INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

COMMITTEE ON A REVIEW OF THE CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE (CIRM)

Harold T. Shapiro, Ph.D., *(Chair*) currently holds a faculty appointment as a professor of economics and public affairs at Princeton University. He served as Princeton University's 18th president from 1988 until 2001. He came to Princeton from the University of Michigan where he served on the faculty for twenty-four years as professor of economics and public policy and as president from 1980-1988. He also served as chairman of the executive board of the University of Michigan Hospitals from 1977-1988. His fields of special interest included econometrics, mathematical economics, science policy, the evolution of higher education as a social institution, and, more recently, bioethics. From July 1996 to October 2001 Shapiro served as chair of the National Bioethics Advisory Commission, which issued six major reports in the period 1996-2001. From 1990 to 1992, Shapiro served as a member and vice chair of President Bush's Council of Advisors on Science and Technology. Shapiro received his bachelor's degree from McGill University in 1956. Then, after five years in business, he enrolled in the Graduate School at Princeton and earned his Ph.D. in 1964.

Terry Magnuson, Ph.D., *(Vice Chair)* is Vice Dean for Research of the School of Medicine, S.G. Kenan Professor and Chair of the Department of Genetics, and Director of the Cancer Genetics Program of the Lineberger Comprehensive Cancer Center at the University of North Carolina (UNC) Chapel Hill. Dr. Magnuson was recruited to UNC in 2000 as founding chair of the Department of Genetics and Director of the newly established Carolina Center for Genome Sciences. He also created the Cancer Genetics Program in the UNC Lineberger Comprehensive Cancer Center. He was appointed Vice Dean for Research in the School of Medicine in July 2010. The work in the Magnuson lab focuses on the role of mammalian genes in unique epigenetic phenomena such as genomic imprinting, X-chromosome inactivation and stem cell pluripotency. The lab also studies the tumor suppressor role of the BAF/PBAF chromatin remodeling complexes and has developed a novel genome-wide mutagenesis strategy. Dr. Magnuson received his Ph.D. from Cornell University and was a postdoctoral fellow at UCSF.

Richard Behringer, Ph.D., is Professor, Department of Genetics at The University of Texas MD Anderson Cancer Center. His research focuses on the molecular and cellular mechanisms that lead to the formation of the mammalian body plan, the genesis of tissues and organs during embryogenesis and the pathology of developmental defects. In addition, he is interested in studying the genetic mechanisms that result in organ morphology and physiology differences that have evolved between species utilizing genetic, embryological and comparative approaches. Dr. Behringer obtained his Ph.D. in Biology from University of South Carolina and completed his Postdoc at University of Pennsylvania and University of Washington.

Rebecca Eisenberg, J.D., is Robert and Barbara Luciano Professor of Law at University of Michigan School of Law. She began her career following law school as law clerk for Chief Judge Robert F. Peckham on the U.S. District Court for the Northern District of California and then practiced law as a litigator in San Francisco. She joined the Michigan Law faculty in 1984. Professor Eisenberg regularly teaches courses in patent law, trademark law, FDA law, and runs workshops on intellectual property and student scholarship. She has previously taught courses on torts, legal regulation of science, and legal issues in biopharmaceutical research. She has written and lectured extensively about the role of intellectual property in biopharmaceutical research, publishing in scientific journals as well as law

reviews. Dr. Eisenberg received her J.D. from Boalt Hall School of Law at the University of California, Berkeley.

Insoo Hyun, Ph.D., is Associate Professor of Bioethics and Philosophy at Case Western Reserve University School of Medicine. His research interests include ethical and policy issues in stem cell research, social justice, medical decision making, and health resource allocation. In 2005, Dr. Hyun was awarded a Fulbright Research Award by the U.S. Department of State to study the ethical, legal, and cultural dynamics of human research cloning in South Korea. In 2006 he chaired the Subcommittee on Human Biological Materials Procurement for the International Embryonic Stem Cell Guidelines Task Force, a multinational, multidisciplinary working group for the ISSCR (International Society for Stem Cell Research). In 2007 he served as Co-Chairperson of the ISSCR Task Force on International Guidelines for the Clinical Translation of Stem Cells. Dr. Hyun is the past-Chairperson of the ISSCR's Ethics and Public Policy Committee. Dr. Hyun received his BA and MA in philosophy from Stanford University, and his Ph.D. in philosophy from Brown University.

Gary A. Koretzky, M.D., Ph.D., is Francis C. Wood Professor of Medicine and Vice Chair for Research and Chief Scientific Officer of Department of Medicine at the University of Pennsylvania School of Medicine. He also serves as Co-Program Leader of the Immunobiology Research Program in the Abramson Cancer Center. Dr. Koretzky is recognized for his research contributions to the understanding of the development and mechanisms of activation of cells of the immune system. His laboratory has identified a number of novel proteins that regulate signals downstream of key immune cell receptors and has demonstrated their critical importance using in vitro and in vivo approaches. He also has interest and experience in developing research programs and evaluating those that exist. He is a graduate of the University of Pennsylvania School of Medicine M.D./Ph.D. program. He then completed his residency in Internal Medicine and fellowship training in rheumatology at the University of California, San Francisco.

Cato T. Laurencin, MD, PhD is a University Professor at the University of Connecticut (the fifth in that institution's history). In addition, he is the Albert and Wilda Van Dusen Distinguished Professor of Orthopaedic Surgery and Professor of Chemical, Materials and Biomolecular Engineering. Dr. Laurencin is Director of the Institute for Regenerative Engineering, and serves as Chief Executive Officer of the Connecticut Institute for Clinical and Translational Science at the University of Connecticut. He earned his B.S.E. in Chemical Engineering from Princeton University, his M.D. *magna cum laude* from Harvard Medical School, and his Ph.D. in Biochemical Engineering/Biotechnology from the Massachusetts Institute of Technology. Dr. Laurencin completed his residency in orthopaedic surgery at the Harvard Combined Orthopaedic Surgery Program. He completed his fellowship at Cornell University Medical Center/The Hospital for Special Surgery in Sports Medicine and Shoulder Surgery. An expert in shoulder and knee surgery, Dr. Laurencin is an international leader in tissue-engineering research. He is an elected member of both the Institute of Medicine of the National Academy of Sciences, and the National Academy of Engineering. Internationally, he is a Fellow of the African Academy of Sciences. Dr. Laurencin has been heavily involved in mentoring activities. In recognition of his work, he received the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring in ceremonies at the White House in 2010.

Aaron Levine, Ph.D., M.Phil., is Assistant Professor in the School of Public Policy at the Georgia Institute of Technology. His research focuses on understanding how the policy environment influences the development of ethically-contentious new technologies, particularly in the life sciences. He studies the impact of ethical controversy on scientific research, with a particular emphasis on emerging biomedical technologies. His recent work has focused on both stem cell policy and the fertility industry. Dr. Levine is the author of Cloning: A Beginner's Guide, an introduction to the science of cloning and embryonic stem

cells and the ethical and policy debates this science inspires. He completed his Ph.D. in Public Affairs at the Woodrow Wilson School at Princeton University. He also holds a M.Phil. from the University of Cambridge.

Michael H. May, Ph.D., is Chief Executive Officer of the Centre for Commercialization of Regenerative Medicine (CCRM) in Canada. Hosted by the University of Toronto, CCRM brings together leading regenerative medicine experts from the University of Toronto and McMaster University, with researchers from the Hospital for Sick Children, the University Heath Network, the Ottawa Hospital Research Institute and Mount Sinai Hospital, to accelerate regenerative medicine research and development, and create a commercialization pipeline that rapidly brings regenerative medicine technologies to market. Previously, he was the President and Chief Operating Officer of Rimon Therapeutics Ltd, a Toronto-based regenerative medicine company developing novel medical polymers that possess drug-like activity. Dr. May completed his Ph.D. in Chemical Engineering at the University of Toronto.

Cheryl A. Moore is the Executive Vice president and Chief Operating Officer of the Howard Hughes Medical Institute (HHMI). She leads collaborative strategic efforts and oversees key operational functions including communications, facilities, finance, human resources, information technology, and procurement. Formerly the chief operating officer at the Institute's Janelia Farm Research Campus, she played a pivotal role in Janelia's development and was responsible for all operational aspects of the campus and its $100 million annual budget. Prior to joining HHMI, Ms. Moore served as senior vice president and chief operating officer of what is now known as the Sanford-Burnham Institute for Medical Research in La Jolla, California. Ms. Moore spent much of her professional career in the San Diego area where she also held top management positions with an international financial services firm and both start-up and public healthcare companies. She received her BS in Business Administration from the University of San Diego.

David T. Scadden, M.D., is the Gerald and Darlene Jordan Professor of Medicine at Harvard University, is the co-founder and co-director of the Harvard Stem Cells Institute. He co-chairs and is a Professor of the Department of Stem Cell and Regenerative Biology at Harvard University. He is the director of the Center for Regenerative Medicine at the Massachusetts General Hospital and chief of Hematologic Malignancies at the MGH Cancer Center. He is a hematologist/oncologist whose research interest is in the hematopoietic stem cell and its niche, focusing on using principles of stem cell biology to improve therapies for blood disorders including cancer and AIDS.

Allen M. Spiegel, M.D., is The Marilyn and Stanley M. Katz Dean, Albert Einstein College of Medicine of Yeshiva University. He began his career at the NIH in 1973 as a Clinical Associate in its Endocrinology Training program. He then served as a Senior Investigator in the Metabolic Disease Branch from 1977 to 1984. In 1985, he was appointed Chief of Molecular Pathophysiology, and then Chief of the Metabolic Diseases Branch. In 1990, he was appointed Director of the NIDDK's Division of Intramural Research. From 1999-2006, he served as Director of the NIDDK. In that capacity he served as Vice-Chair of the NIH Stem Cell Task Force and testified on numerous occasions in Congress at hearings related to NIH support for stem cell research. Currently, he serves on the medical advisory board of the NY Stem Cell Foundation and was appointed to NYS's Empire State Stem Cell Funding Board. Dr. Spiegel earned his bachelor's degree from Columbia University and his M.D. degree from Harvard Medical School. He completed his clinical training at Massachusetts General Hospital.

Sharon Terry, **M.A**. is President and Chief Executive Officer of Genetic Alliance, a network transforming health by promoting openness as process and product, centered on the health of individuals, families and communities. She is also the founding CEO of PXE International, a research advocacy organization for the genetic condition pseudoxanthoma elasticum (PXE). Following the diagnosis of their

two children with pseudoxanthoma elasticum (PXE) in 1994, Sharon, a former college chaplain, and her husband, Patrick, founded and built a dynamic organization that enables ethical research and policies and provides support and information to members and the public. She co-directs a 33-lab research consortium and manages 52 offices worldwide for PXE International. Ms. Terry is also a co-founder of the Genetic Alliance Biobank. It is a centralized biological and data repository catalyzing translational genomic research on genetic diseases. She is at the forefront of consumer participation in genetics research, services, and policy and serves as a member of many of the major governmental advisory committees on biomedical research. In 2005, she received an honorary doctorate from Iona College for her work in community engagement and haplotype mapping. She was elected an Ashoka Fellow in 2009, and received the Clinical Research Forum and Foundation's Annual Award for Leadership in Public Advocacy in 2011.