Dr. Christopher A. Walsh completed his PhD (in Neurobiology, with Ray Guillery, 1983) and MD (1985) at The University of Chicago, before coming to Boston for medical

internship, neurology residency and chief residency at Massachusetts General Hospital. During and after residency he pursued postdoctoral training in the Department of Genetics at Harvard Medical School with Professor Constance Cepko. In 1993 he became Assistant Professor of Neurology at Beth Israel-Deaconess Medical Center and Harvard Medical School, becoming the Bullard Professor in 1999. He moved to Boston Children's Hospital in 2006, becoming Chief of Genetics, now the Division of Genetics and Genomics. He has been an HHMI Investigator since 2002, and was director of the Harvard-MIT combined MD-PhD training program from 2003-2007.

Dr. Walsh's research has focused on the development and function of the human cerebral cortex, and the analysis of genetic conditions that affect the developing brain, resulting in epilepsy, intellectual disability, autism spectrum disorders, and other conditions. His lab has identified dozens of neurological disease genes through world-wide collaborations. He has described how a few disease genes essential for constructing the human brain were also important targets of the evolutionary processes that shaped the human brain, resulting in the founding of the Allen Discovery Center for Human Brain Evolution in 2017, with Professors David Reich and Michael Greenberg at Harvard Medical School. Recent work has pioneered methods to sequence the genomes of single neurons from human brain, and has revealed clonal somatic mutations—present in some cells but not all cells--as important causes of human focal epilepsy, autism, and schizophrenia. This work has also shown that any given neuron in human brain has hundreds to thousands of mutations relative to the neuron next to it, increasing with age--despite the fact that neurons do not undergo cell division—and accumulating faster in age-related diseases associated with degeneration and dementia. These somatic mutations create a mosaic human brain with remarkable genomic diversity. He is an elected member of the National Academy of Medicine, the American Academy of Arts and Sciences, and the National Academy of Sciences. He received the UNC-Perl Neuroscience Award in 2018, and shared the Gruber Neuroscience Prize in 2021, and the Kavli Neuroscience Prize in 2022.
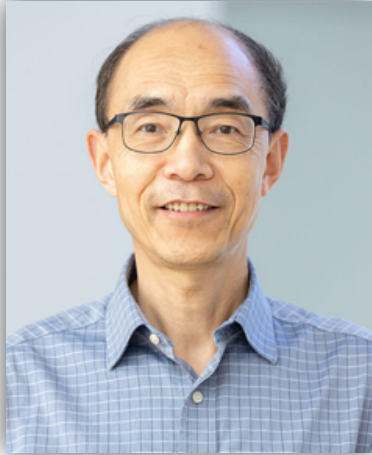
Guoping Feng, Ph.D.

Poitras Chair Professor of Neuroscience
McGovern Institute for Brain Research
Department of Brain and Cognitive Sciences, MIT
Director of Model Systems and Neurobiology
Stanley Center for Psychiatric Research
Institute Member, Broad Institute of MIT and Harvard

Dr. Guoping Feng is the Poitras Chair Professor of Neuroscience and Associate Director of the McGovern Institute for Brain Research, Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology. He is also the Director of Model Systems and Neurobiology at the Stanley Center for Psychiatric Research at Broad Institute of MIT and Harvard. Dr. Feng's research is devoted to understanding the mechanisms regulating the development and function of synapses in the brain and how synaptic dysfunction may contribute to brain disorders. Using genetically engineered animal models, Dr. Feng's laboratory combines cutting-edge technologies and multidisciplinary approaches to unravel the neurobiological mechanisms of neurodevelopmental and psychiatric disorders. Dr. Feng's lab is also a leading lab in generating genetic tools for neuroscience and brain disorder research.

Gloria Choi, Ph.D.

Mark Hyman Jr. Career Development Associate Professor,
Department of Brain and Cognitive Sciences
Investigator in The Picower Institute for Learning and Memory
Massachusetts Institute of Technology

Dr. Gloria Choi laboratory aims to provide a comprehensive mechanistic understanding of how the

immune system drives behavioral changes by directly acting on neural circuits of the brain. We are accomplishing this goal by mapping information flow from the periphery to the central nervous system at each node along the neuroimmune axis with a focus on cytokines.

Moderators
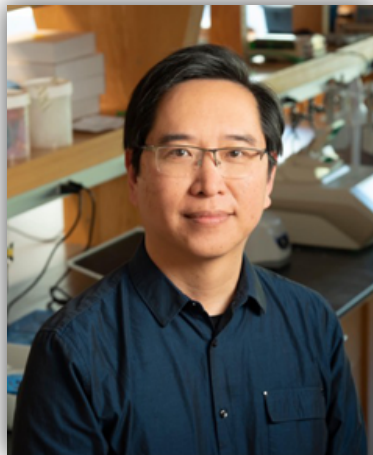
Lee Zou, Ph.D.

Professor and Chair of Pharmacology and Cancer Biology at Duke University School of Medicine

Dr. Lee Zou is Professor and Chair of Pharmacology and Cancer Biology at Duke University School of Medicine, and Visiting Professor of Pathology at Harvard Medical School. Before his recent move to Duke this spring, Dr. Zou was Professor of Pathology at HMS, Scientific Co-Director of the MGH Cancer Center, James & Patricia Endowed Chair of Cancer Research, and Co-Leader of the Cancer Cell Biology Program of the Dana Farber/Harvard Cancer Center. Dr. Zou's research interests are primarily focused on the cellular processes that respond to DNA damage and protect genome integrity, as well as strategies to exploit genomic instability in cancer therapy.

Wei Zhang, Ph.D.

Assistant Professor in Anesthesia, Anesthesiology, Critical Care and Pain Medicine Boston Children's Hospital, Harvard Medical School

Dr. Wei Zhang received his B.S. degree in Chemistry in 2011 from Peking University (PKU) in 2011. At PKU, he worked in Dr. Qifeng Zhou's lab on liquid crystalline polymers for organic light-emitting diodes. He earned a Ph.D. in Polymer Science in Dec 2016 under Dr. Stephen Z.D. Cheng from the University of Akron, where his research was focused on the synthesis of precise macromolecules

and study of their self-assembled structures. After a short period of postdoc at Akron, in 2017 he joined Boston Children's Hospital/Harvard Medical School (BCH/HMS) as a Research Fellow in Dr. Daniel S. Kohane's lab, then appointed as an Instructor at HMS in 2020, and Assistant Professor in 2023. His current research interest is to use polymeric materials to address drug delivery and other biomedical needs. He is the author of about 50 publications, 20 of which he is the first/corresponding author, and 3 patents. He is a recipient of the NIH Pathway to Independence Award (K99/R00).
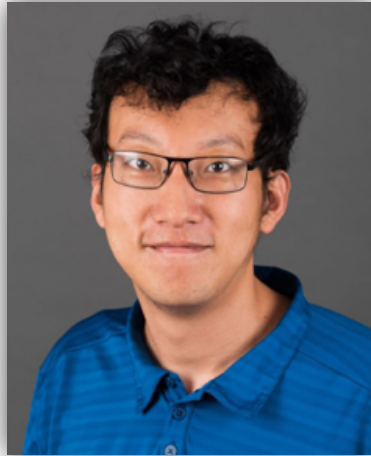
August Yue Huang, Ph.D.

Principal Investigator, Boston Children's Hospital & Harvard Medical School

Dr. August Yue Huang obtained his BS in Biological Science and PhD in Bioinformatics from Peking University, China. During his PhD studies, under the guidance of Dr. Liping Wei, he developed MosaicHunter, the first computational tool capable of systematically identifying somatic single-nucleotide variants from non-cancer whole-genome and exome sequencing data. Dr. Huang then received his postdoctoral training with Drs. Christopher Walsh, Alice Lee, and Matthew Warman at Boston Children's Hospital and Harvard Medical School, where he pioneered in revealing the accumulation of somatic mutations in various tissue types and their contribution to many diseases including Alzheimer's disease, autism, and arteriovenous malformation. In 2023, Dr. Huang opened his independent laboratory at the Division of Genetics and Genomics, Boston Children's Hospital, with a focus on utilizing computational genomic approaches to investigate the characteristics of somatic mutations in development and aging and their impact on human health.

2023 Harvard Chinese Life Science Distinguished Research Awardees

Name	Title	Affiliation
Yue-Chen Liu	Postdoctoral Research Fellow	Harvard University
Haopeng Xiao	Postdoctoral Research Fellow	Harvard Medical School / Dana-Farber Cancer Institute
Chen Ran	Postdoctoral Research Fellow	Harvard University
Hailing Shi	Postdoctoral Research Fellow	Broad Institute of MIT and Harvard
Weiwei Sun	Postdoctoral Research Fellow	Ragon Institute of MGH, MIT and Harvard
Ying Dong	Postdoctoral Research Fellow	Harvard Medical School / Boston Children's Hospital
Junbing Zhang	Postdoctoral Research Fellow	Harvard Medical School / Massachusetts General Hospital
Tao Zhang	Postdoctoral Research Fellow	Harvard Medical School / Boston Children's Hospital
Taihong Wu	Postdoctoral Research Fellow	Harvard University
Jun Xu	Assistant Professor	Chinese Academy of Sciences
Jiawei Zhao	Postdoctoral Research Fellow	Harvard Medical School / Boston Children's Hospital
Qiang Wang	Postdoctoral Research Fellow	Harvard Medical School / Beth Israel Deaconess Medical Center
Le Xiao	Postdoctoral Research Fellow	Harvard Medical School / Boston Children's Hospital

Notes

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RWD Life Science is a world's leading manufacturer of life science research instruments, and medical devices, specializing in the fields of respiratory anesthesia, neuroscience research, animal behavior research, surgery and nursing, and pathological analysis, animal health. The product range includes lab animal research equipment including (anesthesia machine, stereotaxic, etc), cell & molecular biology, histopathological diagnosis, and veterinary medical equipment.

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