

12th Annual Southeastern Pediatric Research Conference

Optimizing Health Across the Lifespan Through Innovation, Discovery, and Equity



CONFERENCE PROGRAM

June 9, 2023
Georgia Aquarium

PRESENTED BY



EMORY
UNIVERSITY



12th Annual Southeastern Pediatric Research Conference

Welcome!

Dear Colleagues,

We would like to officially welcome you to the 2023 Annual Southeastern Pediatric Research Conference. Over the last 12 years, this conference has evolved from a small local event to a major regional conference bringing together clinicians, scientists, and engineers to highlight cutting edge child health research. We are pleased to welcome colleagues this year from throughout the United States, including Colorado State University, University of Alabama at Birmingham, University of Tennessee Health Science Center, University of South Florida and University of California, San Diego, as well as our colleagues throughout Georgia from institutions including Georgia State University and Mercer University.

Our theme this year is “Optimizing Health across the Lifespan through **Innovation, Discovery, and Equity,**” and is intended to bring together pediatric researchers across disciplines to share findings in support of child health and health equity. We hope the combination of presentations from local researchers and colleagues from institutions throughout the country will facilitate discussion in the area of metabolomics research and encourage transformative approaches to child health.

We encourage you to take every opportunity to connect with fellow researchers today, forge new collaborations, and continue pushing the field of child health research.

Sincerely,



Professor Jaydev P. Desai, FIEEE, FAIMBE, FASME
Wallace H. Coulter Department of Biomedical Engineering
G.P. “Bud” Peterson and Valerie H. Peterson Faculty Professorship in Pediatric Research
Director, Georgia Center for Medical Robotics
Associate Director - Institute for Robotics and Intelligent Machines (IRIM)



Erica L. Johnson, PhD
Associate Professor of Microbiology, Biochemistry, and Immunology
Associate Professor of Obstetrics and Gynecology
Co-Director, Vaccine Trials Unit and Pediatric Clinical & Translational Research Unit
Morehouse School of Medicine



Saul J. Karpen, MD, PhD, FAASLD
Raymond F. Schinazi Distinguished Biomedical Chair
Professor of Pediatrics
Center Director, GENI (Gastroenterology, Endocrinology and Nutrition Innovation)
Emory University School of Medicine & Children's Healthcare of Atlanta

TABLE OF CONTENTS

Conference Map	2
Agenda	3
Accreditation Statement	5
Keynote Speakers	6
Rapid-Fire Presentations	8
Pediatric Research Alliance Centers	11
Pediatric Research Alliance Cores	15
Other Cores	22
Pediatric Research Unit	25
Acknowledgements	26



@AtIPedsResearch | #pedsresearch2023

CONFERENCE MAP

Breakfast, Lunch & Snacks:

Buffets are in the Indian and Antarctic rooms.

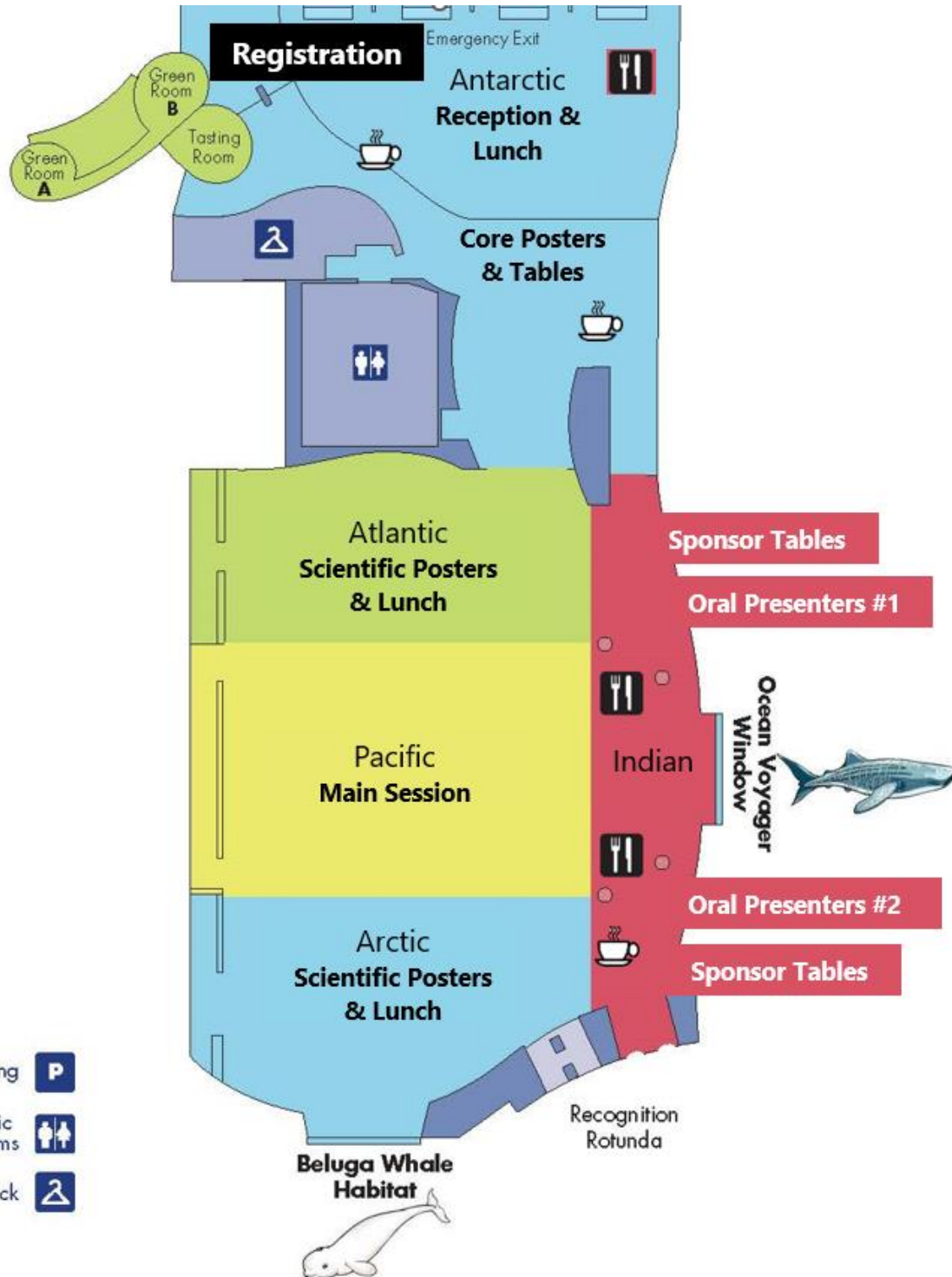
Beverage Stations: Available in the Indian and Antarctic rooms and by the core posters.

Door Prizes: Drawing will occur at 4:30 PM during the reception in the Antarctic room. Must be present to win.

Parking: Please get a validation sticker for your parking ticket at the registration desk.

Aquarium: Complimentary entrance to the aquarium for *registered conference attendees only* opens at 5:00 PM. Once you enter the aquarium, you will not be able to re-enter the ballroom. Please make sure you get a parking validation sticker before you leave the ballroom.

Nursing Room: A private nursing room is available. Please ask for directions at the registration desk.



- Parking 
- Public Restrooms 
- Coat Check 

AGENDA

MORNING SESSION

7:00 – 8:00	Registration and Continental Breakfast
8:00 – 8:05	Opening Remarks by Co-Chairs
	<p>Jaydev Desai, PhD, FIEEE, FAIMBE, FASME Wallace H. Coulter Department of Biomedical Engineering G.P. "Bud" Peterson and Valerie H. Peterson Faculty Professorship in Pediatric Research General Chair, ISMR 2023 Director, Georgia Center for Medical Robotics Associate Director - Institute for Robotics and Intelligent Machines (IRIM)</p> <p>Erica L. Johnson, PhD Associate Professor of Microbiology, Biochemistry, and Immunology Associate Professor of Obstetrics and Gynecology Co-Director, Vaccine Trials Unit and Pediatric Clinical & Translational Research Unit Morehouse School of Medicine</p> <p>Saul J. Karpen MD, PhD, FAASLD Raymond F. Schinazi Distinguished Biomedical Chair Professor of Pediatrics Center Director, GENI (Gastroenterology, Endocrinology and Nutrition Innovation) Emory University School of Medicine & Children's Healthcare of Atlanta</p>
8:05 – 8:20	Welcome from Leadership
	<p>Lucky Jain, MD, MBA George W. Brumley, Jr. Professor and Chair Department of Pediatrics Emory University School of Medicine Chief Academic Officer, Children's Healthcare of Atlanta</p> <p>Clinton H. Joiner, MD, PhD Vice Chair for Research, Department of Pediatrics Chief Research Officer, Children's Healthcare of Atlanta Aflac Children's Chair for Hematology Director, Section of Hematology Aflac Cancer and Blood Disorders Center Professor of Pediatrics, Emory University School of Medicine</p>

AGENDA

8:20 – 9:05	Early Life Origins of Diseases: Implications for Optimizing Health Across the Lifespan and Generation
	<p>Xiaobin Wang, MD, MPH, ScD Zanyvl Krieger Professor Director, Center on the Early Life Origins of Disease Department of Population, Family and Reproductive Health Johns Hopkins University Bloomberg School of Public Health Professor of Pediatrics Johns Hopkins University School of Medicine</p>
9:05 – 9:45	Ten Rapid-Fire Presentations
9:45 – 10:30	Break & Poster Session 1 (<i>Even-Numbered Posters</i>)
10:35 – 11:20	Cardiovascular Health Trajectories in Childhood
	<p>Norrina Allen, PhD, MPH, FAHA Quentin D. Young Professor of Health Policy Associate Professor of Epidemiology and Pediatrics Department of Preventive Medicine Feinberg School of Medicine, Northwestern University Director, Center for Epidemiology and Population Health Institute for Public Health and Medicine (IPHAM) Co-Director of the Data Science Hub Institute for Innovations in Developmental Sciences (DevSci)</p>
11:20 – 11:50	Dietary Sugars and Cardiometabolic Health: The Importance of Early Intervention for Long-term Prevention
	<p>Jean Welsh, PhD, MPH, RN Associate Professor, Department of Pediatrics, Emory University School of Medicine Research Director, Strong4Life, Children’s Healthcare of Atlanta Director Graduate Studies, Nutrition and Health Science Program, Laney Graduate School</p>
11:50 – 12:50	Lunch and Networking

AGENDA

AFTERNOON SESSION

12:50 – 12:55	Afternoon Welcome
	Scott Hollister, PhD Professor and Patsy and Alan Dorris Chair in Pediatric Technology Associate Chair for Translational Research Georgia Institute of Technology
12:55 – 1:40	Current Concepts on Mechanisms of Development and Progression of NASH
	Arun J. Sanyal, MD Director, Stravitz-Sanyal Institute for Liver Disease and Metabolic Health Interim Chair, Division of Gastroenterology, Hepatology and Nutrition Z. Reno Vlahcevic Professor of Medicine Professor of Medicine, Physiology and Molecular Pathology Virginia Commonwealth University School of Medicine
1:40 – 2:20	Ten Rapid-Fire Presentations
2:20 - 3:05	Break & Poster Session 2 (Odd-Numbered Posters)
3:05 – 3:35	Navigating Lifetime Challenges in Managing the Fontan Physiology and Pediatric Heart Valve Patients: Insights from a Multidisciplinary Approach
	Ajit Yoganathan, PhD Member National Academy of Engineering Emeritus Regents' Professor & Wallace H. Coulter Distinguished Faculty Chair in Biomedical Engineering Wallace H. Coulter Dept. of Biomedical Engineering Georgia Institute of Technology & Emory University
3:40– 3:50	Presentation of Poster Awards
3:50 – 4:00	Closing Remarks
4:00 - 5:00	Reception with Door Prize Drawing at 4:30 PM <i>Must be present to win</i>
5:00 – 8:00	Complimentary Aquarium Admission for Conference Participants

Accreditation Statement

The Emory University School of Medicine is accredited by the ACCME to provide continuing medical education for physicians. The Emory University School of Medicine designates this live activity for a maximum of 3.25 AMA PRA Category 1 Credit(s)[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

KEYNOTE SPEAKERS



Norrina Allen, PhD, MPH, FAHA is the Quentin D. Young Professor of Health Policy and an Associate Professor of Epidemiology and Pediatrics in the Department of Preventive Medicine at Feinberg School of Medicine. Dr. Allen is the Director of the IPHAM Center for Epidemiology and Population Health and Co-Director of the Data Science Hub of the Institute for Innovations in Developmental Sciences (DevSci). She is a leader in many of the cardiovascular prospective cohorts including MESA and CARDIA as well as consortia utilizing electronic medical records data. Her research has taken a life course approach to understanding the development of cardiovascular disease, particularly in examining blood pressure, a major risk factor for cardiovascular and

cerebrovascular disease.



Arun J. Sanyal, MD was recently appointed as Interim-Chair of the Division of Gastroenterology, Hepatology and Nutrition at VCU/VCU Health. Dr. Sanyal is a Professor of Medicine, Physiology and Molecular Pathology. Dr. Sanyal also serves as Chair of the NIH NASH Clinical Research Network, the NIMBLE consortium and the Liver Forum for NASH and fibrosis. His research interests include all aspects of NAFLD and NASH as well as complications of cirrhosis and end stage liver disease. He has been continuously funded by the NIH since 1995 and has over 350 peer reviewed publications with a H-index of 116. He was recently ranked in top 0.01% of medical scientists based on their impact on the field (PlosBio 2019). He has served in several leadership roles nationally and globally including

Chair of the Hepatobiliary Pathophysiology Study Section of the NIH, Secretary and then President of the American Association for Study of Liver Disease, founding member of the American Board of Internal Medicine Transplant Hepatology board examination and member of WHO advisory council on viral hepatitis. He is the co-founder and academic chair of the Liver Forum which is a platform to bring regulatory agencies (FDA and EMA) with industry and academics to accelerate drug development for NASH and advanced liver disease. He is currently engaged in numerous clinical trials and leads several phase 2B and 3 trials for NASH as well as complications of end stage liver disease. His contributions have been recognized by receiving the Distinguished Mentorship Award from the American Gastroenterological Association and the Distinguished Scientific Achievement Award from the American Liver Foundation in 2017 and the Distinguished Achievement Award from the AASLD in 2018.



Xiaobin Wang, MD, MPH, ScD is the Zanyvl Krieger Professor in Child Health, Director of the Center on the Early Life Origins of Disease at Johns Hopkins University Bloomberg School of Public Health, and Professor of Pediatrics and a board-certified pediatrician at Johns Hopkins School of Medicine. Dr. Wang has devoted her entire career to improve maternal and child health across the life course. She established the Boston Birth Cohort (BBC), consisting of predominantly US urban, low income, underrepresented minority mothers and children (N~8,700 dyads, ~60% Black, ~25% Latinx), funded continuously by the NIH for 20+ years. Dr. Wang has served as the PI of a dozen NIH funded large-

scale molecular epidemiological studies and led multi-institution teams to investigate environmental, nutritional, genomic, epigenomic, proteomic, and metabolomic factors during critical developmental windows aiming to identify early life origins of major pediatric and adult chronic diseases to inform early risk assessment and primary prevention. Dr. Wang has published over 350 peer-reviewed articles; many appear in high impact medical and public health journals. She is an elected member of the National Academy of Medicine.

KEYNOTE SPEAKERS



Jean Welsh, RN, MPH, PhD is an Associate Professor in Emory's Department of Pediatrics. She also serves as the Co-Director of the Nutrition and Health program in Laney Graduate School and the Research Director for the Strong4Life Initiative at Children's Healthcare of Atlanta. Dr. Welsh is a nutrition and health scientist whose research agenda is focused on identifying diet and diet-related factors that increase children's risk of obesity and chronic disease and informing the development of sustainable strategies for reducing this risk. Current studies include: a randomized clinical trial to determine if a low-sugar diet is effective in preventing hepatic fat accumulation in pre-adolescents at high risk of non-alcoholic fatty liver disease

(NAFLD); an analysis of data from a 28 year birth cohort to assess the impact of early feeding practices and later cardiometabolic risk; and two community-based studies, one to determine if an intervention to improve the infant feeding education provided to parents as part of well-child visits increases parent compliance with recommendations and one to assess the feasibility and impact of a primary healthcare clinic and Parks and Rec department collaboration to provide an evidence-based and sustainable obesity treatment program for school-age children in Georgia.



For over 45 years, **Ajit Yoganathan, PhD**, has been a pioneer in basic and translational cardiovascular research, especially experimental and computational fluid mechanics as it pertains to artificial heart valves, the whole heart, and congenital heart diseases. His work involves the use of optical techniques such as laser Doppler velocimetry, digital particle image velocimetry, and clinical tools such as cardiac ultrasound and magnetic resonance imaging to non-invasively study and quantify blood flow patterns and parameters in the cardiovascular system, both on the bench and in vivo. In his effort to take an interdisciplinary and translational approach to his research, Dr. Yoganathan has established collaborations with clinicians, scientists, and industry professionals world-

wide and has played an important role in the development of U.S. and international standards for cardiovascular devices as Chair of the Cardiovascular Sub-Committee (SC2), International Standards Organization Technical Committee (TC 150) on Implants for Surgery since 2005. He has published over 40 book chapters and 450 peer reviewed articles in leading scientific journals; has given over 300 invited talks around the world; has more than 20 issued patents; and has mentored more than 50 doctoral students, 35 master's students, and 40 post-doctoral trainees. Dr. Yoganathan has received a number of high honors and awards including membership to the prestigious National Academy of Engineering, the ASME H. R. Lissner Award in Bioengineering; the ASEE Theo Pilkington Award for Biomedical Engineering Education; the BMES Robert A. Pritzker Distinguished Lectureship Award; the AIMBE Professional Impact Award for Education; and the Heart Valve Society's Inaugural HVS Lifetime Achievement Award. He is also a Founding Fellow of the American Institute of Medical and Biological Engineering (AIMBE), an Honorary Fellow of the American Association of Thoracic Surgery (AATS), and a Fellow of both the American Society of Mechanical Engineers (ASME) and the Biomedical Engineering Society (BMES). It is noteworthy to mention that since 1975, all prosthetic heart valves implanted in the U.S. – more than two dozen valve designs - have been studied and evaluated in Dr. Yoganathan's Cardiovascular Fluid Mechanics lab.

RAPID-FIRE PRESENTATIONS

Click [here](#) to view the full Abstract Book, including all oral presentation abstracts and poster abstracts.

SESSION 1 - 9:05 – 9:45

Presenter	Title
Sarah Creveling, MS Assistant Georgia Southern University	A Comparison of Health Care Transition among Children with Cerebral Palsy, Developmental Disabilities, and Typically Developing Children
Venkata Edara, PhD Postdoctoral Fellow Chahroudi Lab Department of Pediatrics Emory University School of Medicine	Single Cell RNA-Sequencing Reveals Neurological Perturbations in Postnatally ZIKV-infected Infant Rhesus Macaques
Duke Geem, MD, PhD Fellow Kugathasan Lab Pediatric Gastroenterology, Hepatology, and Nutrition Emory University School of Medicine Children’s Healthcare of Atlanta	Pro-Inflammatory SIRPa-Expressing Monocytes and Macrophages Mediate Anti-TNF Refractory Crohn’s Disease in Children
Dunia Hatabah, MD Postdoctoral Fellow Department of Pediatrics Division of Emergency Medicine Emory University School of Medicine	Longitudinal Surveillance of SARS-CoV-2 (SARS) IgG Antibodies in Pediatric Healthcare Workers (HCW)
Tyana Joseph PhD/MSCR Student, Dr. Erica L. Johnson’s Lab Microbiology, Biochemistry, and Immunology Morehouse School of Medicine	Melatonin Modulates HCMV Infection at the Maternal-Fetal Interface by Decreasing NLRP3 Expression
Lily Kamat Wallace H. Coulter Department of Biomedical Engineering at Emory University and Georgia Tech & Department of Pediatrics, Aflac Cancer and Blood Disorders Center of CHOA and Emory University	Low-cost Microfluidic Device Capable of Producing Rapid Colorimetric Results for Detection of Pediatric Carbapenem Resistant Enterobacteriaceae (CRE) Infections
Vasantha Kolachala, PhD Scientist, Asc Kugathasan Lab Pediatric Gastroenterology, Hepatology, and Nutrition Emory University School of Medicine Children’s Healthcare of Atlanta	Spatial and Single Cell Transcriptomic Analysis of Crohn’s Disease Ileal Mucosa Reveals Changes in Cellular Crosstalk During Inflammation

RAPID-FIRE PRESENTATIONS

<p>Robert Lisac, MD Pediatric Hematology / Oncology Fellow Aflac Cancer and Blood Disorders Center Children’s Healthcare of Atlanta Emory University School of Medicine</p>	<p>Steroid-Associated Adverse Events are Dose-Dependent Following Hematopoietic Cell Transplantation for Pediatric Acute Lymphoblastic Leukemia</p>
<p>Paola A. Morales, MD Incoming General Surgery Resident Emory University School of Medicine</p>	<p>Hyperoxia During Venovenous Extracorporeal Life Support Due to Cardiopulmonary Failure is Associated with Mortality in Neonatal and Pediatric Patients</p>
<p>Lauren Zhou, BS PhD Student, Dr. W Hong Yeo’s Lab Bio-Interfaced Translational Nanotechnology Group Georgia Institute of Technology</p>	<p>Soft Imperceptible Wearable Electronics for Cardiovascular Monitoring of Infants with Single Ventricle Heart Disease</p>

SESSION 2 – 1:40 – 2:20

Presenter	Title
<p>Ruhika Aguru, BS Research Assistant Pediatric Neurotrauma Lab Children’s Healthcare of Atlanta</p>	<p>The Relationship Between Child Opportunity Index and Mortality in Pediatric Patients with Intracranial Firearm Injuries</p>
<p>Yared Alemu, PhD Founder/CEO, TQIntelligence Adjunct Clinical Instructor Department of Psychiatry and Behavioral Sciences Morehouse School of Medicine</p>	<p>The Use of AI to Address Pediatric Mental Health Crisis</p>
<p>Carmen M. Dickinson-Copeland PhD, MSCR Assistant Professor Department of Microbiology, Biochemistry, and Immunology Morehouse School of Medicine</p>	<p>High-Resolution Ensemble Prediction: Percentage of Children with Blood Lead Levels $\geq 5\mu\text{g/dL}$ and $2\text{--}5\mu\text{g/dL}$ in the Metro Atlanta Region</p>
<p>Mark Geil, PhD Wellstar College of Health and Human Services Kennesaw State University</p>	<p>Kinetics of Infant Crawling: Preliminary Results</p>
<p>Delaney Geitgey, BS PhD Candidate, Cancer Biology, Henry Lab Emory University, Laney Graduate School</p>	<p>Adipocyte-secreted Purines Inhibit T-cell Function and Alter In Vitro Leukemia Cell Cycle Dynamics in B-cell Acute Lymphoblastic Leukemia</p>

RAPID-FIRE PRESENTATIONS

<p>Kevin Maher, MD Professor of Pediatrics, Emory University School of Medicine Interim Co-Chief, Critical Care Medicine, Children’s Healthcare of Atlanta Executive Director, Cardiac Intensive Care, Children’s Healthcare of Atlanta Adjunct Professor of Biomedical Engineering, Georgia Institute of Technology</p>	<p>Focused Cardiac Ultrasound in the Pediatric Cardiac ICU: The Modern Physical Exam Using Portable Ultrasound</p>
<p>Owais Ahmed Khan, PT Department of Kinesiology University of Georgia</p>	<p>Accuracy Deficits During Reaching are Related to Altered Prefrontal Cortex Activity in Children with Cerebral Palsy</p>
<p>Caitlin Kjeldsen, PhD Research Music Therapist Emory University School of Medicine</p>	<p>Mother's Voice Intervention Results in Increased Attention in Infants with Neural Insults</p>
<p>Alp Köksal, BA Donald J. Cohen Pre-Doctoral Fellow in Developmental Social Neuroscience Marcus Autism Center Emory University School of Medicine</p>	<p>Parent-Caregiver Reports Demonstrate Inconsistencies in Timing of Social Milestone Acquisition in Typical Development vs. Autism Spectrum Disorder</p>
<p>Fatima Waseem, MPH Emory College of Arts and Sciences</p>	<p>SNAP Restrictions for Drug Felons: A Recipe for Food Insecurity among US Children</p>

PEDIATRIC RESEARCH ALLIANCE CENTERS

Click [here](#) to learn more about the Pediatric Research Centers

Aflac Cancer and Blood Disorders Center

Director: Douglas K. Graham, MD, PhD

As one of the leading pediatric oncology, hematology, and blood and marrow transplant programs in the country, the Aflac Cancer and Blood Disorders Center of Children's Healthcare of Atlanta and Emory University is committed to developing new techniques, treatments, and cures to advance research and medicine in pediatric hematology/oncology. Through collaborative relationships with Winship Cancer Institute of Emory University, Georgia Institute of Technology, and the Centers for Disease Control and Prevention, our more than 100 physicians and researchers study the following fields: Blood and Marrow Transplant (BMT), brain tumors, cancer survivorship, cell and gene therapy, hemostasis and thrombosis, leukemia and lymphoma, psychology, sickle cell disease, solid tumor, and transfusion medicine.

Center for Childhood Infections and Vaccines (CCIV)

Director: Ann Chahroudi, MD, PhD

Atlanta is a leading global center of infectious diseases research, rooted in research strengths at Emory University and the Centers for Disease Control and Prevention (CDC). Investigators from several additional institutions add to strengths in this area, including Georgia Tech, Morehouse School of Medicine, The University of Georgia, and the Medical College of Georgia. Children's Healthcare of Atlanta builds on these strengths through the Center for Childhood Infections and Vaccines (CCIV), working with partner institutions, to address major childhood infectious diseases through innovative research into microbial pathogenesis, immune responses in children, and the development of new vaccines and therapeutics. CCIV has five integrative focus areas designed to build new collaborations that lead to sustainable research programs, new grant opportunities, and important scientific discoveries. These focus areas include basic immunology and assay development, HIV research, respiratory and emerging pathogens, antimicrobial resistance and stewardship, and clinical trials.

Center for ViroScience and Cure (CVC)

Directors: Baek Kim, PhD and Stefan Sarafianos, PhD

The mission of the Center for ViroScience and Cure (CVC) is to develop therapeutic and curative strategies that improve the lives of many who are battling acute, chronic, and difficult-to-treat virus infections and related complications. Our researchers have been highly successful in developing small molecules, from discovery to clinical use, for treating devastating human viral infections. These human viral infections include HIV/AIDS, HCV, HBV, SARS-CoV-2, Monkeypox, Ebola, Zika, Influenza, Norovirus, and others.

PEDIATRIC RESEARCH ALLIANCE CENTERS

Center for Clinical and Translational Research (CCTR)

Directors: Claudia R. Morris, MD, FAAP and Miriam Vos, MD, MSPH

The Center for Clinical and Translational Research (CCTR) is the virtual home for pediatric clinical and translational research. The Center supports innovative clinical research studies and the translation of basic science discoveries into improved child health. The Center integrates closely with the Georgia Clinical and Translational Science Alliance (Georgia CTSA), an NIH/NCRR-sponsored component of the CTSA network. The Center offers many services related to conducting clinical research, including protocol scientific consultation, assistance with research/data safety monitoring plans, FDA regulatory consultation, clinical research resources (i.e., research education), research administration operations, and assistance with clinical and translational research growth.

Center for Cystic Fibrosis and Airways Disease Research (CF-AIR)

Directors: Nael McCarty, PhD and Benjamin T. Kopp, MD, MPH

The Center for Cystic Fibrosis and Airways Disease Research (CF-AIR), a component of Emory+Children's CF Center of Excellence (CF@LANTA), is dedicated to establishing a comprehensive program that enhances quality of life and longevity for individuals affected by CF and other airway diseases. Our aim is to be recognized as the top CF program, excelling in research, clinical care, and education. CF-AIR's research covers pulmonary and non-pulmonary aspects of CF, including CF-related bone disease (CFBD), liver disease (CFLD), diabetes (CFRD), mental health, and gastrointestinal issues. Additionally, we investigate asthma, COPD, and non-CF bronchiectasis. CF-AIR embraces interdisciplinary approaches and methodologies to achieve precision medicine and long-term disease management for individuals living with CF and other airway diseases.

Center for Gastroenterology, Endocrinology, & Nutrition Innovation (GENI)

Director: Saul Karpen, MD, PhD, FAASLD

The Center for Gastroenterology, Endocrinology & Nutrition Innovation (GENI) aims to address the causes and consequences of the growing epidemic of childhood obesity, and consequent metabolic impairments like type 2 diabetes, through research into contributions from genetic, environmental, nutritional, and lifestyle factors. A primary focus is on the relationship of weight issues beginning in childhood that can lead to the development of a large portion of society with serious liver disorders, cardiovascular disease, diabetes, and early-onset cancers as young adults. GENI's overarching goal is to identify children at risk for these disorders/diseases, develop new diagnostic and treatment approaches, and change the life trajectories of these children toward a healthier future.

PEDIATRIC RESEARCH ALLIANCE CENTERS

Center for Immunity and Applied Genomics (CIAG)

Directors: Subra Kugathasan, MD and Greg Gibson, PhD

The Children's Center for Immunity and Applied Genomics (CIAG) is a multi-faceted center that focuses on both rare and complex disorders and works closely with physicians and researchers from Children's Healthcare of Atlanta, Emory University, and the Georgia Institute of Technology. In parallel with advances in genomics and other omics, which drives the increased application of precision medicine, CIAG is working to create personalized management plans to effectively manage, prevent complications, improve outcomes, and enhance the quality of life in both monogenetic and polygenetic forms of diseases, while developing precision therapeutics through pharmacogenomics and tailoring drug therapies to each patient's genetic and other omics makeup.

Children's Center for Neurosciences Research (CCNR)

Director: Timothy Gershon, MD, PhD; **Associate Director:** Stacy Heilman, PhD

The Children's Center for Neurosciences Research (CCNR) aims to promote translational pediatric neuroscience research. We seek to build multidisciplinary research teams that can bring insight from developmental neuroscience to the benefit of children with neurologic disorders. Areas of interest include epilepsy, sickle-cell anemia-associated stroke, neonatal brain injury, brain tumors, traumatic brain injury, developmental delays, and neuromuscular disorders. CCNR also provides education, seed funding, opportunities for collaboration, and resources and support.

Clinical Outcomes Research and Public Health (CORPH)

Interim Directors: Shasha Bai, PhD and Ann Mertens, PhD, MS

The Center for Outcomes Research and Public Health (CORPH) is a research center within the Department of Pediatrics at Emory University and Children's Healthcare of Atlanta focused on clinical outcomes and public health that promotes the development and oversight of high-quality epidemiologic and clinical research. Outcomes research seeks to link the health care that people receive with their experienced outcomes, with the hope of developing better ways to monitor and improve the quality of care. With strong ties to the Rollins School of Public Health at Emory University and to the Centers for Disease Control and Prevention, CORPH also identifies established investigators to mentor young investigators interested in pursuing careers in clinical research.

PEDIATRIC RESEARCH ALLIANCE CENTERS

Children's Heart Research and Outcomes Center (HeRO)

Director: Mike Davis, PhD; **Associate Director:** Holly Bauser-Heaton, MD, PhD

The Heart Research and Outcomes Center (HeRO) seeks to reduce the morbidity of pediatric heart disease by leading the transformation of focused cardiac research into innovative therapies for young patients. Major areas of research include regenerative and nanomedicine technologies, cardiac development, cardiac outcomes, cardiac devices, and neurodevelopmental studies. HeRO's various research programs blend fundamental basic science with translational and clinical medicine to improve the quality of life of children with congenital heart disease.

Marcus Autism Center

Director: Ami Klin, PhD

As one of the largest autism centers in the U.S., Marcus Autism Center offers families access to the latest research, comprehensive testing, and science-based treatments. We conduct research into why and how autism develops by studying the different trajectory for each child, and we establish evidence for best clinical practices. Areas of research focus include advancing autism treatment and care, clinical trials, early brain development, education science, neuroimaging, social neuroscience, and spoken communication. Our work translates research findings from the lab directly to the patient.

Marcus Center for Pediatric Advanced Cellular Therapy (MPACT)

Director: Edwin M. Horwitz, MD, PhD

The Marcus Center for Pediatric Advanced Cellular Therapy (MPACT) provides the leadership and expertise necessary to facilitate the successful translation of the use of cellular therapies into treatments and cures for childhood diseases. The Center will provide an academic home for the entire spectrum of investigators working in cell therapy. MPACT will develop and maintain a broad portfolio of investigator-sponsored Investigational New Drug Applications (INDs). The overall goal of this center is to streamline the translation of scientific discoveries into early clinical trials.

PEDIATRIC RESEARCH ALLIANCE CORES

Click [here](#) to learn more about the Pediatric Research Cores
Visit the core posters during Poster Sessions

Animal Physiology Core

Scientific Director: David Archer, PhD; darcher@emory.edu

Technical Director: Ming Shen; mshen@emory.edu

Location: Emory University

The Animal Physiology Core provides pediatric researchers with services and equipment to develop and characterize animal models relevant to investigating pediatric diseases. We perform acute and survival surgery for small animals such as rats and mice. Surgical services include pulmonary and aortic banding, myocardial infarction, hindlimb ischemia, and ultrasound guided injection for targeted drug delivery or cell therapy. Our Visualsonics Vevo 3100 High Frequency Ultrasound system provides high-resolution small animal ultrasound examinations for noninvasive measurement of *in vivo* structure and function. Comprehensive cardiac exams, characterization of liver and kidney blood flow, measures of arterial stiffness, and imaging of tumor growth are some examples of available services.

Additionally, the Vevo LAZR add-on system incorporates photoacoustic imaging into high-resolution ultrasound allowing for anatomical, functional, and molecular imaging. The directors also work with investigators to develop new surgical and imaging techniques to meet their needs.

Atlanta Single-cell Omics and Analytics Initiative (ASCOMAI)

Director: Manoj Bhasin, PhD; manoj.bhasin@emory.edu

Contact: Debra Hamilton, MA, PsyS; debra.r.hamilton@emory.edu

Location: Emory University

The ASCOMAI bioinformatics team offers comprehensive computational pipelines and services for the analysis of single cell data. Our data analysts will work collaboratively with researchers/investigators starting from experimental design consultation and planning to provide solutions for a variety of data analysis challenges using standard as well as custom-designed workflows.

PEDIATRIC RESEARCH ALLIANCE CORES

Cardiovascular Imaging Research Core (CIRC)

Medical Director: Ritu Sachdeva, MD; sachdevar@kidsheart.com

Contact: Tara Edwards, MBA; tara.edwards@choa.org

Location: Children's Healthcare of Atlanta

Cardiovascular Imaging Research Core (CIRC) provides non-invasive cardiovascular imaging support for investigators involved in clinical research involving infants, children and adolescents. The CIRC has dedicated space, equipment and experienced staff to provide high quality cardiovascular imaging services as well as post-processing of previously acquired images using specialized software. These services include performance of a routine complete or limited congenital or non-congenital two-dimensional echocardiography, color and spectral Doppler imaging; advanced echocardiographic imaging including three-dimensional echocardiography, tissue Doppler imaging, strain and strain rate imaging; stress echocardiography and cardiac magnetic resonance imaging. CIRC has also launched a program for assessment of vascular health in pediatric patients that includes non-invasive assessment of endothelial function using brachial artery flow-mediated dilation, measurement of arterial stiffness using applanation tonometry and assessment of structural arterial changes using carotid imaging. In 2015, CIRC expanded our research administration offerings to include data coordinating center and core imaging site capabilities for multi-center studies.

Clinical and Translational Discovery Core

Scientific Director: Christopher Porter, MD; chris.porter@emory.edu

Technical Director: Uyen (Mimi) Le, PhD; uqle@emory.edu

Location: Emory University

The Clinical and Translational Discovery Core offers support to investigators conducting basic science, epidemiologic, translational, and clinical research. The CTDC provides: clinical sample processing and storage services for their subsequent use in hypothesis-driven clinical research, access to a variety of human biological specimens from both healthy control participants and patients with a variety of diagnoses, and support and advice on the conduct of clinical trials from initial study design and planning through the implementation and interpretation of molecular assays of drug targets and genomic correlates of disease. Our mission is to support and compliment the research efforts of qualified investigators by providing laboratory research services and access to biological samples that represent a variety of diagnoses and healthy volunteers.

PEDIATRIC RESEARCH ALLIANCE CORES

Cystic Fibrosis Discovery Core

Director: Arlene Stecenko, MD; astecen@emory.edu

Co-Director: Lokesh Guglani, MD; lokesh.guglani@emory.edu

Contact: Chris Driggers; wdrigge@emory.edu

Location: Emory University

The CF Discovery Core accelerates CF research by providing researchers access to patient clinical samples through the CF Biospecimen Repository (CF-BR), along with valuable clinical data. The Core ensures scientific rigor and high-quality research through a dedicated Research Oversight Committee consisting of biostatisticians, clinicians, and researchers.

By studying CF disease pathogenesis and addressing pulmonary and non-pulmonary conditions such as CF-related bone disease (CFBD), liver disease (CFLD), diabetes (CFRD), mental health concerns, and GI issues, the Core aims to enhance CF care, treatment, and co-morbidity prevention. This necessitates interdisciplinary approaches for precision medicine and long-term disease management. Ultimately, the Core strives to translate scientific discoveries into tangible benefits for people with CF.

General Equipment Core

Core Director: Kira Moresco, MS; kira.moresco@emory.edu

Location: Emory University

The General Equipment Core and Specimen Processing is located within Emory-Children's Center (ECC) and the Health Science Research Building (HSRB). It provides access to shared equipment to all Emory and Children's affiliated investigators. Shared equipment includes ultracentrifuges, RT-PCR, gel documentation systems, TopCount system, developer, and specimen processing resources.

Grant Editing & Manuscript Support Core (GEMS)

Core Director: Julie Hawk, PhD; julie.lollar.hawk@emory.edu

Location: Emory University

The GEMS Core started with the mission to support child health researchers in both grant proposal and manuscript submissions. The mission has grown to include full-service proposal development services; support for the research aspects of career development; curriculum development and training for all stages of a research career; and the active facilitation of a thriving research culture within the Pediatric Research Alliance, particularly focused on breaking down siloes and encouraging collaboration across disciplines. Staffed with experts from various disciplines, the GEMS core values evidence-based practice and focused collaboration among researchers, disciplines, units, and institutions.

PEDIATRIC RESEARCH ALLIANCE CORES

Emory + Children's Health Informatics Core

Director: Evan Orenstein, MD; evan.orenstein@choa.org

Co-Director: Naveen Muthu, MD; naveen.muthu@choa.org

Location: Emory University

The Emory + Children's Health Informatics Core (HIC) provides state-of-the-art informatics expertise to quality improvement advocates and investigators aiming to leverage electronic health record (EHR) data and related technologies for research, multicenter collaboration, and interventions to promote health in children. It aims to accelerate data-driven insights and technologies that improve outcomes for kids, families, and clinicians. The HIC sits under CORPH with leadership in the Emory + Children's Pediatric Institute and engineering and research staff spanning Emory and Children's.

The HIC is divided into three units:

1. **The Data Delivery Unit** (DDU) aims to reduce the time from question to insight for clinical researchers and quality improvement advocates at Emory + Children's and their partners. It focuses on extracting data from the EHR for research-specific and multicenter quality collaborative requests, including data available in existing self-service tools, extracts from standardized databases for multicenter collaboration (e.g. Observational Medical Outcomes Partnership, OMOP), and/or custom requests. The DDU is led by a physician informaticist with expertise in clinical workflows, EHR data models, and extraction techniques. The DDU also includes data analysts with experience in Structured Query Language, EHR data models, and familiarity with OMOP and other tools.
2. **The Innovation Unit** (IU) aims to collaborate with researchers and innovators to produce technology-enabled care that demonstrably improves outcomes for kids, families, and clinicians. It focuses on translating novel ideas into pilot technologies that can be tested iteratively, de-risked, and scaled up if successful. The IU is led by a physician informaticist with expertise in usability, clinical decision support, study design and improvement methodologies, data extraction, and multicenter collaboration.
3. **The Collaboration Unit** (CU) is responsible for the technical infrastructure to accelerate activities of both the DDU and the IU. These include developing and maintaining databases for multicenter collaboration (e.g. OMOP), storage and accessibility of high frequency data (e.g. waveforms) for predictive analytics, database connections and linkages for analytics and innovation purposes, and charting a roadmap to reduce barriers for ongoing innovative informatics research.

PEDIATRIC RESEARCH ALLIANCE CORES

Integrated Cellular Imaging Core

Scientific Director: Adam Marcus, PhD; aimarcu@emory.edu

Core Director: Laura Fox-Goharioon; lfoxgoh@emory.edu

Location: Emory University

The Integrated Cellular Imaging Core (ICI), one of the Emory Integrated Core Facilities (ICF), is housed in five main locations within the central research and clinical area of Emory's campus the ICI hosts 21 microscopes and 5 workstations in approx. 3400 sq ft of scope room, wet space, and bench space. Each location has available wet space for basic preparations, in addition to being located within close proximity to multiple lab spaces, allowing for easy access to researchers own preparation areas. We house 21 different microscopes ranging from basic widefield setups to the more advanced and cutting edge. These include confocal, spinning disk, multiphoton, super-resolution (SIM and STED), and light sheet (including a 3i lattice light sheet and Miltenyi Blaze LFOV), with 13 systems (including at least from each modality) equipped for live cell conditions.

Laboratory and Pathology Clinical Research Core

Director: Beverly Rogers, MD; Beverly.Rogers@choa.org

Contacts: Bethany Watson and Cali Hulseley; labresearchcoordinator@choa.org

Location: Children's Healthcare of Atlanta

The Children's Healthcare of Atlanta Laboratory and Pathology Clinical Research Core provides clinical laboratory testing, specimen processing, research histology, and de-identified tumor bank specimens to investigators conducting research at CHOA (Egleston and Scottish Rite) and affiliated organizations. The lab currently provides services for over 80 actively enrolling studies since merging with the CHOA core lab in January 2015. It has a tiered pricing schedule, which is based on individual study sponsors and the time required for processing and shipping. The clinical research technologists are all IATA and CITI trained to ensure research samples are processed accurately and shipped to laboratories around the world following federal regulations.

Our Core also includes the Ian's Friends Foundation (IFF) Brain Tumor Biorepository established to collect, culture, and distribute pediatric brain tumor cell cultures for research studies with CHOA IRB approval and patient consent. The goal of IFF is to make these cultures available free of charge except for shipping to research investigators working on advancing the molecular understanding and treatment of pediatric brain tumors.

PEDIATRIC RESEARCH ALLIANCE CORES

Pediatric Biomarkers Core

Scientific Director: Lou Ann Brown, PhD; lbrow03@emory.edu

Technical Director: Frank Harris; fharris@emory.edu

Location: Emory University

The Pediatric Biomarkers Core provides the equipment and technical expertise to assay samples using methods that combine the features of gas or liquid chromatography and mass spectrometry. These core services are applicable to a wide variety of sample types and will allow small-molecule metabolite profile identification. The Core has a Thermo Scientific Vanquish UHPLC/TSQ Quantis triple quadrupole mass spectrometer, a Thermo ISQ 7000 gas chromatograph/single quad mass spectrometer and three Waters High Performance Liquid Chromatographs with fluorescence, UV and electrochemical detectors.

The Biomarkers Core currently performs analysis of biomarkers of oxidative stress including reduced and oxidized glutathione, cysteine, cystine, amino acids, polyunsaturated fatty acids, isoprostanes, hydroxynonenal and malondialdehyde. This core also analyzes Fatty Acid Ethyl Esters, Phosphatidylethanol and Ethyl Glucuronide/Ethyl Sulfate from biological samples such as plasma, meconium, hair, placenta and bronchoalveolar lavage as markers of alcohol use and exposure. The core is located in the Emory-Children's Center.

Pediatric Biostatistics Core

Director: Shasha Bai, PhD; shasha.bai@emory.edu

Associate Director: Scott Gillespie, MS, MSPH; scott.gillespie@emory.edu

Location: Emory University

The Pediatric Biostatistics Core was established in 2009 with a mission to support pediatric researchers at Emory University, Children's Healthcare of Atlanta, and child health researchers at partner Atlanta area institutions. The Core provides in-house assistance and collaboration in study design, grant applications, protocol development, data analysis, publication preparation, and statistical education. In addition, the core also provides access to expertise using qualitative research methods including aid in the design, collection, and analysis of data collected through qualitative methodologies and approaches such as focus groups, interviews, and observations.

Under the direction of Shasha Bai, PhD, MS (Director) and Scott Gillespie, MS, MSPH (Associate Director), the Core has a total of 7 Doctoral and Master's level biostatisticians that supports a diverse child health research portfolio.

PEDIATRIC RESEARCH ALLIANCE CORES

Pediatric Heart Diseases Data Registry Core

Scientific Director: Lazaros Kochilas, MD; lazaros.kochilas@emory.edu

Contact: Susan Anderson, CCRP; scande9@emory.edu

Location: Emory University

The Pediatric Heart Diseases Data Registry Core (PHDDR) provides access to the rich collection of data from the Pediatric Cardiac Care Consortium (PCCC). The PCCC includes outcome events from surgical, catheter-based, and electrophysiologic interventions for multiple pediatric heart diseases. Between 1982 and 2011, over 300,000 event outcomes from over 140,000 patients have been collected. This core provides consultation assistance and can run queries and compile data for research investigators wishing to perform outcome studies related to pediatric heart diseases. Forms for requests of research projects can be found at www.pedsresearch.org/research/cores/phddcore and submitted for consideration to the staff of PHDDR.

Pediatrics and Winship Advanced Flow Cytometry Core

Scientific Director: David Archer, PhD; darcher@emory.edu

Technical Director: Aaron Rae; ajrae@emory.edu

Location: Emory University

The Pediatrics/Winship Flow Cytometry Core is shared resource laboratory open to all researchers with locations in HSRBI and the Winship Cancer Institute buildings B & C. The Core provides education, training, experiment and panel design, cellular analysis on nine analyzers and, cell sorting up to BSL2+ level on two instruments. There are four Cytek Aurora spectral analyzers matched to a spectral cell sorter and three BD BioSciences Symphony analyzers matched to an Aria cell sorter. Imaging cytometry is provided on an Amnis ImageStreamX MkII with 10 channels and brightfield imaging. The Core supports clinical trial specimen processing, sample acquisition and data analysis and has recently been recognized by the International Society for the Advancement of Cytometry for excellence in operations, one of 14 SRLs worldwide to gain this recognition. Please contact Aaron Rae and the staff to discuss your future cytometry needs.

OTHER CORES

Center for Systems Imaging Core

Director: John Oshinski, PhD; jnoshin@emory.edu

Location: Emory University

The Center for Systems Imaging Core (CSIC), one of the Emory Integrated Core Facilities (EICF), provides state-of-the-art research and pre-clinical human and animal imaging to the Emory community. The CSIC supports the Center for Systems Imaging (CSI), which is the cross-disciplinary scientific, administrative, and educational home for imaging science at Emory University. The goals of this center are to: (1) support the advancement of scientific research focused on the development of imaging biomarkers, (2) promote the development and application of biomedical imaging technology particularly magnetic resonance imaging, (3) provide core services for human and animal imaging studies, and (4) to build cross-cutting educational and training programs

The major imaging equipment housed at CSIC includes: a State licensed radiochemistry lab, a 18 MeV GE PETtrace cyclotron, three 3T MRI (Siemens Prisma) scanners and one 7T MRI (Siemens Terra) scanner, a GE3T PET/MRI scanner, a Siemens Biograph PET/CT system, a XCT 2000 (qCT) scanner, an Inveon micro PET-CT system, and two Bruker small animal MRI scanners (9.4T and 11.7T).

Emory Integrated Core Facilities

Director: Adam Marcus, PhD; aimarcu@emory.edu

Location: Emory University

The Emory Integrated Core Facilities (EICF, www.cores.emory.edu) include 16 core facilities and the Division of Animal Resources that provide Emory investigators access to the latest cutting-edge platforms. These platforms support animal, big data, multi-omics, and imaging research tools used in a wide variety of research applications.

Emory Integrated Genomics Core

Director: Lyra Griffiths, PhD; lmbooke@emory.edu

Location: Emory University

The Emory Integrated Genomics Core (EIGC), one of the Emory Integrated Core Facilities (EICF), is supported by the Winship Cancer Institute, the Georgia Clinical & Translational Science Alliance, and the Emory University School of Medicine. We help investigators use the latest genomics technologies in their research.

OTHER CORES

Emory Integrated Lipidomics and Metabolomics Core

Director: Eric Ortlund, PhD; eortlund@emory.edu

Contact: Kristal Maner-Smith, PhD; kmaners@emory.edu

Location: Emory University

The Emory Integrated Lipidomics and Metabolomics Core (EILMC) facility provides quantitative lipidomics and small metabolites analyses on samples from a wide variety of biological matrices, e.g. blood, serum, plasma, solid tissues, cell extracts, etc., to support both clinical and basic research efforts on campus. These analyses will provide insight on signalling molecules whose abundance can be monitored as biomarkers to predict and follow progression of a wide range of diseases, such as metabolic disorders (e.g., obesity, Type II diabetes, and NAFLD), neurodegenerative diseases (e.g., Alzheimer's Disease and Parkinson's Disease), and cancer (e.g., prostate cancer and breast cancer).

Petit Institute Core Facilities

Director: Steve Woodard; steve.woodard@ibb.gatech.edu

Location: Georgia Institute of Technology

The Petit Institute's Core Facilities serve as a shared resource for the bioengineering and bioscience community. Consultation, training and technical support are available for a variety of research projects. Users have access to over 100 pieces of instrumentation and a host of specialized services.

MSM/RCMI Research Core Facilities

Technical Director: Vincent C. Bond; vbond@msm.edu

Contact: Pamela Alexander; palexander@msm.edu

Location: Morehouse School of Medicine

Major support for the biomedical research infrastructure at Morehouse School of Medicine (MSM) is received through the Research Centers in Minority Institutions (RCMI) Program, sponsored by the National Institute on Minority Health and Health Disparities (NIMHD) of the National Institutes of Health (NIH), Grant number U54MD007602. With RCMI funding, state-of-the-art biomedical research technology cores, shared-use facilities, and other resources at MSM are available to our scientific investigators. RCMI support has fostered the development of areas of research focus at MSM (e.g., Cardiovascular Disease, HIV/AIDS, Neuroscience, Reproductive Biology, and Molecular Immunology). Morehouse School of Medicine's record of research development, and its research enterprise, is in large part due to the support received from the RCMI Program. Currently, there are five "umbrella" cores encompassing multiple labs that focus on similar technologies: Protein Profiling, Biomedical Technology Service Lab (BTSL), Biological Manipulation, Cells and Tissues Imaging and Gene Profiling.

OTHER CORES

Systems Mass Spectrometry Core

Technical Director: David Smalley; dsmalley@gatech.edu

Location: Georgia Institute of Technology

The System Mass Spectrometry (SyMS) Core provides state-of-the art instrumentation, resources, and technical support in both proteomics and metabolomics to Georgia Tech and the surrounding research community. Standard proteomics services include protein identification of simple and complex mixtures, relative protein quantification, and protein characterization. Standard metabolomics services include both targeted assays for various analyte classes as well as untargeted assays to evaluate metabolome alterations in biofluids and tissues-generating new hypotheses. More specialized services, such as global phosphoproteome analysis (among others), are available to examine cellular pathway activation. Customized research needs will also be met through the incorporation of new technologies.

PEDIATRIC RESEARCH UNIT

The Pediatric Research Unit (PRU) was created to facilitate Children's Healthcare of Atlanta's vision for clinical excellence and to support the mission to make kids better today and healthier tomorrow. Inpatient and outpatient units offer core support facilities and resources including nursing, pharmacy, laboratory, and bio nutrition. The PRU supports studies of children with asthma and allergy, cardiac disease, hypertension, Crohn's disease, types 1 and 2 diabetes mellitus, kidney and hepatic disease, sickle cell, and cystic fibrosis among others. Research studies follow exacting standards for delivering the interventions and collecting the requisite data.

The PRU is located on the 5th floor of the Center for Advanced Pediatrics. The research-focused 4,327 square feet of space with six dedicated exam rooms, two observational rooms, a triage room and consult room, and 10 dedicated workspaces for coordinators and PIs. Investigational Drug Services are located inside the PRU as well as an adjacent Emory research lab. To learn more about how the PRU can support your research, please call the PRU at 404-785-0400, or email Cheryl Stone, RN, MDiv, CCRP, Clinical Research Manager, at cheryl.stone@choa.org.

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