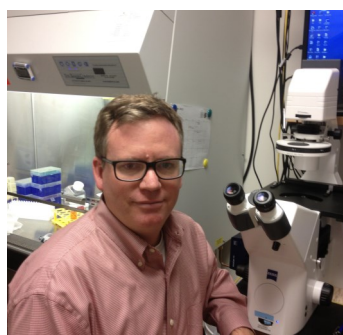


March 2015



Center for Childhood Infections and Vaccines

CCIV Co-Directors' Welcome



Marty Moore, PhD
CCIV Co-director

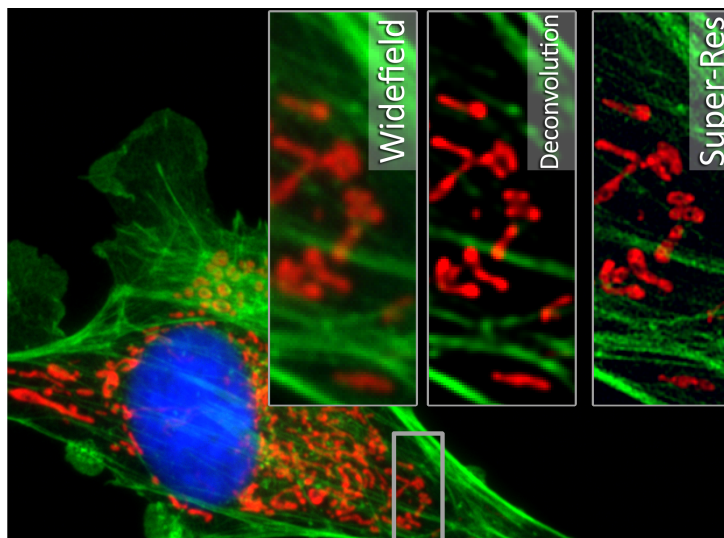
Welcome to the Emory + Children's Center for Childhood Infections and Vaccines (CCIV) newsletter. The CCIV synergizes cross-disciplinary research among Emory, Children's Healthcare of Atlanta, Georgia Tech, and Morehouse School of Medicine investigators in order to combat childhood infections. The CCIV faculty members are leaders in their respective fields. The Center supports state of the art research and core laboratory facilities, pilot grants, faculty recruiting, and seminar speakers. CCIV members are breaking new ground in basic and clinical biomedical research that has the purpose and potential to improve pediatric health. For example, Dr. Paul Spearman

and Dr. Rana Chakraborty were recently chosen as site-leaders for NIH-funded AIDS clinical trials in mothers and children. Dr. Jens Wrammert, an international expert on human B cell responses to infection and vaccination, is harnessing cutting edge cell sorting technologies to discover potent anti-viral antibodies. I invite you to explore the CCIV through our website on www.pedsresearch.org. To learn more about the work or to become involved in future CCIV activities, I encourage you to contact us.

Sincerely,
Marty Moore, PhD
martin.moore@emory.edu

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A recent gift the James B. Pendleton Charitable Trust supported the installation of an OMX Blaze microscope in the HSRB. This image illustrates the Super-Res that is possible with this new imaging system, and the full story can be found on page 3. Courtesy of Neil Anthony.

Deborah Persaud January Visit

The Center for AIDS Research at Emory (CFAR) recently hosted a visit by Dr. Deborah Persaud, Professor of Pediatrics at Johns Hopkins University, School of Medicine and renowned pediatric HIV investigator. Dr. Persaud is best known for characterizing the “Mississippi Baby” – an HIV infected child, who over a number of years was able to control HIV so that virus remained undetectable in the absence of antiretroviral therapy. The exact mechanisms for virologic suppression during this period remain unclear but Dr. Persaud and her team provided valuable insights into HIV latency and viral reservoirs. These concepts were discussed in lectures to CCIV and CFAR audiences. During the latter, Dr. Persaud’s lecture was complimented by presentations from junior Emory investigators. Dr. Erica Johnson (Post-Doctoral Fellow) presented data on protective correlates at the placental interface that may contribute to offsetting mother-to-child transmission of HIV-1. Dr. Andres Camacho-Gonzalez (Assistant Professor of Pediatrics) presented data on linkage and retention to care of HIV-infected adolescents and young adults from the Grady Infectious Program using a

combination of rapid HIV testing in non-traditional venues, and counseling and motivational interviewing. The CFAR symposium stimulated much discussion and became standing room. Many thanks to Emory CFAR for arranging Dr. Persaud’s informative visit.

-submitted by Rana Chakraborty



Deborah Persaud, MD, Johns Hopkins University
Visited January 15, 2015

IMPAACT

Emory University’s Division of Pediatric Infectious Diseases became a site for the NIH-funded International Maternal Pediatric Adolescent AIDS Clinical Trials Network (IMPAACT) in October 2014. Emory University was the only domestic site to be added in this round of competition. Dr. Paul Spearman, Director of Pediatric Infectious Diseases, is the site Principal Investigator, and Dr. Rana Chakraborty, Director of the Ponce Family and Youth Clinic is Co-PI and responsible for the daily research operations at the clinic. IMPAACT is an international collaborative network sponsored by NIH and dedicated to the treatment and prevention of HIV infection and its complications in pregnant/postpartum women, infants, children and adolescents. IMPAACT has five main research areas addressing critical gaps in knowledge in HIV treatment, tuberculosis prevention and management, HIV prevention, HIV cure efforts, and HIV complications and co-morbidities. Other investigators include Dr. Andres Camacho-Gonzalez, Dr. Martina Badell, Dr. Ann Chahroudi, and Dr. Lisa Cranmer as investigators for specific protocols within the network, with Dr. Vincent Marconi as a key advisor and investigator. The site will initially participate in 8 research protocols, which range from pharmacokinetic (PK) studies of ARV drugs during pregnancy and post-partum, PK studies in neonates, a PK study of select psychiatric medications prescribed in HIV-1 infected and uninfected children and

adolescents, and a protocol to achieve cure or prolonged remission of HIV-related disease using early intensive antiretroviral therapy in infants.

“This is a landmark development for pediatric HIV research and care in Atlanta”, says Dr. Spearman. “We will be working closely with our colleagues in adult ID, Gyn/Onc, and with leaders and staff at Grady to offer unique treatments and prevention opportunities for our patients. IMPAACT is a fantastic network and we are thrilled to be part of it.” The research protocols will be performed primarily at the Ponce de Leon Center of the Grady Health System, with key involvement from Emory University, Children’s Healthcare of Atlanta, and the Atlanta Clinical & Translational Science Institute (ACTSI). The Ponce de Leon Center houses the largest clinic devoted to the care of HIV-infected children, adolescents, and youth in the United States.

-submitted by Bridget Wynn



Faculty Profile: Jens Wrammert



Jens Wrammert, PhD
Assistant Professor

I received my basic training in Immunology at Lund University in Sweden, where I focused on B cell development and differentiations. After my post-doctoral training with Dr. Rafi Ahmed at Emory, I joined the Department of Pediatrics in 2012. I am a faculty member in the Division of Infectious Diseases, and I hold a joint appointment in the Department of Hematology and Medical Oncology. My research focuses on human immunology, in particular the generation and maintenance of immunological B cell memory. I have pioneered work on broadly neutralizing antibody responses in humans, findings that suggest a universal influenza vaccine may be possible. Vaccines based on this concept are now making their way into clinical trials. I have also played a major role in the development of technologies allowing for rapid generation of human monoclonal antibodies isolated directly from acutely induced plasmablasts, found in large numbers in infected patients or vaccinees. While most of these efforts have been and continue to be directed against viral pathogens, such as influenza, dengue and SIV/HIV, more recently we have initiated NIH funded work with colleagues at MGH (Massachusetts General Hospital) in Boston (Dr. Jason Harris and Dr. Ed Ryan) and at the ICDDR,b (International Centre for Diarrhoeal Disease Research, Bangladesh) in Dhaka, Bangladesh (Dr. Firdausi Qadri), to study B cell responses

against cholera in both children and adult infected patients and vaccinees. Despite developments in hygiene and clean water, cholera

continues to plague poorly developed areas of the world, as recently evidenced by the outbreak in Haiti. In the last year, we have made some very interesting findings about B cell responses and maintenance of immunity to cholera, and we expect to continue to make contributions to our understanding of both acute and memory responses to this deadly mucosal pathogen.

Over the last several years I have worked and continue to work with the investigators of the Emory VTEU (Vaccine and Treatment Evaluation Unit) which has allowed me to pursue many interesting studies focused on B cell biology in the context of human immune responses to vaccination or infection. These studies would be very difficult to pursue without this excellent collaboration.

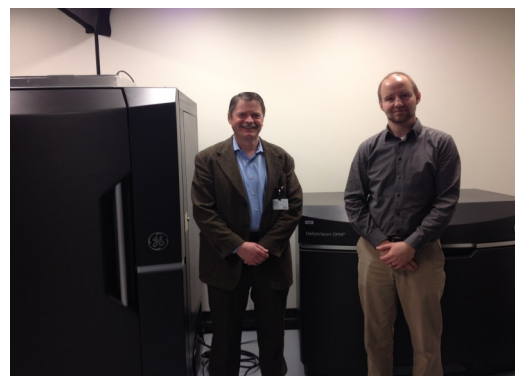
By working closely with colleagues at the VTEU, Emory Vaccine Center and Emory/Children's CCIV, I am able to address important questions regarding human immunology. Outside of my lab, my time is spent with my wife Kate, and my twins, Lucas and Patrick, who were born at the same time the doors to my lab opened. -submitted by Dr. Wrammert



James B. Pendleton Trust Supports Acquisition of Super-Resolution Microscope, Benefiting CCIV Investigators

Thanks to a generous gift from the James B. Pendleton Charitable Trust of Bellevue, Washington, together with funding from the Emory School of Medicine, a new advanced optical microscope has been installed in the HSRB. The Pendleton Trust supports the acquisition of advanced equipment that will be used to advance research in HIV/AIDS and related conditions. The Trust has supported a number of instruments at Emory that have been used for important studies of HIV assembly, HIV entry, HIV pathogenesis, SIV pathogenesis, and the study of other retroviruses such as M-PMV. The latest gift supports the study of HIV-cell interactions in live cells at the highest resolution using the OMX Blaze microscope from Applied Precision/GE Healthcare. This instrument is the leading commercially-available imaging system for live cell structured illumination microscopy (SIM). Some CCIV members were able to produce publication-quality, super-resolution images on the first day this instrument was up and running in HSRB! The instrument is administered through Emory's Integrated Cellular Imaging (ICI) core, with the assistance of imaging specialist Neil Anthony. The

instrument is available to all in our microscopy community, with special support for those engaged in HIV studies thanks to the Trust. The machine itself is quite impressive (see pictures below), but is actually not difficult to use. Contact Neil Anthony for questions about this instrument, or come visit the imaging core on the ground floor of HSRB to see this outstanding facility.



Paul Spearman & Neil Anthony
with the OMX
Blaze
microscope

Recent Funding Awards to CCIV Members

Investigator	Title	Sponsor
Evan Anderson	The SENTINEL 1 Study: An Observational, Non-Interventional Study in the United States to Characterize Respiratory Syncytial Virus Hospitalizations Among Infants Born at 29 to 35 Weeks Gestational Age Not Receiving Immunoprophylaxis	AstraZeneca
Evan Anderson	V118-05 - A Phase III, Stratified, Randomized, Observer Blind, Controlled, Multicenter Clinical Study to Evaluate the Safety, Immunogenicity and Efficacy of an Adjuvanted Quadrivalent Subunit Influenza Virus Vaccine Compared to Non-Adjuvanted Comparator Influenza Vaccine in Children ≥ 6 to < 72 Months of Age	Novartis
Evan Anderson	Clinical Evaluation of an Improved BinaxNOW Influenza A&B Card	Alere Scarborough
Larry Anderson	Host and Viral Determinants of Infant and Childhood Allergy and Asthma	NIAID
Lisa Kobrynski	USIDNET Registry	US Immunodeficiency Network
Greg Melikian & Cheng Zhu	Analysis of receptor binding kinetics and conformational change of HIV protein gp10	Emory+Children's Center Pilot Grant: Center for Pediatric Nanomedicine (CPN)
Marty Moore, Krishnendu Roy & Paul Spearman	A Vaccine for Human Rhinoviruses	Emory+Children's Center Pilot Grant: CCIV & CPN Joint Call
Andi Shane	CellScope-oto Community Practice Acceptability Study (CPAS)	Children's Healthcare of Atlanta and Georgia Institute of Technology
Paul Spearman	Pediatric and Adolescent HIV/AIDS research program at Emory University School of Medicine	IMPAACT Network

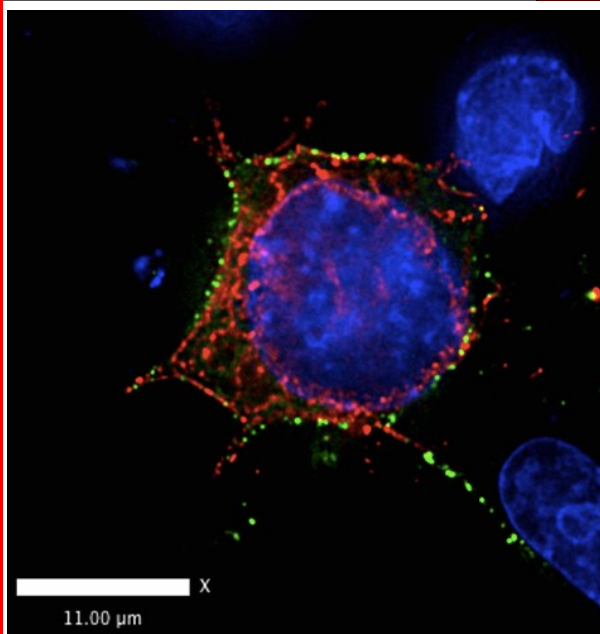
Recent Publications by CCIV Members

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Recent Publications Continued

Continued from page 5

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This is an image of an H9 T cell infected with HIV. The green dots are HIV particles (Gag) on the plasma membrane, and the red stain is a mutant envelope protein that is not incorporated on the particles. Courtesy of Lingmei Ding and Mingli Qi in the Spearman lab

Keep in Touch

Visit our website: www.pedsresearch.org/centers/detail/immunology-vaccines

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Emory+Children's Pediatric Research Center

An Atlanta-based research alliance



Upcoming Events

Pediatric ID Seminar Series

Thursday at 1 pm in HSRB Auditorium

- March 12: Dr. Chrystala Constantinidou, visitor from University of Warwick
- March 19: Chetan Sood (Melikian Lab) and Thayer King (Lamb Lab) (ECC 202)
- March 26: Erica Johnson (Chakraborty Lab) and Maddison Boswell (Moore Lab)
- April 2: Tanay Desai (Melikian Lab) and Xuemin Chen (Spearman Lab)
- April 9: Ann Hotard (Moore Lab) and Patrice Mimche (Lamb Lab)
- April 16: Gregory Melikian
- April 23: Lauren Hudson (Lamb Lab) and JJ Wang (Spearman Lab) (ECC 202)

Special Events

March 12-13: Southeast Flow Cytometry Interest Group, sponsored in part by the Pediatric Flow Cytometry Core, for details see sefcig.org

June 3: Mark Pallen, MD, PhD from the University of Warwick will be presenting at Pediatric Grand Rounds, Egleston Classroom 5 at 7:30 am, and a second seminar in HSRB at noon

June 22: 2015 Pediatric Research Conference – Inflammation in Pediatric Health: Improving care through innovation and technology, 8 am-5 pm at the Emory Conference Center Hotel, abstracts due March 13 at noon, registration closes June 12 at 5 pm, for details see www.pedsresearch.org