

Reseavatters

Spring 2015

Children's Foundation Research Institute: Primary Contact Personnel

Dennis Black, MD, Scientific Director: (901) 287-5355

Eunice Huang, MD, Chief Research Biomedical Informatics Officer: (901) 287-6300

Sheon Lynch, Senior Director: (901) 287-6208 Teeradache Viangteeravat, PhD, Technical Director, Bioinformatics Core: (901) 287-5649

Tamekia Jones, PhD, Biostatistics Core: (901) 287-4473

Daniel Fundo, Business Manager: (901) 287-6207

Khadijai Momoh, Research Project Manager: (901) 287-5083

Chris Smith, Research Lab Manager: (901) 287-5090

Nico West, MD, PhD, Interim Clinical Research Manager, Critical Care Research Coordinator: (901) 287-5301

Naga Nagisetty, Biomedical Informatics Research Specialist: (901) 287-5179

Fatih Sen, PhD, Biomedical Informatics Research Specialist: (901) 287-5044

Venessa Spearman, Grant/Contract Development Coordinator: (901) 287-5036

Kostadinka Atanasovska, IRB Regulatory Coordinator: (901) 287-4645

Angela English, Program Director for Newborn Follow Up: (901) 287-6871

Margaret Bissler, Clinical Research Assistant: (901) 287-7426

Barbara Culbreath, Pulmonary, Research Manager: (901) 287-5351

Cathy Horobetz, Neuroscience Clinical Research Coordinator: (901) 287-5330

Raquel Mack, Obesity Program Clinical Research Coordinator: (901) 287-6869 Lisa Manning, Surgery Clinical Research

Coordinator: (901) 287-5324

Ghazala Mazhar, MD, Clinical Research Coordinator: (901) 287-5230

Tracee Ridley, Neuroscience Clinical Research Coordinator: (901) 287-5338 Nora Urraca, MD, PhD, Clinical Research Coordinator: (901) 287-5926





Towbin: Cardiology chief



Cardiologist Jeffrey A. Towbin, MD, is the new executive co-director of Le Bonheur's Heart Institute. He and his research team have been leaders in gene discovery and mechanism of cardiomyopathies, arrhythmias, sudden cardiac death, vascular disorders and congenital heart disease, as well as viral causes of myocarditis, cardiomyopathies, transplant rejection and transplant coronary disease. Dr. Towbin pioneered the concept of pathway-focused candidate gene analysis using his "final common pathway hypothesis" and has defined disease mechanisms and targeted therapies using animal models. He has trained more than 50 postdoctoral and 20 pre-doctoral students and has been a principal mentor for multiple K-grant-funded trainees. He also has been a member of

multiple T32 Training Grants. Towbin will serve as chief of Pediatric Cardiology and vice chair of Strategic Advancement and will hold the St. Jude Chair of Pediatric Cardiology at Le Bonheur.

New faces join CFRI

Maggie Bissler, clinical research assistant in the PCRU, received her master's degree in ethnomusicology (the anthropology of music) from The Ohio State University, where she worked as a teaching associate and research associate. Her research examines the intersections of sound, space and sovereignty. Bissler brings ethnographic methods to clinical research from her studies with Canadian Aboriginal community radio producers and Creole dance troupes in Nicaragua's Caribbean coast. She studies documentary arts at Duke University and holds bachelor's degrees (music, classical civilization, and anthropology) from the University of Cincinnati.

Ghazala Mazhar, MD, has joined the PCRU as a clinical research coordinator. Mazhar previously worked as a study coordinator for the UTHSC Division of Endocrinology, Diabetes and Metabolism and the Hamilton Eye Institute. Originally from Pakistan, she is a physician in psychiatry and family medicine. In 2001, she joined the UTHSC Department of Pharmacology as a postdoctoral research fellow. She has also passed USMLE Steps 1, 2 and 3. "I became interested in clinical research because I liked working with human beings," she said. "I had no research experience when I came here. I have learned a lot from UT, and I'm very grateful for that." She has begun working with principal investigators on our faculty for several drug studies already, including trials of new treatments in cardiology and infectious diseases.

Nora Urraca, MD, PhD, is a new clinical research coordinator who could help with Genetics & Genomics studies in the near future. Before joining the CFRI she was a postdoctoral fellow at UTHSC where she was performing translational genetics studies of autism spectrum disorders, mainly in 15q duplication syndrome. She was trained as a clinical geneticist and earned her master's degree and PhD at Universidad Nacional Autonoma de Mexico in Mexico City. She has previous experience in pediatric and psychiatric genetics research.







Research Day 2014

More than 90 poster presentations on basic science, clinical and translational research were presented at the seventh annual Pediatric Research Day in November. The 2014 James Hunt Distinguished Visiting Professorship Lecturer, Dr. Carlton Bates from the Children's Hospital of Pittsburgh, also presented his current research on the genetics of kidney disease in children. His talk was followed by faculty presentations from Drs. John Bissler, David Hains, Russell Chesney, Robert Wyatt and Adebowale Adebiyi.

Congratulations to the winners of the outstanding poster awards, selected by a panel of 25 judges from among many very good presentations:

UTHSC submits grant to create CTSI

Clinical and translational research is a critical bridge from basic laboratorybased and clinical patient-centered research into clinical and community practice. The creation by NIH of the Clinical and Translational Science Award (CTSA) program in 2006 was intended to spur translation across this gap by creating "integrated intellectual and physical resources" in the form of a consortium of individual CTSA sites conducting original clinical and translational research. There are currently 60 such centers around the country. A new call for grant applications to establish additional centers was issued in September 2014. UTHSC has submitted an application based on the

General poster competition winners

- **Cecilia Scaglioni-Weinlich**: Activity of oral AL-8176 in a respiratory syncytial virus challenge study
- Viraj Ichhaporia: Characterizing the myopathy in a mouse model of Marinesco-Sjögren syndrome
- Sridhar Jaligama: Exposure to combustion derived particulate matter suppresses pulmonary host defense
- Amali Samarasinghe: Resistin-like molecules reduce influenza morbidity in mice
- Carol O'Hear: Anti-CD33 chimeric antigen receptor therapy for acute myeloid leukemia

• **Tae Won Yoon**: Contribution of protein kinase D1 and a pharmacological protein kinase D inhibitor Gö6976 on development and progression of experimental arthritis

Medical student winners

- Heather A. Cole: Prevalence of hypertension in pediatric tibia vara and slipped capital femoral epiphysis
- Katherine M. DiGiovanni: Permissive role of nitric oxide in cerebral vasodilation to H2S in newborn pigs
- Aaron J. Shaw: Age-dependent differences in naïve CD4 T cell polarization

CFRI model in pediatrics at Le Bonheur to establish a university-wide Clinical and Translational Science Institute (CTSI), named the Institute for Research, Innovation, Synergy and Health Equity (iRISE) with Dr. Jonathan McCullers, chair of the UTHSC Department of Pediatrics and Le Bonheur Physician-in-Chief, as program director and Dr. Dennis Black, scientific director of the CFRI, as operations manager. This institute will focus on supporting and facilitating translational research on health care inequities and health problems that impact the pediatric and adult populations we serve, including asthma, obesity, type 2 diabetes, cancer, developmental disabilities and others.

The \$20 million grant, along with additional funding from UTHSC, will fund iRISE to serve as a catalyst for high guality clinical and translational research at Le Bonheur and across the UTHSC campus. This project will leverage the current child health-based CFRI structure to expand and interweave clinical and translational research resources within the broader UTHSC in a novel institute for research and innovation. As part of the CTSA national consortium, iRISE will also be integrated with broader national programs and with local community efforts. The outcome of the application will be known this spring.

BMIC to present two papers

The Biomedical Informatics Core recently had two peer-reviewed papers accepted for presentation. They include "An Online Platform for Focal Structure Analysis – Analyzing smaller and more pertinent groups using a web tool," which will be presented in March at the Association for the Advancement of Artificial Intelligence Spring Symposium on Socio-Technical Behavior Mining: From Data to Decision. Also accepted was "Predicting risk of ICU transfer, intubation, or death for pediatric asthma, RSV, pneumonia patients by mining data in electronic medical records using machine-learning techniques," at the American Medical Informatics Joint Summits on Translational Science.



CFRI researchers are studying the formation and regulation of a protein complex at the cell surface that inhibits CF transmembrane conductance regulator (CFTR). Weiqiang Zhang, PhD, and his team will use a \$1.8 million grant from the National Heart, Lung and Blood Institute to study the protein complex.



CFRI Biomedical Informatics Core Technical Director Tee Viangteeravat, PhD, has been selected to move forward on the Blavatnik Awards for Young Scientists, sponsored by the New York Academy of Sciences and the Blavatnik Family Foundation, providing a \$250,000 grant award.

CFRI Publications August-December 2014

- Abramo TJ, Meredith M, Jaeger M, Schneider B, Bagwell H, Ocal E, Albert G. Cerebral oximetry with blood volume index in asystolic pediatric cerebrospinal fluid malfunctioning shunt patients. *Am J Emerg Med.* 2014
- Alymova IV, Samarasinghe A, Vogel P, Green AM, Weinlich R, McCullers JA. A novel cytotoxic sequence contributes to influenza A viral protein PB1-F2 pathogenicity and predisposition to secondary bacterial infection. J Virol. 2014;88:503-515
- 3. Apiwattanakul N, Thomas PG, Iverson AR, McCullers JA. Chronic helminth infections impair pneumococcal vaccine responses. *Vaccine*. 2014;32:5405-5410
- Apiwattanakul N, Thomas PG, Kuhn RE, Herbert DR, McCullers JA. Helminth infections predispose mice to pneumococcal pneumonia but not to other pneumonic pathogens. *Med Microbiol Immunol.* 2014
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- 6. Babajani-Feremi A, Rezaie R, Narayana S, Choudhri AF, Fulton SP, Boop FA, Wheless JW, Papanicolaou AC. Variation in the topography of the speech production cortex verified by cortical stimulation and high gamma activity. *Neuroreport*. 2014
- Barrett KK, Skaggs DL, Sawyer JR, Andras L, Moisan A, Goodbody C, Flynn JM. Supracondylar humeral fractures with isolated anterior interosseous nerve injuries: is urgent treatment necessary? *J Bone Joint Surg Am.* 2014;96:1793-1797
- 8. Becknell B, Eichler TE, Beceiro S, Li B, Easterling RS, Carpenter AR, James CL, McHugh KM, Hains DS, Partida-Sanchez S, Spencer JD. Ribonucleases 6 and 7 have antimicrobial function in the human and murine urinary tract. *Kidney Int*. 2014
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- Bhatnagar S, Hoberman A, Kearney DH, Shaikh N, Moxey-Mims MM, Chesney RW, Carpenter MA, Greenfield SP, Keren R, Mattoo TK, Mathews R, Gravens-Mueller L, Ivanova A. Development and impact of an intervention to boost recruitment in a multicenter pediatric randomized clinical trial. *Clin Pediatr (Phila*). 2014;53:151-157
- 11. Bridges D, Saltiel AR. Phosphoinositides: Key modulators of energy metabolism. *Biochim Biophys Acta*. 2014
- Choudhri AF, Chin EM, Klimo P, Boop FA. Spatial distortion due to field inhomogeneity in 3.0 tesla intraoperative MRI. *Neuroradiol J.* 2014;27:387-392
- 13. Choudhri AF, Klimo P, Jr., Auschwitz TS, Whitehead MT, Boop FA. 3T intraoperative MRI for management of pediatric CNS neoplasms. *AJNR Am J Neuroradiol.* 2014
- 14. Choudhri AF, Patel RM, Wilroy RS, Pivnick EK, Whitehead MT. Trigeminal nerve agenesis with absence of foramina rotunda in Gomez-Lopez-Hernandez syndrome. *Am J Med Genet A*. 2015;167:238-242
- 15. Choudhri AF, Sable HJ, Chizhikov VV, Buddington KK, Buddington RK. Parenteral nutrition compromises neurodevelopment of preterm pigs. J Nutr. 2014
- 16. Chung HS, Hathaway DK, Lew DB. Risk factors associated with hospital readmission in pediatric asthma. *J Pediatr Nurs.* 2014
- DeVincenzo JP, Whitley RJ, Mackman RL, Scaglioni-Weinlich C, Harrison L, Farrell E, McBride S, Lambkin-Williams R, Jordan R, Xin Y, Ramanathan S, O'Riordan T, Lewis SA, Li X, Toback SL, Lin SL, Chien JW. Oral GS-5806 activity in a respiratory syncytial virus challenge study. N Engl J Med. 2014;371:711-722
- Ghoneim HE, McCullers JA. Adjunctive corticosteroid therapy improves lung immunopathology and survival during severe secondary pneumococcal pneumonia in mice. *J Infect Dis.* 2014;209:1459-1468
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- Gleason JM, Bowlin PR, Bagli DJ, Lorenzo AJ, Hassouna T, Koyle MA, Farhat WA. A comprehensive review of pediatric urachal anomalies and predictive analysis for adult urachal adenocarcinoma development. J Urol. 2014

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- 23. Hall RW, Anand KJ. Pain management in newborns. *Clin Perinatol.* 2014;41:895-924
- 24. Hastings MC, Chesney RW. What is "masked syndrome of inappropriate antidiuretic hormone?" Is it an "isonatremic syndrome?". *J Pediatr.* 2014
- 25. Hirschorn DS, Choudhri AF, Shih G, Kim W. Use of mobile devices for medical imaging. *J Am Coll Radiol*. 2014;11:1277-1285
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- Kim YI, DeVincenzo JP, Jones BG, Rudraraju R, Harrison L, Meyers R, Cehelsky J, Alvarez R, Hurwitz JL. Respiratory syncytial virus human experimental infection model: provenance, production, and sequence of low-passaged memphis-37 challenge virus. *PLoS One.* 2014;9:e113100
- 32. Kiryluk K, Li Y, Scolari F, Sanna-Cherchi S, Choi M, Verbitsky M, Fasel D, Lata S, Prakash S, Shapiro S, Fischman C, Snyder HJ, Appel G, Izzi C, Viola BF, Dallera N, Del Vecchio L, Barlassina C, Salvi E, Bertinetto FE, Amoroso A, Savoldi S, Rocchietti M, Amore A, Peruzzi L, Coppo R, Salvadori M, Ravani P, Magistroni R, Ghiggeri GM, Caridi G, Bodria M, Lugani F, Allegri L, Delsante M, Maiorana M, Magnano A, Frasca G, Boer E, Boscutti G, Ponticelli C, Mignani R, Marcantoni C, Di Landro D, Santoro D, Pani A, Polci R, Feriozzi S, Chicca S, Galliani M, Gigante M, Gesualdo L, Zamboli P, Battaglia GG, Garozzo M, Maixnerova D, Tesar V, Eitner F, Rauen T, Floege J, Kovacs T, Nagy J, Mucha K, Paczek L, Zaniew M, Mizerska-Wasiak M, Roszkowska-Blaim M, Pawlaczyk K, Gale D, Barratt J, Thibaudin L, Berthoux F, Canaud G, Boland A, Metzger M, Panzer U, Suzuki H, Goto S, Narita I, Caliskan Y, Xie J, Hou P, Chen N, Zhang H, Wyatt RJ, Novak J, Julian BA, Feehally J, Stengel B, Cusi D, Lifton RP, Gharavi AG. Discovery of new risk loci for IgA nephropathy implicates genes involved in immunity against intestinal pathogens. Nat Genet. 2014
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CFRI Publications August-December 2014 (cont.)

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- Mina MJ, McCullers JA, Klugman KP. Live attenuated influenza vaccine enhances colonization of Streptococcus pneumoniae and Staphylococcus aureus in mice. *MBio*. 2014;5
- 46. Murphy RF, Cibulas AM, Sawyer JR, Spence DD, Kelly DM. Levels of evidence in the Journal of Pediatric Orthopaedics: Update and comparison to the Journal of Bone and Joint Surgery. J Pediatr Orthop. 2014
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- Murphy W, Naranje SM, Kelly DM, Spence DS, Warner WC, Jr., Beaty JH, Sawyer JR. Nonaccidental traumatic dislocation of the hip in a 3-yearold child: a report of a rare pediatric injury. *Am J Orthop.* 2014;43:374-376
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