A BANNER YEAR FOR INNOVATION

In 2017, clinicians and research faculty working at Children's National Health System published more than 850 research articles about a wide array of topics. A Children's Research Institute review group selected the top articles for the calendar year considering, among other factors, work published in top-tier journals.

Science Signaling

Mitochondria help injured muscle cells repair by soaking up calcium that enters from the site of injury and using it to trigger increased production of reactive oxygen species. According to an article featured on the journal's cover, reactive oxygen species that can damage cells when produced in high amounts are also crucial signals that start the process of repairing injured myofibers.


NeuroImage: Clinical

Using a novel imaging technique, a multidisciplinary Children's research team demonstrates for the first time that the brains of high-risk infants with congenital heart disease already show signs of functional impairment even before they undergo corrective open heart surgery.


Science Translational Medicine

The subventricular zone in normal newborns' brains is home to the largest stockpile of neural stem/progenitor cells, with newly generated neurons migrating from this zone to specific regions of the frontal cortex and differentiating into interneurons. Findings derived from a preclinical model and featured on the journal's cover point to the importance of restoring these cells' neurogenic potential, possibly through therapeutics, to lessen children's long-term neurological deficits.


The Journal of Pediatrics

Cerebral blood flow of key regions of newborns' brains is altered in very premature infants and may provide an early warning sign of disturbed brain maturation well before such injury is visible on conventional imaging, according to a prospective, observational study.


Nature Communications

Transcription factor Heat Shock Factor 1 (Hsf1), which the developing brain releases to shield it from the ravages of environmental stress, actually can contribute to impairing the embryonic brain when too much Hsf1 is produced.


Birth Defects Research

The study authors report that iron supplementation can prevent neural tube defects and forebrain truncations in an experimental model. While iron appears to be essential for neural tube closure, high levels of iron supplementation and iron overload may contribute to neural tube defects.

The Lancet Haematology

The authors showed that 18F-fluorothymidine (FLT) was safe and could map subclinical engraftment after hematopoietic stem cell transplantation. FLT objectively revealed early stem cell settling and showed a previously unknown path of cellular recovery in vivo, mirroring fetal ontogeny. “Imaging of subclinical haemopoiesis after stem-cell transplantation in patients with haematological malignancies: A prospective pilot study.” K.M. Williams, et al. The Lancet Haematology. Dec. 13, 2017.

The Journal of Pediatrics


American Journal of Physiology-Heart and Circulatory Physiology


The Journal of Pediatrics


NEW CRI LEADERS NAMED

Vittorio Gallo, Ph.D., a neuroscientist working in the field of white matter disorders, was named Chief Research Officer at Children’s National Health System. Gallo, Director of the Center for Neuroscience Research at Children’s National for the past decade, is Wolf-Pack Chair in Neuroscience at Children’s Research Institute, Children’s academic arm. As Chief Research Officer, Gallo will be instrumental in developing and realizing Children’s Research Institute’s long-term strategic vision, which includes building out the nearly 12-acre property once occupied by Walter Reed National Military Medical Center to serve as a regional innovation hub and to support Children’s scientists conducting world-class pediatric research.

Catherine “Cath” Bollard, M.D., M.B.Ch.B., former chief of the division of allergy and immunology, was chosen to serve as Director of the Children’s Research Institute’s Center for Cancer and Immunology Research (CCIR). CCIR, with annual National Institutes of Health and other external funding exceeding $10 million, includes more than 50 clinicians and scientists performing groundbreaking clinical and translational research in understanding the origins and developing and testing novel therapies for childhood cancers and immunologic disorders. “Cath’s unique background and pioneering work in T-cell immunotherapy have established her as an international leader in research and treatment of children with cancer and immunologic disorders,” says Vittorio Gallo, Ph.D., Chief Research Officer.

Eric Vilain, M.D., Ph.D., an internationally renowned geneticist working in the field of gender-based biology, was named Director of the Center for Genetic Medicine Research at Children’s Research Institute. Dr. Vilain also will become the A. James Clark Distinguished Professor of Molecular Genetics. “We are very excited about the vision and expertise that Dr. Vilain brings to the study and use of precision medicine approaches, and to the understanding and developing of novel treatments for common and rare diseases of childhood,” says Mark Batshaw, M.D., Executive Vice President, Physician-in-Chief and Chief Academic Officer at Children’s National.