SCIENTIFIC ADVISORY BOARD
Of The WIMM

February 2018
Professor Dame Kay Davies

Associate Head of Division of Medical Sciences
Dr Lee's Professor of Anatomy
Department of Physiology, Anatomy and Genetics
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Professor Dame Kay Davies is the Dr Lee's Professor of Anatomy and a co-Director of the MDUK Oxford Neuromuscular Centre. She is also Associate Head, Development, Impact and Equality, in the Medical Sciences Division at the University of Oxford. Her research interests cover the molecular analysis of neuromuscular and neurological disease, particular Duchenne muscular dystrophy (DMD). She has an active interest in the ethical implications of genetics research and the public understanding of science. She was Director of the MRC Functional Genomics Unit from 1999-2017. She has considerable experience of biotechnology companies as a conduit for translating the results of experimental science into new therapeutics and diagnostics. She co-founder of Summit Therapeutics and Oxstem. She has published more than 400 papers and won numerous awards for her work. She is a founding editor of “Human Molecular Genetics” and a founding fellow of the UK Academy of Medical Sciences. She is a Fellow of the Royal Society and a Member of the European Molecular Biology Organization (EMBO). She appointed a Governor of the Wellcome Trust in 2008 and was Deputy Chairman from 2013-17. She was made Dame Commander of the British Empire for services to science in 2008.
Professor Mark Davis is Director of the Stanford Institute for Immunology, Transplantation and Infection (ITI) and a Howard Hughes Medical Institute investigator. Mark received his BA from Johns Hopkins University and his PhD in molecular biology from the California Institute of Technology. He spent three years as a postdoctoral fellow at the National Institutes of Health before going to Stanford in 1983. He is well known for identification in the 1980s of the elusive T-Cell receptor genes and his group have made many subsequent discoveries about T-cell receptors and how they function, at both biochemically and on the surface of living cells. Mark pioneered diagnostic assays for immune function, particularly with the development of peptide-MHC tetramers. In the past twelve years, he has focused on developing methods to advance our understanding of human immunology. Mark’s great contributions to immunology have been recognized with many honors and awards, including his election to membership in the Royal Society of London, the National Academy of Sciences, and the National Academy of Medicine. In 2000-2001, he was the Newton-Abraham visiting Professor at Oxford.
Scott E Fraser, PhD, has a long-standing commitment to quantitative biology, applying the tools of chemistry, engineering and physics to problems in biology and medicine. His personal research centers on imaging and molecular analysis of intact biological systems, with an emphasis on early development, organogenesis and medical diagnostics.

After training in physics (BS, Harvey Mudd College, 1976) and biophysics (PhD, Johns Hopkins University, 1979), he joined the faculty at UC Irvine and rose through the ranks to become Chair of the Department of Physiology and Biophysics. In 1990 he moved to Caltech to serve as the Anna L Rosen Professor of Biology and the Director of the Biological Imaging Center. He is deeply committed to interdisciplinary training and translational research, having helped found the Caltech Brain Imaging Center and the Kavli Institute of Nanoscience, as well as serving as the Director of the Rosen Center for Biological Engineering.

In fall of 2012, he moved to USC to take a Provost Professorship in the Dornsife College of Letters, Arts and Sciences, Children’s Hospital Los Angeles, Keck School of Medicine and the Viterbi School of Engineering. He remains active in interdisciplinary research and serves as the Director of Science Initiatives as well as the Elizabeth Garrett Chair of Convergent Biosciences for the USC campuses.

Dr Fraser is a Fellow of the European Academy of Science, the AAAS and the American Academy of Arts and Science and is also a Fellow to the American Institute for Medical and Biological Engineering College as well as the National Academy of Inventors.
Since January 2013, Matthew Freeman has been Head of the Dunn School of Pathology at the University of Oxford. Until then, he was a group leader at the Medical Research Council Laboratory of Molecular Biology in Cambridge, UK, where he was the Head of the Cell Biology Division. His group discovered the rhomboid family of intramembrane proteases as the principal regulators of EGF receptor signalling in Drosophila. More recently the group has focused on the mechanism and function of rhomboids and rhomboid-like proteins in a wide range of species.
Margaret ("Peggy") Goodell is a Professor and Director of the Stem Cells and Regenerative Medicine Center at Baylor College of Medicine, in Houston, Texas.

Goodell's research is focused on the genetic and epigenetic mechanisms that regulate hematopoietic stem cells, and how those mechanisms go awry in hematologic malignancies. Goodell received the Damashek Prize from the American Society of Hematology, the Edith and Peter O'Donnell Award in Medicine from TAMEST, and is a fellow of the American Association for the Advancement of Science. She was president of the International Society for Experimental Hematology. She is chair of the Scientific Advisory Board, and member of the Board of Directors for the Keystone Symposia. She is an Associate Editor for Blood, serves on the editorial board of Cell Stem Cell, and directs a laboratory of about 15 trainees.
Yvonne Jones is currently Acting Director of the Wellcome Centre for Human Genetics (WHG) on the Old Road Campus. She is a structural biologist and in her own research investigates the molecular mechanisms by which cells signal to each other in the human body.

Yvonne read physics as an undergraduate at Oxford, and then shifted her focus to biology for her doctoral studies. During her postdoctoral training she learnt protein crystallography and in 1989 reported the three-dimensional structure of tumour necrosis factor (TNF). In 1991 Yvonne started her research group as a Royal Society University Research Fellow at the Laboratory of Molecular Biophysics in the Department of Biochemistry. In 1999 Yvonne co-founded the Division of Structural Biology (STRU) within the WHG in the Nuffield Department of Clinical Medicine. Her laboratory has provided fundamental insights into signalling systems of importance for cellular immunology, developmental biology and cancer. She first established collaborations with WIMM groups during the 1990s and these links have remained active to the present day.

From 2001-2011 Yvonne was a Cancer Research UK Principal Research Fellow. She is a Fellow of the Royal Society, a Fellow of the Academy of Medical Sciences, a Member of the European Molecular Biology Organization (EMBO) and a Senior Research Fellow at Jesus College.
Professor Stuart Orkin

David G. Nathan Distinguished Professor, Harvard Medical

Boston Children's Hospital and Dana Farber Cancer Institute/Howard Hughes Medical Institute, Boston MA 02215

Stuart H Orkin, a graduate of MIT and the Harvard Medical School, the David G Nathan Distinguished Professor of Pediatrics at Harvard, and an Investigator of the Howard Hughes Medical Institute, served as Chairman of the Department of Pediatric Oncology at DFCI from 2000-2016. His research focuses on intersections of transcriptional control with stem cell biology, hematopoiesis, and cancer, and on the fetal-to-adult hemoglobin switch.

He is also an elected member of the National Academy of Sciences (NAS), Institute of Medicine, American Academy of Arts and Sciences and the American Philosophical Society, and recipient of the Distinguished Research Award from the Association of American Medical Colleges (AAMC), the E Donnall Thomas, Dameshek and Basic Science Mentor Awards of the American Society of Hematology (ASH), the Warren Alpert and Helmut Horten Foundation Prizes, and the Metcalf Award of the International Society of Experimental Hematology (ISEH). In 2013 he was the recipient of the Jessie Stevenson Kovalenko Medal of the NAS for "important contributions to the medical sciences. He has also received the William A Allan Award of the American Society of Human Genetics (2014), the Karl Landsteiner Memorial Award of the American Association of Blood Banks (2016), the Clotten Foundation Prize (2017), and the George Kober Medal of the American Association of Physicians (2018).

Professor Orkin gave the 3rd Weatherall Lecture on 28 March 2014 entitled “Bringing genetics and epigenetics to fetal hemoglobin”
Professor Sir Peter Ratcliffe FRS

Professor of Clinical Medicine
Director, Target Discovery Institute,
University of Oxford
Director of Clinical Research,
The Francis Crick Institute, London
Group Head / PI and Consultant Physician

Target Discovery Institute, NDM Research Building,
Nuffield Department of Medicine, University of Oxford, OX3 7FZ

Professor Sir Peter J Ratcliffe studied medicine at the University of Cambridge and St Bartholomew’s Hospital, London. Graduating in 1978 Peter relocated to Oxford where he trained in renal medicine. In 1989 he obtained a Senior Fellowship from the Wellcome Trust to work on cellular oxygen sensing pathways and in particular the role of erythropoietin. Peter’s group soon realised that kidney cells were not the only cells that reacted to hypoxia. Dozens of cell types, in both humans and other organisms, could switch on erythropoietin and other genes when deprived of oxygen. Building on these discoveries, the Ratcliffe group helped to uncover a detailed molecular chain of events that cells use to sense oxygen. Peter Ratcliffe has received a number of awards including the Louis-Jeantet Prize for Medicine (2009), the Gairdner International Award (2010), the Paserow Foundation Award (2011), the Scientific Grand Prix of the Foundation Lefoulon-Delalande, Institute of France (2012), the Jakob-Herz-Preis (2013), the Wiley Prize for Biomedical Science (2014) and the Albert Lasker Award Basic Medical Research Award (2016). He is a Fellow of the Royal Society, a Fellow of the Academy of Medical Sciences, a member of EMBO and a Foreign Honorary Member of the American Academy of Arts and Sciences (2007). He was knighted for Services to Clinical Medicine in 2014.
Dr Alan Sher

Deputy Chief, Laboratory of Parasitic Diseases
Head, Immunobiology Section

National Institute of Allergy and Infectious Diseases
Bethesda, USA

Dr Sher received his PhD from the University of California, San Diego, and did his postdoctoral training in the Division of Parasitology at the National Institute for Medical Research in Mill Hill, London. In 1980, after several years as a research associate and then Assistant Professor in the Department of Pathology at Harvard Medical School, he joined NIAID as a Section Chief in the Laboratory of Parasitic Diseases. Dr Sher was Chief of the Laboratory of Parasitic Diseases from 2003-2017 and was promoted to NIH Distinguished Investigator in 2011.

Awards

- Bonazinga Award (Society for Leukocyte Biology)
- Bailey K. Ashford Medal (The American Society of Tropical Medicine and Hygiene)
- U.S. PHS Superior Service Award
- NIH Director’s Mentoring Award
- Biolegend William E. Paul Award (International Cytokine and Interferon Society)

Memberships

- Fellow, American Academy of Microbiology
- Fellow, American Association for the Advancement of Science
- Brazilian Academy of Sciences

Editorial Boards

- The Journal of Experimental Medicine (Editor Emeritus)
- Faculty of 1000 (Section Head, Immunity to Infections)
- mBio (American Society of Microbiology Journal)
Professor Hugh Watkins is the Head of the Radcliffe Department of Medicine, the parent Department of both MRC Units in the WIMM. He is also a group leader in the Wellcome Centre for Human Genetics. His expertise is in molecular genetic analysis of cardiovascular disease as a tool to define disease mechanisms and therapeutic targets. He is best known for his work on inherited heart muscle diseases, in particular hypertrophic cardiomyopathy. His work on genetic causes of this, and other, ‘sudden cardiac death’ syndromes has been translated into clinical practice, with adoption in international clinical guidelines, commissioning of a national DNA diagnostic service for the NHS, and clinical trials of new disease modifying therapies. He also investigates susceptibility genes for coronary artery disease and contributes to leadership of large international collaborations in this area. Hugh is a Fellow of the Academy of Medical Sciences and a Fellow of the Royal Society.
Professor Irv Weissman

Director, Stanford Institute for Stem Cell Biology and Regenerative Medicine
Director, Stanford Ludwig Center for Cancer Stem Cell Research and Medicine
Professor of Pathology and Developmental Biology

Stanford University, 265 Campus Drive W, Room G3167, Stanford, CA 94305

Irving L Weissman, MD, is the Director of the Stanford Institute for Stem Cell Biology and Regenerative Medicine and Director of the Stanford Ludwig Center for Cancer Stem Cell Research. He was a member of the founding Scientific Advisory Boards of Amgen (1981-1989), DNAX (1981-1992) and T-Cell Sciences (1988-1992). He co-founded, was a Director, and chaired the Scientific Advisory Board at SyStemix (1988-1996), StemCells Inc (1996-present) and Cellerant (2001-2009). He co-founded and is a Director of Forty Seven Inc in 2015.

His research encompasses the biology and evolution of stem cells and progenitor cells, mainly blood-forming and brain-forming. He is also engaged in isolating and characterizing the rare cancer and leukemia stem cells as the only dangerous cells in these malignancies, especially with human cancers. He discovered that all cancer stem cells express CD47, the ‘don't eat me’ signal, to overcome phagocytic signals that arise during cancer development, and has shown that blocking antibodies to CD47 have therapeutic potential for all tested human cancers. He discovered the ‘eat me’ signal on most cancers and other cells to be calreticulin. Finally, he has a long-term research interest in the phylogeny and developmental biology of the cells that make up the blood-forming and immune systems. His laboratory was first to identify and isolate the blood-forming stem cell from mice, and has purified each progenitor in the stages of development between the stem cells and mature progeny (granulocytes, macrophages, etc). At SyStemix, he co-discovered the human hematopoietic stem cell, and at StemCells Inc., he co-discovered a human central nervous system stem cell. In addition, the Weissman laboratory at Stanford was first to show that the thymus produces T cells that emigrate to peripheral lymphoid tissues, and pioneered the study of the genes and proteins involved in cell adhesion events required for lymphocyte homing to lymphoid organs in vivo, either as a normal function or as events involved in malignant leukemic metastases.

Professor Weissman is a member of the National Academy of Medicine and the National Academy of Sciences, and a member of the American Association of Arts and Sciences. He has received many awards, including the New York Academy of Medicine Award for Distinguished Contributions to Biomedical Research, the Pasarow Award in Cancer Research, the California Scientist of the Year, the De Villiers International Achievement Award of the Leukemia Society of America, the Robert Koch Award, the Rosenstiel Award, the Max Delbruck Medal, the Jessie Stevenson Kovalenko Award of the National Academy of Sciences, is a Fellow of the American Association of Cancer Research, and the Charles Rodolphe Brupbacher Prize for Cancer Research. He also has several honorary doctorates. Dr Weissman gave the 5th Weatherall Lecture on 8 April 2016.
Aviv Regev, a computational and systems biologist, is a professor of biology at MIT, a Howard Hughes Medical Institute Investigator, the Chair of the Faculty and the Director of the Klarman Cell Observatory and Cell Circuits Program at the Broad Institute of MIT and Harvard, and co-chair of the organizing committee for the international Human Cell Atlas project.

She studies the molecular circuitry that governs the function of mammalian cells in health and disease and has pioneered many leading experimental and computational methods for the reconstruction of circuits, including in single-cell genomics.

Regev is a recipient of the NIH Director’s Pioneer Award, a Sloan fellowship from the Sloan Foundation, the Overton Prize from the International Society for Computational Biology (ISCB), the Earl and Thressa Stadtman Scholar Award from the American Society of Biochemistry and Molecular Biology, and the ISCB Innovator Award and she is an ISCB Fellow (2016).

Regev received her MSc from Tel Aviv University, studying biology, computer science and mathematics in the Interdisciplinary Program for the Fostering of Excellence. She received her PhD in computational biology from Tel Aviv University.