

Fecal microbiome transplantation proves to be a powerful tool

It has recently been discovered that the microorganisms living inside us, also known as the microbiome, are a strong determinant of health and disease. Research at Texas Children's Hospital, led by Dr. Richard Kellermayer, is devoted to unraveling the developmental origins of inflammatory bowel diseases (IBD), including Crohn's disease and ulcerative colitis through study of the microbiome.

Based on research observations, a first-of-its-kind research trial has been launched to treat children with certain chronic gastrointestinal diseases using good bacteria from the feces of healthy human donors. Termed fecal microbiome transplantation (FMT), feces, along with billions of beneficial

bacteria from the donors, are directly administered into the patient's colon where they are thought to modulate everything from infection to inflammation to one's body weight and composition. According to Kellermayer, "One of the most exciting things about our approach is the prospect of developing personalized therapies for children that can prevent or cure diseases at a very early stage."

Though these research protocols are focused on children with ulcerative colitis and recurrent *Clostridium difficile* infection, the technology is potentially applicable to a number of other conditions, promising to be a very powerful weapon in the arsenal of 21st century physicians.

Liver transplant patients benefit from breakthrough research

Liver transplant recipients have benefited greatly from the guiding principle at Texas Children's Hospital to provide exceptional care from bench to bedside. That paradigm became very apparent with the opportunity to enroll liver transplant recipients from Texas Children's in a multi-center clinical trial called iWITH, an NIH-funded study of immunosuppression withdrawal.

Although liver transplantation is indeed life-saving, the lifelong drugs needed to prevent the recipient from rejecting the new liver have considerable side effects, including irreversible kidney damage, diabetes, atherosclerosis and increased risk for cancer. Based on research that suggests pediatric transplant

recipients may tolerate lower levels of these medicines (and eventually none at all), the iWITH trial, the first large-scale study to wean pediatric liver transplant patients from their immunosuppressive medication, was initiated.

Dr. Ross Shepherd, director of Texas Children's Liver Center, is hopeful regarding trial results. "Based on sophisticated analysis of the patients who successfully withdraw immunosuppression medicine and those who do not, we hope to understand the mechanisms of organ rejection better and further refine our tools for selecting candidates for eventual withdrawal," Shepherd explains.

Multidisciplinary care shines through Eosinophilic Esophagitis Clinic

A flagship benefit of Texas Children's Hospital is the opportunity for physicians to partner with other professionals to provide better, more comprehensive care. This is exemplified in Texas Children's Eosinophilic Esophagitis Clinic, jointly led by gastroenterologist Dr. Tony Olivé and allergy/immunology specialist Dr. Carla Davis.

Eosinophilic esophagitis (EoE), a gastrointestinal allergy increasingly diagnosed in children, leads to poor growth, abdominal pain, difficulty swallowing and vomiting, significantly impacting a child's quality of life. Current

treatment often consists of prescription medication, diet modification and avoidance of identified triggers.

Recognizing the challenges of treatment, the clinic has deployed social workers to engage families in support groups similar to those created for other chronic conditions like cancer and heart disease. These support mechanisms have proven to be powerful and therapeutic tools to bring patients together to draw on multiple experiences. In addition to emotional support, the eosinophilic esophagitis program also provides patients with a portal to clinical trials and novel testing modalities.



For specific questions or to refer a patient, please e-mail clinic chief Dr. Ryan W. Himes directly at rwhimes@texaschildrens.org.

Texas Children's Hospital, located in the Texas Medical Center in Houston, is committed to creating a healthier future for children and women throughout our global community by leading in patient care, education and research. Renowned worldwide for its expertise and breakthrough developments in clinical care and research, Texas Children's Hospital is nationally ranked in all ten subspecialties in *U.S. News &*

World Report's list of America's Best Children's Hospitals, and was one of only ten hospitals in the nation to make its Honor Roll in 2013.

The Gastroenterology, Hepatology and Nutrition Service at Texas Children's Hospital integrates multiple specialists to treat children from across the country with various gastrointestinal diseases and nutrition problems. Ranked #4 in

Gastroenterology by *U.S. News & World Report* in 2013, the team continues to be a national pioneer in the field.

**Texas Children's Hospital
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and Nutrition**

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