NEWS RELEASE

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CONNECTICUT CHILDREN'S INVESTIGATORS RECEIVE PRESTIGIOUS GENOMICS INSTITUTE GRANTS

HARTFORD, Conn. - Imagine knowing more about autism at the level of a brain cell, preventing heart damage from chemotherapy, or finding ways to prevent necrotizing enterocolitis in premature babies. These things could become a reality, thanks to a special collaboration in genomics research that showcases Connecticut Children's physicians, nurses and researchers.

The Institute for Systems Genomics at the University of Connecticut has awarded $1 million in funding to four collaborative research programs, three of which include researchers from Connecticut Children's. Each program will receive $50,000 per year for the next five years.

These funded programs have been named "Affinity Research Collaboratives," or ARCs, and are based on a similar initiative developed at Boston University.

"Our goal in funding these ARCs is to spur cross-disciplinary and cross-institutional research programs. This creates talented investigators who can bring together their difference areas of expertise to study important biomedical problems and cure disease," says Marc Lalande, director of the Institute.

Three of the four ARCs consist of a team of at least four investigators with representation from Connecticut Children's, the Jackson Laboratory for Genomic Medicine and UConn.

"The ARC program provides a very exciting opportunity to strengthen collaborations we have developed with JAX investigators over the past year and enhance our long-standing partnership with UConn Storrs and Farmington scientists," says Dr. Juan C. Salazar, physician-in-chief and division head, Infectious Diseases & Immunology, Connecticut Children's Medical Center and Chair of Pediatrics, UConn School of Medicine.

More on the Winning Affinity Research Collaborative Projects

- **Neuronal Synaptic and Circuit Dysfunction in the Autism Spectrum**
  This ARC marks the beginning of Connecticut Children's research program into the autism spectrum. Connecticut Children's own Dr. Louisa Kalsner, Dr. Ann Milanese, Dr. Gyula

Acsadi, and Jennifer Twachtman- Bassett, along with UCHC's Dr. Stormy Chamberlain, Dr. Leslie Loew and Dr. Eric Levine will take part in this ARC. The JAX collaboration is led by Dr. Wayne Frankel. Over the next 5 years, researchers will work specifically with a group of autistic patients who suffer seizures and closely study their neurons – the cells that make up the brain and nervous system. Dr. Chamberlain will rely on a simple blood draw from these patients to develop stem cells and grow neurons that are identical to the neurons in the patient's brain and nervous system. Testing can then be done on a molecular level without ever touching the patient, an idea that is truly novel. The research goal is to acquire new information about neuronal dysfunction in autism spectrum disorders and develop an integrated approach for the use of stem cell and mouse models, in conjunction with clinical data, to study this serious developmental disorder of children. The information coming from this ARC could one day have significant therapeutic implications.

- **Use of Diversity Outbred Mice to Study Cardiotoxicity of Chemotherapeutic Agents**
  This ARC aims to discover genetic variants, biomarkers, and mechanisms of drug toxicity that could explain why certain children suffer heart damage while on chemotherapy drugs. Connecticut Children's Dr. Olga Toro-Salazar, Dr. Michael Isakoff, Dr. Eileen Gillan and Dr. Andrea Orsey will participate in this project. Toxic side effects of chemotherapy are major causes of mortality and morbidity among cancer patients. Genetic factors play an important role in determining individual susceptibility. By learning more, we hope to detect damage to the heart earlier and potentially prevent progression to heart disease.

- **Early Life Physiological and Psychosocial Stress Imprints Gut Microbiome in Preterm Infants**
  Premature infants subjected to stressful early life experiences develop an altered gut microbiome, increasing the risk for neurodevelopmental morbidity and gastrointestinal dysfunction, including necrotizing enterocolitis. Connecticut Children's Dr. Adam Matson and Dr. Naveed Hussain will play a significant role in this ARC, led by Dr. Xiaomei Cong of the UConn School of Nursing. The team will collect stool samples from some of our premature babies, in order to study their microbiome. Using state-of-the-art sequencing and computational methods developed in the lab of Dr. Joerg Graf at UConn in Storrs, researchers will investigate the link between early life stress and changes in the intestinal environment in preterm newborns.

"These ARCs open the door in 2 ways; the autism ARC will help establish a cutting edge research program in autism spectrum disorders at Connecticut Children's that will mirror the excellence of our established clinical program. But our success with the ARCs goes beyond that. They will also integrate Connecticut Children's into the biomedical research community at the Health Center and JAX labs in a synergistic fashion," says Dr. Justin Radolf, senior scientific advisor and Professor of Medicine, UCHC.

"The ARCs are significant opportunities to strengthen partnerships we have developed with JAX investigators over the past year, and to enhance our collaborations within the University. We are very proud of the achievements of our investigators and collaborators in this competitive program," says Dr. Georgine Burke, Director of Research, Connecticut Children's Medical Center.

The Institute for Systems Genomics will sponsor a symposium in Storrs on Sept. 23 to officially launch the ARC projects. The program will include a presentation by each of the three scientists on the external review panel and by a representative from each of the funded ARCs.

About Connecticut Children's Medical Center
Connecticut Children's Medical Center is a nationally recognized, 187-bed not-for-profit children's hospital serving as the primary teaching hospital for the Department of Pediatrics at the University of Connecticut School of Medicine. Named among the best in the nation for several of its pediatric specialties in the annual *U.S. News & World Report* "Best Children's Hospitals" rankings, Connecticut Children's is the only free-standing children's hospital in Connecticut that offers comprehensive, world-class health care to children. Our pediatric services are available at Connecticut Children's Medical Center in Hartford and at Saint Mary's Hospital in Waterbury, with neonatal intensive care units at Hartford Hospital and the University of Connecticut Health Center, along with five specialty care centers and 10 other locations across the state. Connecticut Children's has a medical staff of nearly 1,100 practicing in more than 30 specialties.

For more information, visit www.connecticutchildrens.org or connect with us on Facebook at www.facebook.com/connecticutchildrens and Twitter at www.twitter.com/ctchildrens.

About The UConn Health Center
The UConn Health Center, located in Farmington, comprises the School of Medicine, School of Dental Medicine, John Dempsey Hospital, UConn Medical Group, UConn Health Partners, and University Dentists. Founded in 1961, the UConn Health Center pursues a mission of providing outstanding health care education in an environment of exemplary patient care, research and public service. With approximately 5,000 employees, UCHC is Connecticut's 16th-largest employer and an important contributor to the local and regional economy.

About The Jackson Laboratory
The Jackson Laboratory is an independent, nonprofit biomedical research institution based in Bar Harbor, Maine, with a facility in Sacramento, Calif., and a new genomic medicine institute in Farmington, Conn. It employs a total staff of more than 1,500. Its mission is to discover precise genomic solutions for disease and empower the global biomedical community in the shared quest to improve human health.

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