



**Mount
Sinai**

*The Mindich
Child Health and
Development Institute*

Annual Report 2015



The Mindich Child Health and Development Institute (MCHDI)

is a translational research enterprise with the mission of advancing knowledge and therapies for diseases affecting infants, children, and adolescents. Led by Bruce D. Gelb, MD, the MCHDI provides an intellectually rich and supportive environment for fostering collaborative scientific investigation and Mount Sinai's "bench to bedside" philosophy, as well as training the next generation of scientific leaders in pediatric medicine.

Physician-scientists and scientists at the MCHDI work in a multidisciplinary manner with researchers and physicians in various departments and institutes at Mount Sinai. Together, we strive toward the objectives of developing robust paradigms for understanding the effects of genetics and environment on the health of infants, children and adolescents, and personalizing pediatric medicine through genetics and genomics.

Contents

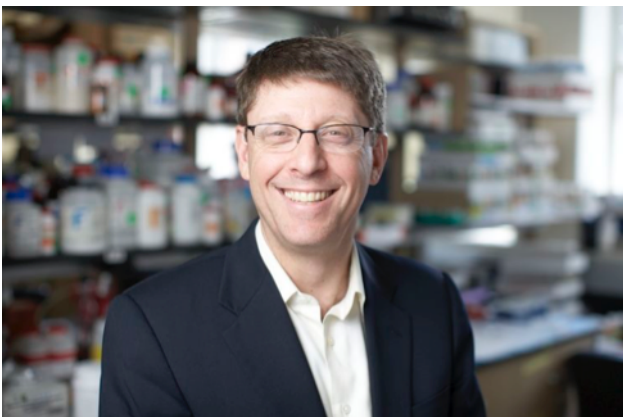
Message from the Director	3
Faculty Growth	4
New Faculty	5
Faculty Research Areas	7
Awards and Publications	14
Grants, Material Transfer	
Agreements, Licenses	17
Pilot Program Awardees	18
Annual Retreat	19
Communications	20
Shared Resources	21
Leadership and Staff	22

Message from the Director

I am pleased to present our institute's major highlights and developments of 2015. With funding from the National Institutes of Health increasing at a slow and steady rate across the country, our faculty are consistently surpassing national averages in grant funding. This year, the Mindich Child Health and Development Institute (MCHDI) faculty members received over \$20 million in new grants, more than double that of last year. Our commitment to progressing child health research in multiple areas including allergy & asthma, cardiovascular disease, neurodevelopmental disorders, obesity & diabetes, and more resulted in over 320 publications this past year. Understanding the molecular events leading to obesity, challenging the current paradigm in cardiac stem cell research, developing a blood test to predict the severity of allergic reactions, and designing a cognitive-behavioral intervention program to improve social cognitive skills in children with autism spectrum disorder are just some examples of breakthrough research pioneered by our scientists and physician-scientists. The MCHDI also welcomed three new outstanding faculty members who have joined our team including Nadia Micali, MD, PhD, Associate Professor of Psychiatry, Allan C. Just, PhD, Assistant Professor of Preventive Medicine, and Dani Dumitriu, MD, PhD, Assistant Professor of Neuroscience and Resident in Pediatrics.

Furthermore, two of our MCHDI faculty received a total of \$20 million in funding from two out of three components of the Child Health Environmental Assessment Resource (CHEAR) program. Dr. Robert O. Wright is the recipient of the \$10 million CHEAR grant for the Laboratory Network Hub, while Dr. Chris Gennings is co-leading the Data Center, funded by the second CHEAR grant of \$10 million. The purpose of CHEAR is to promote children's health research focused on gene-environment interactions from pre-natal to post-natal development. Their studies will provide a comprehensive mapping of the "exposome" and further define the association between genetics/epigenetics and chemical, physical, biological, lifestyle, and social stressors.

Our 2015 annual report follows the accomplishments of our faculty and reaffirms our mission to create a collaborative network of researchers. We have started implementing our strategic planning process, seeking valuable input from trainees and faculty to guide our vision as a new institute and establish a sustainable organizational model. As we close in on another successful year, the MCHDI will continue to be at the forefront of pediatric research while focusing on improving existing programs, broadening our research goals, and reinforcing our long-term strategic plan.



A handwritten signature in black ink that reads "B. Gelb". The signature is written in a cursive, flowing style.

Bruce D. Gelb, Director

Faculty Growth

In 2015, we added two new external and one internal faculty members to the MCHDI family, bringing our total number to 57 scientists and physician-scientists across the disciplines of Allergy & Asthma, Cardiovascular Disease, Neurodevelopmental Disorders, Obesity & Diabetes, and more.



MCHDI faculty members from left to right. First Row L-R: David Dunkin, MD; Jaime Chu, MD; Supinda Bunyavanich, MD, MPH; Shanna H. Swan, PhD; Dalila Pinto, PhD; Nadia Micali, MD, PhD; Second Row L-R: Yong Zhao, PhD, MD; Rupangi C. Vasavada, PhD; Adolfo García-Ocaña, PhD; Donald K. Scott, PhD; M. Cecilia Berin, PhD; Ross L. Cagan, PhD; Bruce D. Gelb, MD; Nicole C. Dubois, PhD; Megan K. Horton, PhD, MPH; Annemarie Stroustrup, MD, MPH; Andrew J. Sharp, PhD; Martin J. Walsh, PhD; Hirofumi Morishita, MD, PhD; Dani Dumitriu, MD, PhD; Dorothy E. Grice, MD; Patrizia Casaccia, MD, PhD



Breakdown of new faculty recruits since our inception in 2009. In 2015, our institute recruited three new external and internal faculty members.

New Faculty

New External Faculty



Nadia Micali, MD, MRCPsych, PhD, FAED

Dr. Nadia Micali is an Associate Professor of Psychiatry and a clinician-scientist who will be developing a research and clinical program within the Center of Excellence for Eating and Weight Disorders under the direction of Tom Hildebrandt, PhD. Most recently, Dr. Micali was a Senior Lecturer in the Brain and Behavior Sciences Unit at the University College of London Institute of Child Health and an Honorary Child Psychiatrist in feeding and eating disorders at Great Ormond Street Hospital.

Dr. Micali received her MD from the University of Messina School of Medicine in Italy, and her PhD from the Institute of Psychiatry, King's College London. She trained in Child and Adolescent Psychiatry, with

a specialty in Eating Disorders at the Maudsley Hospital and Institute of Psychiatry, London, UK. She is also a trained epidemiologist. Over the course of her career, Dr. Micali has written over 80-peer reviewed papers and has given over 50 lectures and presentations around the world. She serves as an elected executive member of several societies, including the Eating Disorders Faculty, Royal College of Psychiatrists, the Child and Adolescent Psychiatry Surveillance System, and the Eating Disorders Research Society (of which she is currently President). Dr. Micali is also an active member of the Academy of Eating Disorders.

Dr. Micali's research focuses on understanding biological and intergenerational risk for eating disorders using a developmental perspective. Her research has investigated the epidemiology of adolescent eating disorders and behaviors and their etiology, including biological and intergenerational risk; the biological and neuropsychological basis of 'at risk' status; and pregnancy and reproductive outcomes. The impact of Dr. Micali's research is underscored by her role on editorial boards of top journals in the field, including *European Child and Adolescent Psychiatry*, the *European Eating Disorders Review*, and *Advances in Eating Disorders: Research, Therapy and Practice*.

Dr. Micali's contributions to the field of eating disorders have been recognized by several awards, most notably a prestigious fellowship by the Academy of Eating Disorders and her election as 2015 President of the Eating Disorders Research Society. She has also been appointed as a special advisor on the UK National Institute of Clinical Excellence Antenatal Mental Health Guideline Development Group that developed guidelines for the identification and treatment of eating disorders in pregnancy. Dr. Micali is also extremely committed to training and education and helped establish a Master's Degree in Eating Disorders at University College London, the only such degree in the world.

Allan C. Just, PhD

Dr. Allan C. Just is an Assistant Professor of Preventive Medicine at the Icahn School of Medicine at Mount Sinai. Dr Just is an environmental epidemiologist with interests in children's environmental health, computational methods for epigenomics, environmental epigenomics, endocrine disrupting compounds, and air pollution modeling using satellite data. He received his PhD in



Environmental Health Sciences from Columbia University in 2012. Since 2012 he completed a postdoctoral fellowship in Environmental Epigenetics at the Harvard T.H. Chan School of Public Health. Dr Just is a past recipient of an EPA STAR graduate fellowship for his dissertation work on phthalate mixtures and children's respiratory health and was awarded a K99/R00 grant from the National Institute of Environmental Health Sciences entitled "Prenatal Exposure to Endocrine Disrupters, DNA Methylation, and Childhood Obesity" (R00ES023450). His R00 grant is based in the Mexico City cohort of the Programming Research in Obesity, Growth, Environment, and Social Stressors (PROGRESS) study as well as the Programming of Intergenerational Stress Mechanisms (PRISM) study. He is collaborating with the National Institute of Public Health, Mexico and the Mexican Center for Research in Geography and Geomatics on a grant from the Mexican National Council of Science and Technology (CONACyT) that addresses air pollution and health using the Mexican National Health and Nutrition Examination Survey (ENSANUT). He is also in the coordinating groups for several epigenomic meta-analyses as part of the Prenatal and Childhood Epigenetics (PACE) consortium and the Cohorts for Heart and Aging Research in Genomic Epidemiology (CHARGE) consortium.

New Internal Faculty



Dani Dumitriu, MD, PhD

Dr. Dani Dumitriu is an Assistant Professor in Neuroscience and Resident in Pediatrics. Following the completion of the MD/PhD Program at Mount Sinai, she matched into the Pediatrics residency and successfully negotiated a custom-tailored residency program with significant protected research time. She is currently a PGYIII and devotes approximately 50% effort to her medical training and 50% effort to running her lab. Her research focuses on understanding the neurobiological basis for resilience, i.e. the brain wiring that gives some individuals the ability to withstand adversity. Her lab currently uses a mouse model of social defeat in order to elucidate the pre-existing neural networks that render roughly one third of the population immune to this type of stress. This question is being addressed with a combination of behavioral tasks, identification of neuronal subnetworks using anterograde and retrograde viruses, high resolution confocal microscopy of dendritic spines, resting state fMRI, quantitative whole-brain immunohistochemistry, graph theory analysis of network dynamics, electrophysiology and optogenetics. Following identification of resiliency networks, she plans to study developmental interference of these circuits by psychological and toxicological stressors. Her ultimate goal is to pioneer *developmental neuroprevention* by creating tools that will protect and enhance resiliency in children.

Faculty Research Areas

Asthma and Allergy



M. Cecilia Berin, MD (Associate Professor, Pediatrics)

Research Areas: Immune mechanisms of food allergy and regulation of immune tolerance

Faculty Interactions: Rosalind J. Wright, David Dunkin, Hugh A. Sampson, Scott H. Sicherer, Anna Nowak-Wegrzyn



Supinda Bunyavanich, MD, MPH (Assistant Professor, Pediatrics & Genetics and Genomic Sciences)

Research Areas: Integrative genomics of asthma and allergic diseases

Faculty Interactions: Hugh A. Sampson, Andrew J. Sharp, Scott H. Sicherer, Xiu-Min Li



Xiu-Min Li, MD (Professor, Pediatrics)

Research Areas: Integrative medicine for induction of immune tolerance for food allergy, asthma and Inflammatory Bowel Disease

Faculty Interactions: Hugh A. Sampson, Julie Wang, Madhan Masilamani, Scott H. Sicherer, Anna Nowak-Wegrzyn, Jia Chen, Martin J. Walsh, David Dunkin, Supinda Bunyavanich



Madhan Masilamani, PhD (Associate Professor, Pediatrics)

Research Areas: Food allergy, anti-inflammatory phytochemicals, T cell peptide immunotherapy

Faculty Interactions: Hugh A. Sampson, Xiu-Min Li, Anna Nowak-Wegrzyn



Anna Nowak-Wegrzyn, MD (Associate Professor, Pediatrics)

Research Areas: Food allergy, FPIES, oral immunotherapy, anaphylaxis, milk and egg allergy

Faculty Interactions: Hugh A. Sampson, Scott H. Sicherer, Julie Wang, M. Cecilia Berin, Madhan Masilamani, Xiu-Min Li



Hugh A. Sampson, MD (Kurt Hirshhorn Professor, Pediatrics)

Research Areas: Immunopathogenesis of food allergy and anaphylaxis

Faculty Interactions: M. Cecilia Berin, Madhan Masilamani, Supinda Bunyavanich, David Dunkin, Scott H. Sicherer, Xiu-Min Li, Julie Wang, Anna Nowak-Wegrzyn



Scott H. Sicherer, MD (Elliot and Roslyn Jaffe Professor, Pediatrics)

Research Areas: Food allergy epidemiology, treatments, natural course, quality of life

Faculty Interactions: Eyal Shemesh, Supinda Bunyavanich, M. Cecilia Berin, Hugh A. Sampson, Julie Wang, Xiu-Min Li, Anna Nowak-Wegrzyn

Asthma and Allergy continued



Julie Wang, MD (Associate Professor, Pediatrics)

Research Areas: Novel therapeutics for food allergy, epidemiology and management of food allergy in minority, urban populations

Faculty Interactions: Hugh A. Sampson, Scott H. Sicherer, Xiu-Min Li, Anna Nowak-Wegrzyn

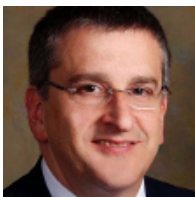


Rosalind J. Wright (Dean, Translational Biomedical Research; Director, Clinical and Translational Science Award; Horace W. Goldsmith Professor, Children's Health Research; Professor, Pediatrics & Preventive Medicine)

Research Areas: Developmental epidemiology, environmental and chemical exposures, social and psychological influences in neurodevelopmental diseases, health disparities

Faculty Interactions: Robert O. Wright, Manish Arora, Allan C. Just, Chris Gennings, Annemarie Stroustrup, M. Cecilia Berin, Jia Chen

Cardiovascular Disease



Harold S. Bernstein, MD, PhD (Adjunct Professor, Pediatrics)

Research Areas: Drug development (target validation through clinical proof of concept); heart failure, metabolic syndrome, diabetes, thrombosis, chronic kidney disease

Faculty Interactions: Bruce D. Gelb



Chen-Leng Cai, PhD (Associate Professor, Developmental and Regenerative Biology)

Research Areas: Heart development and regeneration

Faculty Interactions: Bruce D. Gelb, Nicole C. Dubois, Yong Zhao, Anne Moon, Martin J. Walsh



Nicole C. Dubois, PhD (Assistant Professor, Developmental and Regenerative Biology)

Research Areas: Genetics of cardiovascular disease, stem cell research

Faculty Interactions: Bruce D. Gelb, Yong Zhao, Chen-Leng Cai, Robert S. Krauss, James J. Bieker, Andrew J. Sharp, Martin J. Walsh, Valerie Gouon-Evans, Michael Rendl



Bruce D. Gelb, MD (Gogel Family Professor and Director, Mindich Child Health and Development Institute; Professor, Pediatrics & Genetics and Genomic Sciences)

Research Areas: Genetics of cardiovascular diseases, stem cell research

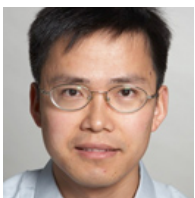
Faculty Interactions: Joseph D. Buxbaum, Ross L. Cagan, Chen-Leng Cai, Nicole C. Dubois, Megan K. Horton, Alex Kolevzon, Andrew J. Sharp, Yong Zhao, Dalila Pinto, Brian D. Brown, Harold S. Bernstein, Anne Moon



Anne Moon, MD (Adjunct Professor, Pediatrics)

Research Areas: Developmental biology of congenital heart disease and limb defects, functions of Tbx and Fibroblast Growth Factors

Faculty Interactions: Bruce D. Gelb, Chen-Leng Cai, Yong Zhao



Yong Zhao, MD, PhD (Assistant Professor, Genetic and Genomic Sciences)

Research Areas: Genetics and epigenetics of heart disease

Faculty Interactions: Bruce D. Gelb, Chen-Leng Cai, Nicole C. Dubois, Brian D. Brown, Anne Moon

Neurodevelopmental Disorders



Manish Arora, PhD, BDS, MPH (Associate Professor, Preventive Medicine & Dentistry)

Research Areas: Environmental epidemiology and exposure biology

Faculty Interactions: Robert O. Wright, Rosalind J. Wright, Hirofumi Morishita, Megan K. Horton, Chris Gennings, Jia Chen, Allan C. Just, Yaron Tomer, Lisa M. Satlin, Annemarie Stroustrup, Shanna Swan, Philip J. Landrigan, Jeffrey M. Saland, Avi Reichenberg, Mihaela Stefan



Joseph D. Buxbaum, PhD (Vice Chair, Research & Mentoring; Director, Seaver Autism Center for Research and Treatment; Professor, Psychiatry, Neuroscience, & Genetics and Genomic Sciences)

Research Areas: Autism spectrum disorder, neurodevelopmental disorders, gene discovery, functional genetics, molecular and cellular neuroscience, cell and animal model systems

Faculty Interactions: Bruce D. Gelb, Patrizia Casaccia, Dorothy E. Grice, Alex Kolevzon, Philip J. Landrigan, Hirofumi Morishita, Coro Paisán-Ruiz, Dalila Pinto, Avi Reichenberg, Andrew J. Sharp, Ross L. Cagan, Eyal Shemesh



Patrizia Casaccia, MD, PhD (Professor, Genetics and Genomic Sciences, Neuroscience, & Neurology)

Research Areas: Epigenetics, myelin formation and mechanisms of neurodegeneration in Multiple Sclerosis

Faculty Interactions: Andrew J. Sharp, Joseph D. Buxbaum, Dani Dumitriu



Jia Chen, ScD (Professor, Pediatrics, Preventive Medicine, Medicine, & Oncological Sciences)

Research Areas: Environmental epigenetics, molecular epidemiology

Faculty Interactions: Robert O. Wright, Manish Arora, Rosalind J. Wright, Luca Lambertini, Xiu-Min Li, Andrew J. Sharp



Dani Dumitriu, MD, PhD (Assistant Professor, Neuroscience)

Research Areas: Functional and structural connectomics underlying resilience to mouse social defeat

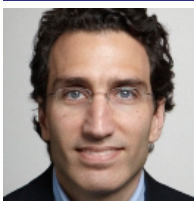
Faculty Interactions: Megan Horton, Hirofumi Morishita, Patrizia Casaccia, Vilma Gabbay, Lisa M. Satlin, Robert O. Wright



Megan K. Horton, PhD, MPH (Assistant Professor, Preventive Medicine)

Research Areas: Children's environmental health, exposure assessment, pediatric neuroimaging

Faculty Interactions: Bruce D. Gelb, Robert O. Wright, Chris Gennings, Annemarie Stroustrup, Allan C. Just, Shanna H. Swan, Manish Arora, Dani Dumitriu



Alex Kolevzon, MD (Director, Child and Adolescent Psychiatry; Associate Professor, Psychiatry & Pediatrics)

Research Areas: Autism spectrum and other neurodevelopmental disorders

Faculty Interactions: Joseph D. Buxbaum, Bruce D. Gelb, Avi Reichenberg, Nadia Micali, Dalila Pinto, Jeffrey M. Saland, Eyal Shemesh



Robert S. Krauss, PhD (Professor, Developmental and Regenerative Biology & Oncological Sciences)

Research Areas: Hedgehog signaling and birth defects; muscle stem cells and regeneration

Faculty Interactions: Nicole C. Dubois, Michael Rendl, James J. Bieker



Luca Lambertini, PhD, MPH (Assistant Professor, Preventive Medicine & Obstetrics, Gynecology and Reproductive Science)

Research Areas: Placental biomarkers of altered fetal and child development

Faculty Interactions: Jia Chen, Yaron Tomer, Andrew J. Sharp, Robert O. Wright

Neurodevelopmental Disorders *continued*



Philip J. Landrigan, MD, MSc (Professor, Preventive Medicine & Pediatrics)
Research Areas: Global environmental health, children's environmental health, drugs in development and therapeutics
Faculty Interactions: Robert O. Wright, Manish Arora, Joseph D. Buxbaum



Hirofumi Morishita, MD, PhD (Assistant Professor, Psychiatry, Ophthalmology & Neuroscience)
Research Areas: Mechanisms of perceptual and cognitive development, drug repurposing for neurodevelopmental disorders
Faculty Interactions: Manish Arora, Joseph D. Buxbaum, Dani Dumitriu



Coro Paisán-Ruiz, PhD (Assistant Professor, Neurology, Psychiatry, & Genetics and Genomic Sciences)
Research Areas: Genetics of movement disorders, zebrafish models of neurodegeneration
Faculty Interactions: Joseph D. Buxbaum



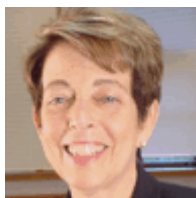
Dalila Pinto, PhD (Assistant Professor, Psychiatry & Genetics and Genomic Sciences)
Research Areas: Genetics and genomics of neurodevelopmental disorders (such as autism, epilepsy, intellectual disability), structural variation, transcriptomics, gene regulation, non-coding RNA
Faculty Interactions: Joseph D. Buxbaum, Alex Kolevzon, Bruce D. Gelb, Martin J. Walsh



Andrew J. Sharp, PhD (Associate Professor, Genetics and Genomic Sciences)
Research Areas: Epigenomics, transcriptomics, genome function, structural variation, imprinting, congenital disorders
Faculty Interactions: Bruce D. Gelb, Nicole C. Dubois, Patrizia Casaccia, Supinda Bunyavanich, Joseph D. Buxbaum, Jia Chen, Luca Lambertini



Annemarie Stroustrup, MD, MPH (Assistant Professor, Pediatrics & Preventive Medicine)
Research Areas: Neurodevelopment, perinatal environmental exposures
Faculty Interactions: Lisa M. Satlin, Robert O. Wright, Rosalind J. Wright, Shanna H. Swan, Megan K. Horton, Allan C. Just, Manish Arora, Chris Gennings



Shanna H. Swan, PhD (Professor, Preventive Medicine)
Research Areas: Prenatal exposures, sexually dimorphic development, phthalates, stress, anogenital distance, neurodevelopment, analgesics
Faculty Interactions: Avi Reichenberg, Chris Gennings, Manish Arora, Megan K. Horton, Allan C. Just, Annemarie Stroustrup, Dorothy E. Grice



Robert O. Wright, MD, MPH (Ethel Wise Professor and Chair, Preventive Medicine; Professor, Pediatrics)
Research Areas: Environmental causes of neurodevelopmental disorders and child obesity
Faculty Interactions: Rosalind J. Wright, Manish Arora, Chris Gennings, Philip J. Landrigan, Allan C. Just, Megan K. Horton, Avi Reichenberg, Annemarie Stroustrup, Lisa M. Satlin, Jia Chen, Luca Lambertini, Dani Dumitriu

Obesity and Diabetes



Brian D. Brown, PhD (Associate Professor, Genetics and Genomic Sciences)

Research Areas: Immunology and immunotherapy, autoimmune disease, microRNA regulation, and biotechnology

Faculty Interactions: Bruce D. Gelb, Yong Zhao, Adolfo García-Ocaña



Ross L. Cagan, PhD (Associate Dean, Graduate School of Biological Sciences; Professor, Developmental and Regenerative Biology)

Research Areas: Drosophila as a tool to develop therapeutics for cancer, diabetes, and rare mendelian diseases

Faculty Interactions: Bruce D. Gelb, Joseph D. Buxbaum



Adolfo García-Ocaña, PhD (Professor, Medicine)

Research Areas: Diabetes, pancreatic beta cell biology

Faculty Interactions: Rupangi C. Vasavada, Donald K. Scott, Yaron Tomer, Mihaela Stefan, Brian D. Brown



Allan C. Just, PhD (Assistant Professor, Preventive Medicine)

Research Areas: Epigenomics, environmental exposures, endocrine disruptors, air pollution, obesity, birth outcomes

Faculty Interactions: Robert O. Wright, Rosalind J. Wright, Manish Arora, Chris Gennings, Annemarie Stroustrup, Shanna H. Swan, Megan Horton



Ruth J.F. Loos, PhD (Professor, Preventive Medicine)

Research Areas: Genetics of obesity and related cardiometabolic traits, genetic epidemiology, epidemiology

Faculty Interactions: Nadia Micali, Martin J. Walsh



Donald K. Scott, PhD (Professor, Medicine)

Research Areas: Obesity and diabetes

Faculty Interactions: Adolfo García-Ocaña, Rupangi C. Vasavada, Martin J. Walsh



Mihaela Stefan, PhD (Assistant Professor, Medicine)

Research Areas: Automimmune diseases, diabetes, epigenetics

Faculty Interactions: Yaron Tomer, Jaime Chu, Manish Arora, Adolfo García-Ocaña



Yaron Tomer, MD (Lillian and Henry M. Stratton Professor, Molecular Medicine)

Research Areas: Diabetes, thyroid autoimmunity

Faculty Interactions: Mihaela Stefan, Adolfo García-Ocaña, Manish Arora, Luca Lambertini

Obesity and Diabetes continued



Rupangi C. Vasavada, PhD (Associate Professor, Medicine & Diabetes, Obesity and Metabolism Institute)

Research Areas: Diabetes, pancreatic beta cell biology, growth factors, cell signaling

Faculty Interactions: Adolfo García-Ocaña, Donald K. Scott



Martin J. Walsh, PhD (Associate Professor, Pediatrics & Structural and Chemical Biology)

Research Areas: Chromatin biology and Gene transcription in cancer, early development and metabolism

Faculty Interactions: Nicole C. Dubois, Dalila Pinto, Donald K. Scott, Ruth J.F. Loos, Chen-Leng Cai, Xiu-Min Li

Psychiatric Disorders



Barbara Coffey, MD (Professor, Psychiatry)

Research Areas: Tic disorders, Tourette's disorder and its comorbid disorders including ADHD, OCD, trichotillomania, anxiety and depression, PANDAS, PANS.

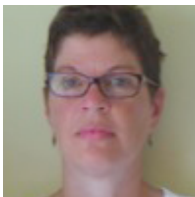
Faculty Interactions: Vilma Gabbay, Dorothy E. Grice



Vilma Gabbay, MD (Associate Professor, Psychiatry & Neuroscience)

Research Areas: Pediatric mood disorders, neuroimaging

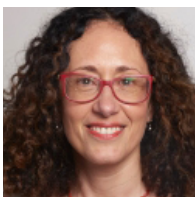
Faculty Interactions: Barbara Coffey, Eyal Shemesh, Dani Dumitriu



Dorothy E. Grice, MD (Associate Professor, Psychiatry & Neuroscience)

Research Areas: Genetic and epidemiological studies of OCD, Tourette disorder, autism and related childhood-onset neuropsychiatric disorders, prenatal exposures, including smoking, functional analysis of identified risk genes

Faculty Interactions: Avi Reichenberg, Joseph D. Buxbaum, Shanna H. Swan, Barbara Coffey



Nadia Micali, MD, MRCPsych, PhD, FAED (Associate Professor, Psychiatry)

Research Areas: Eating disorders development, risk factors (neurobiology, genetics, intergenerational risk), and outcomes; developmental aspects of eating behavior and obesity; epidemiology of childhood mental health disorders; childhood feeding disorders.

Faculty Interactions: Ruth J.F. Loos, Avi Reichenberg, Alex Kolevzon



Avi Reichenberg, PhD (Professor, Psychiatry & Preventive Medicine)

Research Areas: Autism, schizophrenia, other psychiatric disorders

Faculty Interactions: Joseph D. Buxbaum, Alex Kolevzon, Dorothy E. Grice, Robert O. Wright, Manish Arora, Chris Gennings, Shanna H. Swan, Nadia Micali



Eyal Shemesh, MD (Associate Professor, Pediatrics and Psychiatry)

Research Areas: Measurement and biological correlates of self-care behaviors.

Faculty Interactions: Joseph D. Buxbaum, Alex Kolevzon, Vilma Gabbay, Scott H. Sicherer, Jeffrey M. Saland

Other Research Focuses



James J. Bieker, PhD (Professor, Developmental and Regenerative Biology)

Research Areas: Transcriptional regulation of gene expression in erythroid cells; derivation of marked stem cells

Faculty Interactions: Birte Wistinghausen, Robert S. Krauss, Nicole C. Dubois



Jaime Chu, MD (Assistant Professor, Pediatrics)

Research Areas: Disorders of glycosylation, cancer metabolism, liver fibrosis

Faculty Interactions: Mihaela Stefan



David Dunkin, MD (Assistant Professor, Pediatrics)

Research Areas: Tolerance induction and therapeutics in Inflammatory Bowel Disease

Faculty Interactions: Hugh A. Sampson, M. Cecilia Berin, Xiu-Min Li



Chris Gennings, PhD (Professor, Preventive Medicine & Population Health Science and Policy)

Research Areas: Biostatistical methods development for environmental health

Faculty Interactions: Robert O. Wright, Rosalind J. Wright, Megan K. Horton, Shanna H. Swan, Allan C. Just, Manish Arora, Annemarie Stroustrup, Avi Reichenberg



Valerie Gouon-Evans, PhD (Assistant Professor, Developmental and Regenerative Biology & Medicine)

Research Areas: Liver development, regeneration and cancer, stem cell biology.

Faculty Interactions: Nicole C. Dubois, Michael Rendl



Michael Rendl, MD (Associate Professor, Developmental and Regenerative Biology & Dermatology)

Research Areas: Stem cells, hair regeneration, morphogenesis

Faculty Interactions: Valerie Gouon-Evans, Robert S. Krauss, Nicole C. Dubois



Jeffrey M. Saland, MD (Associate Professor, Pediatrics)

Research Areas: Kidney disease in children, lipoprotein metabolism in children with CKD, hemolytic uremic syndrome.

Faculty Interactions: Manish Arora, Eyal Shemesh, Alex Kolevzon, Lisa M. Satlin



Lisa M. Satlin, MD (Herbert H. Lehman Professor and Chair, Pediatrics)

Research Areas: Ontogeny and mechanoregulation of epithelial ion channels in secretory epithelia

Faculty Interactions: Annemarie Stroustrup, Robert O. Wright, Manish Arora, Jeffrey M. Saland, Dani Dumitriu



Birte Wistinghausen, MD (Assistant Professor, Pediatrics)

Research Areas: Pediatric and adolescent Non-Hodgkin-Lymphoma, immunodeficiency associated lymphomas, post-transplant lymphoproliferative syndrome

Faculty Interactions: James J. Bieker

Awards and Publications

Awards

Manish Arora, PhD, MPH, International Association of Exposure Sciences (ISES), “Joan Daisey Award”

Joseph D. Buxbaum, PhD, Elected to the National Academy of Medicine

Jia Chen, ScD, Chairperson MEG Chairperson-Elect Nominating Committee Molecular Epidemiologic Group American Association of Cancer Research

Hirofumi Morishita, MD, PhD, Manish Arora, PhD, MPH, Icahn School of Medicine at Mount Sinai, “Inaugural Faculty Innovative Collaborations-Idea Prize”

Select Publications

Andra SS, Austin C, **Wright RO, Arora M**. Reconstructing pre-natal and early childhood exposure to multi-class organic chemicals using teeth: Towards a retrospective temporal exposome. *Environ Int*. 2015 Oct;83:137-45.

Lohmann F, Dangeti M, Soni S, Chen X, Planutis A, Baron MH, ... **Bieker JJ**. The DEK oncoprotein is a critical component of the EKLF/KLF1 enhancer in erythroid cells. *Mol Cell Biol*. 2015 Nov 1;35(21):3726-38.

Siatecka M, Soni S, Planutis A, **Bieker JJ**. Transcriptional Activity of Erythroid Kruppel-like Factor (EKLF/KLF1) Modulated by Protein Inhibitor of Activated STAT3 (PIAS3). *J Biol Chem*. 2015 Apr 10;290(15):9929-40.

Järvinen KM, Westfall J, De Jesus M, Mantis NJ, Carroll JA, Metzger DW, **Sampson HA, Berin MC**. Role of Maternal Dietary Peanut Exposure in Development of Food Allergy and Oral Tolerance. *PLoS One*. 2015 Dec 10;10(12):e0143855.

Agudo J, Ruzo A, Park ES, Sweeney R, Kana V, Wu M, **Zhao Y, ... Brown BD**. GFP-specific CD8 T cells enable targeted cell depletion and visualization of T cell interactions with virtually any cell. *Nature Biotechnology*. 2015 Dec;33(12):1287-1292.

Kidd BA*, Wroblewska A*, Boland MR, Agudo J, Merad M, Tatonetti NP, **Brown BD**^, Dudley JT^. Mapping the effects of drugs on the immune system. *Nature Biotechnology*. 2015 Nov 30. *Equal contribution ^Co-corresponding authors.

Bunyavanich S, Schadt EE. Systems biology of asthma and allergic diseases: a multiscale approach. *J Allergy Clin Immunol*. 2015 Jan;135(1):31-42.

Sanders SJ, He X, Willsey AJ, Ercan-Sencicek AG, Samocha KE, Cicek AE, ... **Buxbaum JD**, Daly MJ, Devlin B, Roeder K, State MW. Insights into Autism Spectrum Disorder Genomic Architecture and Biology from 71 Risk Loci. *Neuron*. 2015 Sep 23;87(6):1215-33.

Soorya LV, Siper PM, Beck T, Soffes S, Halpern D, Gorenstein M, **Kolevzon A, Buxbaum J**, Wang, AT. Randomized comparative trial of a social cognitive skills group for children with autism spectrum disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2015 Mar;54(3):208-216.e1.

Grodberg D, Siper P, Jamison J, **Buxbaum JD, Kolevzon A**. A Simplified Diagnostic Observational Assessment of Autism Spectrum Disorder in Early Childhood. *Autism Res*. 2015 Aug 25.

Na J, Sweetwyne MT, Park AS, Susztak K, **Cagan RL**. Diet-Induced Podocyte Dysfunction in Drosophila and Mammals. *Cell Rep*. 2015 Jul 28;12(4):636-47.

Sultana N, Zhang L, Yan J, Chen J, Cai W, Razzaque S, ... **Moon A, Cai CL**. Resident c-kit+ cells in the heart are not cardiac stem cells. *Nature Communications*. 2015 Oct 30;6:8701.

Rolyan H, Tyurina YY, Hernandez M, Amoscato AA, Sparvero LJ, Nmezi BC, ... **Casaccia P**, Padiath QS. Defects of Lipid Synthesis Are Linked to the Age-Dependent Demyelination Caused by Lamin B1 Overexpression. *J Neurosci*. 2015 Aug 26;35(34):12002-12017.

Haines JD, Herbin O, de la Hera B, Vidaurre OG, Moy GA, Sun Q, ... **Casaccia P**. Nuclear export inhibitors avert progression in preclinical models of inflammatory demyelination. *Nature Neuroscience*. 2015 Apr;18(4):511-20.

Kappil MA, Green BB, Armstrong DA, **Sharp AJ, Lambertini L**, Marsit CJ, **Chen J**. Placental Expression Profile of Imprinted Genes Impacts Birth Weight. *Epigenetics*. 2015;10(9):842-9.

Phan TD, Kostek NT, **Coffey BJ**. The Impact of Psychosocial Stressors on Treatment of a Teenage Girl with Obsessive Compulsive Disorder, Trichotillomania, and Anxiety. *J Child Adolesc Psychopharmacol*. 2015 Nov;25(9):722-5.

Bradley KA, Case JA, Khan O, Ricart T, Hanna A, Alonso CM, **Gabbay V**. The role of the kynurenine pathway in suicidality in adolescent major depressive disorder. *Psychiatry Res*. 2015 Jun 30;227(2-3):206-12.

Wang P, Alvarez-Perez JC, Felsenfeld DP, Liu H, Sivendran S, Bender A, ... **Scott DK, Garcia-Ocaña A**, Stewart AF. A high-throughput chemical screen reveals that harmine-mediated inhibition of DYRK1A increases human pancreatic beta cell replication. *Nature Medicine*. Apr;21(4):383-8.

Homsy J, Zaidi S, Shen Y, Ware JS, Samocha KE, Karczewski KJ, ... **Gelb BD**, ... Chung WK. De novo mutations in congenital heart disease with neurodevelopmental and other congenital anomalies. *Science*. 2015 Dec 4;350(6265):1262-1266.

Mulero-Navarro S, Sevilla A, Roman AC, Lee DF, D'Souza SL, Pardo S, ... **Brown BD**, ... **Gelb BD**. Myeloid Dysregulation in a Human Induced Pluripotent Stem Cell Model of PTPN11-Associated Juvenile Myelomonocytic Leukemia. *Cell Rep*. 2015 Oct 20;13(3):504-15.

Bello GA, Dumancas GG, **Gennings C**. Development and Validation of a Clinical Risk-Assessment Tool Predictive of All-Cause Mortality. *Bioinform Biol Insights*. 2015 Sep 1;9(Suppl 3):1-10.

Browne HA, Hansen SN, **Buxbaum JD**, Gair SL, Nissen JB, Nikolajsen KH, ... **Grice DE**. Familial Clustering of Tic Disorders and Obsessive-Compulsive Disorder. *JAMA Psychiatry*. 2015 Apr;72(4):359-66.

Horton MK, Blount BC, Valentin-Blasini L, Wapner R, Whyatt R, **Gennings C**, Factor-Litvak P. CO-occurring exposure to perchlorate, nitrate and thiocyanate alters thyroid function in healthy pregnant women. *Environ Res*. 2015 Sep 23;143(Pt A):1-9.

Just AC, **Wright RO**, Schwartz J, Coull BA, Baccarelli AA, Tellez-Rojo MM, ... Kloog I. Using High-Resolution Satellite Aerosol Optical Depth To Estimate Daily PM2.5 Geographical Distribution in Mexico City. *Environ Sci Technol*. 2015 Jul 21;49(14):8576-84.

Lee HJ, Jo SB, Romer AI, Lim HJ, Kim MJ, Koo SH, **Krauss RS***, Kang JS*. Overweight in mice and enhanced adipogenesis in vitro are associated with lack of the Hedgehog coreceptor Boc. *Diabetes*. 2015 Jun;64(6):2092-103. *Equal contribution

Lambertini L, **Chen J**, Nomura Y. Mitochondrial Gene Expression Profiles Are Associated with Maternal Psychosocial Stress in Pregnancy and Infant Temperament. *PLoS One*. 2015 Sep 29;10(9):e0138929.

Landrigan PJ, Benbrook C. GMOs, Herbicides, and Public Health. *N Engl J Med*. 2015 Aug 20;373(8):693-5.

Laborde A, Tomasina F, Bianchi F, Bruné MN, Buka I, Comba P, ... **Landrigan PJ**. Children's Health in Latin America: The Influence of Environmental Exposures. *Environ Health Perspect*. 2015 Mar;123(3):201-9.

Song Y, **Wang J**, Leung N, Wang LX, Lisann L, **Sicherer S...Li XM**. Correlations between basophil activation, allergen-specific IgE with outcome and severity of oral food challenges. *Ann Allergy Asthma Immunol*. 2015 Apr;114(4):319-26

Liu C*, **Dunkin D***, Lai J, Ceballos C, Benkov K, **Li XM**. Anti-inflammatory Effects of Ganoderma Lucidum Triterpenoid in Human Crohn's Disease Associated with Down-Regulation of NF- κ B Signaling Pathway. *Inflammatory Bowel Diseases*. 2015 Aug;21(8):1918-25. *Equal contribution

Winkler TW, Justice AE, Graff M, Barata L, Feitosa MF, Chu S, ... **Loos RJ**. The Influence of Age and Sex on Genetic Associations with Adult Body Size and Shape: A Large-Scale Genome-Wide Interaction Study. *PLoS Genet*. 2015 Oct 1;11(10):e1005378.

Shungin D, Winkler TW, Croteau-Chonka DC, Ferreira T, Locke AE, **Loos RJ**, ... Mohlke KL. New genetic loci link adipose and insulin biology to body fat distribution. *Nature*. 2015 Feb 12;518(7538):187-96.

Locke AE, Kahali B, Berndt SI, Justice AE, Pers TH, Day FR, ... **Loos RJ**, Speliotes EK. Genetic studies of body mass index yield new insights for obesity biology. *Nature*. 2015 Feb 12;518(7538):197-206.

Chang LM, Song Y, **Li XM**, **Sampson HA**, **Masilamani M**. Dietary Elimination of Soybean Components Enhances Allergic Immune Response to Peanuts in BALB/c Mice. *Int Arch Allergy Immunol*. 2015;166(4):304-10.

Micali N, Solmi F, Horton NJ, Crosby RD, Eddy KT, Calzo JP, ... Field AE. Adolescent eating disorders predict psychiatric, high-risk behaviors and weight outcomes in young adulthood. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2015 Aug;54(8):652-659.

Bukhari N, Burman PN, Hussein A, Demars MP, Sadahiro M, Brady DM, ... **Morishita H**. Unmasking Proteolytic Activity for Adult Visual Cortex Plasticity by the Removal of Lynx1. *J Neurosci*. 2015 Sep 16;35(37):12693-702.

Morishita H, Cabungcal JH, Chen Y, Do KQ, Hensch TK. Prolonged Period of Cortical Plasticity upon Redox Dysregulation in Fast-Spiking Interneurons. *Biol Psychiatry*. 2015 Sep 15;78(6):396-402.

Bencharitiwong R, van der Kleij HP, Koppelman SJ, **Nowak-Wegrzyn A**. Effect of chemical modifications on allergenic potency of peanut proteins. *Allergy Asthma Proc*. 2015 May-Jun;36(3):185-91.

Leonard SA, Caubet JC, Kim JS, Groetch M, **Nowak-Wegrzyn A**. Baked milk- and egg-containing diet in the management of milk and egg allergy. *J Allergy Clin Immunol Pract*. 2015 Jan-Feb;3(1):13-23.

Bergareche A, Bednarz M, Sánchez E, Krebs CE, Ruiz-Martinez J, De la Riva P, ... **Paisán-Ruiz C**. SCN4A pore mutation pathogenetically contributes to autosomal dominant essential tremor and may increase susceptibility to epilepsy. *Human Molecular Genetics*. 2015 Dec 15;24(24):7111-20.

Akbarian S, Liu C, Knowles JA, Vaccarino FM, Farnham PJ, Crawford GE, ... **Pinto D**, ... Sestan N. The PsychENCODE project. *Nat Neurosci*. 2015 Nov 25;18(12):1707-12.

Sandin S, Schendel D, Magnusson P, Hultman C, Surén P, Susser E, ... **Reichenberg A**. Autism risk associated with parental age and with increasing difference in age between the parents. *Mol Psychiatry*. 2015 Jun 9.

Frans E, MacCabe JH, **Reichenberg A**. Advancing paternal age and psychiatric disorders. *World Psychiatry*. 2015 Feb;14(1):91-3.

Sennett R, Wang Z, Rezza A, Grisanti L, Roitershtein N, Sicchio C, ... **Rendl M**. An Integrated Transcriptome Atlas of Embryonic Hair Follicle Progenitors, Their Niche, and the Developing Skin. *Dev Cell*. 2015 Sep 14;34(5):577-91.

Matloff RG, Diamond R, Weinberg A, Arnon R, **Saland JM**. Biliary Atresia is Associated With Hypertension. *J Pediatr Gastroenterol Nutr*. 2015 Aug;61(2):182-6.

Burks AW, Wood RA, Jones SM, Sicherer SH, Fleischer DM, Scurlock AM, ... **Sampson HA**; for the Consortium of Food Allergy Research (CoFAR). Sublingual immunotherapy for peanut allergy: Long-term follow-up of a randomized multicenter trial. *J Allergy Clin Immunol*. 2015 May;135(5):1240-8.e1-3.

Wood RA, Kim JS, Lindblad R, Nadeau K, Henning AK, Dawson P, ... **Sampson HA**. A randomized, double-blind, placebo-controlled study of omalizumab combined with oral immunotherapy for the treatment of cow's milk allergy. *J Allergy Clin Immunol*. 2015 Oct 30. pii: S0091-6749(15)01438-4.

Zhang P, Kumar A, Katz LS, Li L, Paulynice M, Herman MA, **Scott DK**. Induction of the ChREBP β isoform is essential for glucose-stimulated beta cell proliferation. *Diabetes*. 2015 Dec;64(12):4158-70.

Watson CT, Szutorisz H, Garg P, Martin Q, Landry JA, **Sharp AJ**, Hurd YL. Genome-Wide DNA Methylation Profiling Reveals Epigenetic Changes in the Rat Nucleus Accumbens Associated With Cross-Generational Effects of Adolescent THC Exposure. *Neuropsychopharmacology*. 2015 Dec;40(13):2993-3005.

Gymrek M, Willems T, Guilmatre A, Zeng H, Markus B, Georgiev S, ... **Sharp AJ**, Erlich Y. Abundant contribution of short tandem repeats to gene expression variation in humans. *Nat Genet*. 2015 Dec 7.

Anunziato RA, Rubes M, Ambrose M, Caso N, Dillon M, **Sicherer SH**, **Shemesh E**. Allocation of food allergy responsibilities and its correlates for children and adolescents. *J Health Psychol*. 2015 Jun;20(6):693-701.

Santos J, Pearce SE, **Stroustrup A**. Impact of hospital-based environmental exposures on neurodevelopmental outcomes of preterm infants. *Curr Opin Pediatr*. 2015 Apr;27(2):254-60.

Adibi JJ, Lee MK, Naimi AI, Barrett E, Nguyen RH, Sathyanarayana S, **Zhao Y**, ... **Swan SH**. Human chorionic gonadotropin partially mediates phthalate association with male and female anogenital distance. *J Clin Endocrinol Metab*. 2015 Sep;100(9):E1216-24.

Tomer Y, Dolan LM, Kahaly G, Divers J, D'Agostino RB Jr, Imperatore G, ... Matheis N; SEARCH for Diabetes in Youth Study. Genome wide identification of new genes and pathways in patients with both autoimmune thyroiditis and type 1 diabetes. *J Autoimmun*. 2015 Jun;60:32-9.

Kondegowda NG, Fenutria R, Pollack IR, Orthofer M, **Garcia-Ocaña A**, Penninger JM, **Vasavada RC**. Osteoprotegerin and Denosumab Stimulate Human Beta Cell Proliferation through Inhibition of the Receptor Activator of NF- κ B Ligand Pathway. *Cell Metab*. 2015 Jul 7;22(1):77-85.

Sancho A, Li S, Paul T, Zhang F, Aguilo F, Vashisht A, ... **Walsh MJ**. CHD6 regulates the topological arrangement of the CFTR locus. *Hum Mol Genet*. 2015 May 15;24(10):2724-32.

Aguilo F, Zhang F, Sancho A, Fidalgo M, Di Cecilia S, Vashisht A, ... **Wang J**, **Walsh MJ**. Coordination of m(6)A mRNA Methylation and Gene Transcription by ZFP217 Regulates Pluripotency and Reprogramming. *Cell Stem Cell*. 2015 Dec 3;17(6):689-704.

Wang J, Jones SM, Pongracic JA, Song Y, Yang N, **Sicherer SH**, ... **Sampson HA**, **Li XM**. Safety, clinical, and immunologic efficacy of a Chinese herbal medicine (Food Allergy Herbal Formula-2) for food allergy. *J Allergy Clin Immunol*. 2015 Oct;136(4):962-970.e1.

Noone S, Ross J, **Sampson HA**, **Wang J**. Epinephrine Use in Positive Oral Food Challenges Performed as Screening Test for Food Allergy Therapy Trials. *J Allergy Clin Immunol Pract*. 2015 May-Jun;3(3):424-8.

Burris HH, Baccarelli AA, Byun HM, Cantoral A, **Just AC**, Pantic I, ... **Zhao Y**, **Wright RO**, Téllez-Rojo MM. Offspring DNA methylation of the aryl-hydrocarbon receptor repressor gene is associated with maternal BMI, gestational age, and birth weight. *Epigenetics*. 2015 Oct 3;10(10):913-21.

Hsu HL, Chiu YM, Coull BA, Kloog I, Schwartz J, Lee A, **Wright RO**, **Wright RJ**. Prenatal Particulate Air Pollution and Asthma Onset in Urban Children: Identifying Sensitive Windows and Sex Differences. *Am J Respir Crit Care Med*. 2015 Nov 1;192(9):1052-9.

Cowell WJ, Bellinger DC, Coull BA, **Gennings C**, **Wright RO**, **Wright RJ**. Associations between Prenatal Exposure to Black Carbon and Memory Domains in Urban Children: Modification by Sex and Prenatal Stress. *PLoS One*. 2015 Nov 6;10(11):e0142492.

Grants

Agency

	Funding from New Grants (\$)	Funding from Existing & New Grants (\$)
National Institute Of Environmental Health Sciences/NIH/DHHS	\$11,104,733	\$13,357,393
Office of Research Infrastructure Programs/NIH/DHHS	\$2,000,000	\$2,000,000
National Institute Of Diabetes And Digestive And Kidney Diseases/NIH/DHHS	\$1,178,493	\$3,229,522
National Institute Of Allergy And Infectious Diseases/NIH/DHHS	\$1,128,368	\$4,990,905
Albert Einstein College Of Medicine	\$655,167	\$655,167
Department Of The Army	\$566,601	\$566,601
National Heart, Lung, And Blood Institute/NIH/DHHS	\$453,446	\$2,816,789
Juvenile Diabetes Research Foundation	\$425,693	\$425,693
National Eye Institute/NIH/DHHS	\$421,254	\$421,254
National Institute Of Dental And Craniofacial Research/NIH/DHHS	\$416,275	\$416,275
Biogen Idec Inc	\$410,261	\$410,261
Foundation for the NIH (FNIH)	\$249,763	\$249,763
Boston Children's Hospital	\$231,995	\$231,995
National Institute Of Child Health And Human Development/NIH/DHHS	\$224,187	\$1,549,355
National Multiple Sclerosis Society	\$178,301	\$178,301
Food Allergy Research & Education	\$120,000	\$120,000
Human Frontier Science Program Organization	\$112,500	\$112,500
European Commission	\$75,625	\$75,625
American Heart Association - Founders Affiliate	\$66,000	\$66,000
St. Baldrick's Foundation	\$50,000	\$50,000
Beth Israel Deaconess Medical Center	\$33,900	\$33,900
Stanley Medical Research Institute	\$32,507	\$32,507
Brain and Behavior Research Foundation	\$30,000	\$30,000
Nestles Corporation	\$21,413	\$21,413
Weill (Joan And Sanford I.) Medical College Of Cornell University	\$19,952	\$19,952
Boston University	\$13,668	\$13,668
National Institute Of Mental Health/NIH/DHHS	–	\$3,811,809
National Cancer Institute/NIH/DHHS	–	\$1,813,947
National Institute Of Neurological Disorders And Stroke/NIH/DHHS	–	\$1,319,741
Seaver Foundation	–	\$1,290,251
National Human Genome Research Institute/NIH/DHHS	–	\$1,073,505
National Institute Of Arthritis & Musculoskeletal & Skin Diseases/NIH/DHHS	–	\$869,310
Dartmouth College	–	\$809,247
New York State Stem Cell Board	–	\$522,888
DBV Technologies	–	\$414,880
Benaroya Research Institute At Virginia	–	\$385,692
University Of Pittsburgh	–	\$335,733
Food Allergy Initiative	–	\$298,919
University Of North Carolina	–	\$250,151
American Cancer Society, Inc.	–	\$240,000
March Of Dimes	–	\$200,001
Queens College Of CUNY	–	\$186,877
Harvard School Of Public Health	–	\$154,628
University of Texas Health Center at San Antonio	–	\$143,844
Harvard University	–	\$109,638
American Diabetes Association	–	\$103,499
Bayer Hemophilia	–	\$100,000
Human Frontiers Of Science Program	–	\$100,000
Washington University	–	\$86,115
New York University	–	\$53,603
Hirschl/Weill-Caulier Trust	–	\$35,000
Blacksmith Institute	–	\$34,988
UKCRC Centre for Diet and Activity Research (CEDAR)	–	\$33,232
Dana-Farber Cancer Institute	–	\$33,068
Tulane University	–	\$32,147
Seattle Children's Research Institute	–	\$20,342
Taisho Pharmaceutical Co., Ltd.	–	\$20,000
Columbia University	–	\$12,846
Total	\$20,220,102	\$46,970,740

Material Transfer Agreements

Research Focus

	Outgoing Material Transfer Agreements (#)
Neurodevelopmental disorders	13
Cardiovascular disease	8
Diabetes and Obesity	22
Allergy and Asthma	1
Others	3
Total	47

Licenses

Licenses

	Total Number
Antigens/Antibodies	9
Reagents/Methods/Tools	8
Genes	3
Therapeutics	1
Total	21

Pilot Program Awardees

The purpose of the pilot program is to provide MCHDI faculty with funding for initial stages of research projects with the goal of generating sufficient data to apply for larger, external grants. Projects were encouraged that were likely to: a) improve children's health, b) promote collaboration within the MCHDI, and c) leverage additional extramural funding for the Principal Investigators (PIs). Three innovative pilot projects impacting different aspects of children's health were selected to receive a one year internal grant of \$70,000 starting on January 1, 2016.



2015-2016 Pilot Program Recipients (from left to right): Martin J. Walsh, PhD; Dorothy E. Grice, MD; Hirofumi Morishita, MD, PhD

Pilot Projects Funded for 2016

▲ Project Title: “Nsun Family RNA Methyltransferases in Pluripotency, Reprogramming and Development”

Investigators: Martin J. Walsh, PhD, MCHDI Investigator and Associate Professor of Pediatrics, Structural & Chemical Biology, and Genetics and Genomics Sciences; Jianlong Wang, PhD, Associate Professor of Developmental and Regenerative Biology

▲ Project Title: “Maternal Effects in Childhood-Onset Psychiatric Disorders”

Investigators: Dorothy E. Grice, MD, MCHDI Investigator and Professor of Psychiatry; Joseph D. Buxbaum, PhD, MCHDI Investigator and Professor of Psychiatry, Neuroscience and Genetics & Genomic Sciences; Sven Sandin, PhD, Assistant Professor of Psychiatry

▲ Project Title: “Novel Tooth Matrix Biomarker For Neurodevelopmental Susceptibility”

Investigators: Hirofumi Morishita, MD, PhD, MCHDI Investigator and Assistant Professor of Psychiatry, Neuroscience, and Ophthalmology; Manish Arora, PhD, BDS, MPH, MCHDI Investigator and Associate Professor of Preventive Medicine and Dentistry

Annual Retreat

Over 100 faculty and students attended MCHDI's 3rd Annual Retreat at the New York Academy of Medicine on November 18th. Researchers had the opportunity to present their work and receive valuable feedback, learn about the latest studies conducted within the institute, encourage research collaborations, and otherwise network among faculty and trainees. Finalists Elena Sanchez-Rodriguez, PhD (Coro Paisán-Ruiz's group) and Kathryn Manheimer, PhD candidate (Bruce D. Gelb's group) were chosen as the winners of the post-doctoral and pre-doctoral investigators competitions, respectively. This year's panel session, moderated by Dr. Ross L. Cagan, provided useful insight on the grant submission and review process. Following the panel, three newly awarded MCHDI pilot project recipients, Martin J. Walsh, PhD, Dorothy E. Grice, MD, and Hirofumi Morishita, MD presented the studies they will be undertaking in 2016. Finally, during the parent's perspective segment, John and Mary Mirkovic and their son John (JJ) shared the trials and tribulations their family experienced when JJ was born with congenital heart disease. Their journey reminded our researchers about the significance of their work and why they dedicate their careers to helping others like JJ have better outcomes with less invasive procedures.

See the full program for the Annual Retreat on the MCHDI website.



Communications

The MCHDI delivers the latest updates on research advancements, events, and news, both internally and externally via various communications channels. Visit our website and social media platforms for more information:

Website ▲ Find information about our signature programs and events such as the annual retreat, pilot program, incubator series, grant review program, and child health research day on our website. Our annual reports, newsletters, and employment opportunities are also posted at www.mountsinai.org/mchdi

Newsletter ▲ Our bi-annual newsletter is distributed internally to faculty, students, and other institute affiliates to highlight important research breakthroughs, publications, awards, and events within the MCHDI. See our latest newsletters featured on our MCHDI website.

Facebook ▲ Our official MCHDI Facebook page has close to 450 followers. Earlier this year, we launched a Child Health Social Media Campaign and polled our followers on their top three favorite child health topics. The topics that received the most votes were: 1) effects of environmental toxins 2) genetics of childhood diseases and 3) neurodevelopmental disorders. We are currently in Phase 2 of this campaign, asking our audience to submit specific questions on the selected topics. We have partnered with national health organizations such as the Children's Environmental Health Network and the Birth Defect Research for Children to promote this campaign. Visit our page at www.facebook.com/mindichchdi to follow our progress.

Twitter ▲ We are part of the Twitter community with tweets streaming on our website in real time. Follow or tweet to us @MindichCHDI or on our website at www.mountsinai.org/mchdi



From left to right: MCHDI website, newsletter, Facebook, and Twitter

Shared Resources

Grant Forward

Our institute sponsors Grant Forward subscriptions for all MCHDI faculty and trainees. Grant Forward is a pre-award funding database with a comprehensive list of federal, foundation, and other funding sources. It features a user-friendly search interface that allows you to filter by sponsor, grant, or applicant type. Users can set up automated e-mails alerts of saved search results as well as a list of recommended grants based on researcher profiles and interests. Subscribers are able to access other MCHDI member profile pages or connect with external researchers with similar research interests. Webinars and tutorials are hosted once every month to introduce site features in detail.



Transdisciplinary Center on Health Effects of Early Environmental Exposures

The Transdisciplinary Center on Health Effects of Early Environmental Exposures (grant number P30 ES023515) was established in 2014 to address environmental health impacts leading to disease from infancy through adolescence. In line with MCHDI's research aims, the Center will focus on chronic illnesses such as asthma, neurodevelopmental disorders, obesity, and diabetes and the role of chemical, genetic, nutritional, and social exposures in disease risk. The Center offers several shared core facilities to support collaborative environmental health studies across disciplines. MCHDI members Dr. Robert O. Wright and Dr. Chris Gennings are the Program Director and Deputy Director respectively.

The P30 Core center supports 3 facility cores. The Integrated Health Sciences Facility Core (IHSFC), led by Dr. Robert O. Wright, offers expert consultation on standard as well as novel exposure, epigenetic, and mitochondrial biomarkers for environmental exposure studies. The IHSFC supports the Perinatal Biobank, directed by Dr. Rosalind J. Wright and co-sponsored by the Department of Preventive Medicine and the MCHDI. The Phenotyping and Stress Assessment Facility Core (PSAFC), led by MCHDI member Dr. Rosalind J. Wright, is based in the Department of Pediatrics and the MCHDI with additional members from the Seaver Autism Center and the Jaffe Food Allergy Institute. Pediatric physicians provide clinical consultations on disease phenotyping across multiple subspecialties and topics in pulmonology, allergy/immunology, child psychiatry, metabolism, cardiology, and nephrology. Members will also have access to various tools, such as pulmonary function tests, neurodevelopmental and neurocognitive test procedures and other validated protocols to determine behavioral and physiological measures. The 3rd core on Epidemiology/Statistics/Bioinformatics is led by Dr. Paolo Boffeta and Dr. Chris Gennings. This core provides consultative support for study design and data analysis in environmental health research. A Career Development core led by MCHDI member Dr. Lisa M. Satlin supports young investigators with resources and training relevant to environmental health research. Finally, the Community Engagement Core led by Dr. Carol Horowitz provides community translational and engagement activities designed to bring Mount Sinai's research in Environmental Health into public health practice in and around New York City.

The P30 center also has a pilot program with funding opportunities for multiple \$25K and \$70K pilot grants each year. Internal pilot funding will be used to support ideas leading to larger external National Institute of Health (NIH) grants. For more information on the Center's core facilities visit their website at tcee.icahn.mssm.edu/core-facilities/



Mount Sinai *The Mindich
Child Health and
Development Institute*

Leadership and Staff

Director Bruce D. Gelb, MD

Program Manager Elena Lum, PhD

Administrative Coordinator Risa Slaughter

Executive Director of Development Monica Sohn

Faculty

Manish Arora, PhD, BDS, MPH

M. Cecilia Berin, PhD

Harold S. Bernstein, MD, PhD

James J. Bieker, PhD

Brian D. Brown, PhD

Supinda Bunyanich, MD, MPH

Joseph D. Buxbaum, PhD

Ross L. Cagan, PhD

Chen-Leng Cai, PhD

Patrizia Casaccia, MD, PhD

Jia Chen, ScD

Jaime Chu, MD

Barbara Coffey, MD, MS

Nicole C. Dubois, PhD

Dani Dumitriu, MD, PhD

David Dunkin, MD

Vilma Gabbay, MD, MS

Adolfo García-Ocaña, PhD

Bruce D. Gelb, MD

Chris Gennings, PhD

Valerie Gouon-Evans, PhD

Dorothy E. Grice, MD

Megan K. Horton, PhD, MPH

Allan C. Just, PhD

Alex Kolevzon, MD

Robert S. Krauss, PhD

Luca Lambertini, PhD

Philip J. Landrigan, MD, MSc, DIH

Xui-Min Li, PhD, MS

Ruth J.F. Loos, PhD

Madhan Masilamani, PhD

Nadia Micali, MD, PhD

Anne Moon, MD, PhD

Hirofumi Morishita, MD, PhD

Anna Nowak-Wegrzyn, MD

Coro Paisan-Ruiz, PhD

Dalila Pinto, PhD

Avi Reichenberg, PhD

Michael Rendl, MD

Jeffrey M. Saland, MD

Hugh A. Sampson, MD

Lisa M. Satlin, MD

Donald K. Scott, PhD

Andrew J. Sharp, PhD

Eyal Shemesh, MD

Scott H. Sicherer, MD

Mihaela Stefan, PhD

Annemarie Stroustrup, MD, MPH

Shanna H. Swan, PhD, MS

Yaron Tomer, MD

Rupangi Vasavada, PhD

Martin J. Walsh, PhD

Julie Wang, MD

Birte Wistinghausen, MD

Robert O. Wright, MD, MPH

Rosalind J. Wright, MD, MPH

Yong Zhao, MD, PhD

Internal Advisory Board

Joseph D. Buxbaum, PhD

Ross Cagan, PhD

Andrew J. Sharp, PhD

Robert O. Wright, MD, MPH

External Advisory Board

Scott Baldwin, MD (Vanderbilt University)

Marie Lynn Miranda, PhD (University of Michigan)

Joseph Piven, MD (University of North Carolina at Chapel Hill)

Leadership Council

Eric and Stacey Mindich

Kimara Ahnert

Henry and Vanessa Cornell

Katie Danziger

Sonia E. Gardner

Donald and Georgia Gogel

Bruce and Cara Haggerty

Michael and Beth Klein

Michael and Andre Koester

Eric and Sarah Lane

Jeffrey Lin and Jillian Salyer

Glenn Nordlinger

Robert and Ruth Rosania

Kenneth Rosh and Merideth

Schlesinger Rosh

Ricky and Mara Sandler

For more information on the MCHDI, please visit our website at

www.mssm.edu/mchdi