2019 Pilot and Feasibility Recipients

The Digestive Health Center (DHC) is pleased to announce the recipients of its 2019 Pilot & Feasibility grants.

John Harley, MD, PhD
Department of Pediatrics; Center for Autoimmune Genomics and Etiology
Project Title: “Epstein-Barr Virus and Herpes Virus Serology in Inflammatory Bowel Disease of Childhood”
Dr. Harley will determine whether exposure to Epstein-Barr virus, Herpes Simplex and Cytomegalovirus are associated with inflammatory bowel disease.

Juan Sánchez-Gurmaches, PhD
Department of Pediatrics; Divisions of Endocrinology and Developmental Biology
Project Title: “Brown Fat Preservation and NAFLD Development”
Dr. Sánchez-Gurmaches will determine the physiological effects of AKT signaling in brown fat in the development of Non-alcoholic Fatty Liver Disease (NAFLD).

Kelli VanDussen, PhD
Department of Pediatrics; Division of Gastroenterology, Hepatology and Nutrition
Project Title: “Host-Microbe Mechanisms Regulating Intestinal Epithelial Cell Microvilli”
Dr. VanDussen will identify pathways by which the microbiome affects intestinal epithelial cell microvilli in order to develop therapeutic approaches to restore microvilli function in Crohn’s patients.

Stephen Waggoner, PhD
Department of Pediatrics; Center for Autoimmune Genomics and Etiology
Project Title: “Elucidation of the Transcriptional Regulatory Network Governing Innate Lymphoid Cell Behavior in Pediatric Crohn’s”
Dr. Waggoner will identify the transcriptional regulatory networks controlling human innate lymphoid cell with the goal of developing new therapeutic interventions to restore gut homeostasis in patients with Crohn’s disease.

Member’s Research Highlighted on Journal of Clinical Investigation Cover

The research work of DHC Members Drs. Ting Wen (previous Pilot & Feasibility Award Recipient), Bruce Aronow and Marc Rothenberg was featured on the cover of May issue of the Journal of Clinical Investigation. The research team developed a protocol to isolate and analyze individual living cells from the esophagus of patients with Eosinophilic Esophagitis (EoE), a chronic, allergic inflammatory disease of the esophagus.

They discovered 8 types of immune system T cells in the esophageal tissue with an increase in the number of two cell types (T7 and T8) in diseased tissue. T8 cells are hardly present in healthy tissue making it an ideal target in the treatment of EoE and other T helper 2 cell associated diseases.
**Member’s Research Published in The Lancet**

The collaborative, multicenter PROTECT study of DHC members Drs. Yael Haberman, Kevin Hommel, and Lee (Ted) Denson, was published in the April 27 issue of *The Lancet*. The Predicting Response to Standardized Pediatric Colitis Therapy (PROTECT) was a prospective study to provide evidence-based data on the disease course in newly diagnosed pediatric ulcerative colitis patients being treated with a standardized therapy protocol of mesalazine or corticosteroids. This study design allowed for the identification of clinical and biological features that would lead to a better understanding in the treatment response variability without the confounding uncontrolled treatment analysis.

The research team identified that rectal gene expression and gut microbial factors improved their ability to predict clinical outcomes beyond initial disease severity and clinical laboratory test results. The data also provided insight into the biological reasons why some patients respond better to treatment. These results will guide physicians in how best to treat pediatric ulcerative colitis patients.

**New Photography System & Graphic Support Service at Pathology Core**

Cincinnati Children’s Research Pathology Core has a second digital photography system to generate high resolution images of macroscopic structures of tissues and organs. This system enables integration of cell level data with organ anatomy such as single cell/nuclear gene expression within morphologically distinct anatomic structures and correlation with radiographic CT imaging. With the addition of a second system, researchers will now have access to this resource even when clinical functions require use of the original system.

Starting in July, the Core will offer graphic support services including generation of journal cover images, cartoon diagrams, image color correction, image integration for manuscript figures, research posters and presentations, etc. These services will be provided by Chris Woods, an expert in digital imaging and illustration, who has provided his services to many DHC members in the past. Chris’s expertise will now be expanded as an official service of the core charged through the CORES billing system.

**Benefits for DHC Members:**

DHC provides 25% of the total charge for services provided at the Research Pathology Core with a subsidy limit of $1,200 per member per year.

**For more information:**
Visit the Pathology Research Core Website or contact Dr. Kathryn Wikenheiser-Brokamp at kathryn.wikenheiser-brokamp@cchmc.org; 513-803-0239.

**New NovaSeq6000 at DNA Sequencing and Genotyping Core**

Cincinnati Children’s DNA Sequencing and Genotyping Core recently acquired the NovaSeq6000, which is the latest Illumina Sequencing model with upgraded chemistry and optics. With the new equipment, there is a significant price reduction (up to 30%) for most of the Next-Generation Sequencing services. Some new services which require extensive sequencing, such as whole genome sequencing and single cell analysis, are now more cost efficient.

**Benefits for DHC Members:**

DHC provides 25% of the total charge for services provided at the DNA Sequencing and Genotyping Core with a subsidy limit of $2,400 per member per year.

**For more information:**
Visit the DNA Sequencing and Genotyping Core website or contact Dr. Xueguang Sun at xueguang.sun@cchmc.org; 513-636-0122.
The Research Flow Cytometry Core (RFCC) at Cincinnati Children’s Hospital has a new cytometer- the Cytek Aurora that is equipped with:

- 4 lasers (violet 405 nm, blue 488 nm, yellow-green 561nm, and red 640 nm)
- 48 detectors covering fluorescence emissions from 400 nm to 900 nm without having to change any optical filters
- 96-well plate auto-sampler

With a careful panel design, 24 dyes can be used in combination and auto-fluorescence can be subtracted from the signal which makes the Aurora ideal for small samples and highly auto-fluorescent cells. The low-noise electronics should provide excellent sensitivity and resolution for microvesicle detections. Future upgrades will include a UV laser.

The Core has also replaced the ImageStream X with the ImageStream X Mark II. This imaging flow cytometer is equipped with the same excitation lasers (violet 405 nm, blue 488 nm, red 642 nm, and 785 nm for SSC), same magnification options (20x, 40x, and 60x), and same 12 detection channels as the ImageStream X. New features include:

- improved acquisition speed with the ability to analyze up to 5,000 cells/sec
- improved user interface
- new availability of real-time plotting and gating
- new compensation wizard allowing for compensation in the acquisition software
- ability to run lower sample volumes (only 20 ul needed as compared to 50 ul)

For more information regarding the newly acquired ImageStream X Mark II, Robert Thacker, PhD, from Luminex, will present an overview on all the capabilities at the Ohio River Valley Cytometry Association User’s Meeting on Wednesday, June 26th, from 2-3 pm in S5.125.

**Benefits for DHC Members:**
DHC provides 25% of the total charge for the analytical cytometer fee with a subsidy limit of $1,200 per member per year.

**For More Information:**
Visit the [Flow Cytometry website](#) or contact the Core Director: Dr. Sherry Thornton at sherry.thornton@cchmc.org; 513-636-5880 or Core Manager: Dr. Celine Silva-Lages at celine.silva-lages@cchmc.org; 513-636-5880.

**DHC Seminar Series- Summer Break**

There will be no DHC seminars during the summer. Our fall seminar series will begin on Tuesday September 10 with Dr. Kathryn Wikenheiser-Brokamp, Director of the DHC Integrative Morphology Core. She will present an overview of the new services available at the Cincinnati Children’s’ Research Pathology Core.

Seminars are held on Tuesdays at noon in CCHMC Location S Room 6,125. Light refreshments are provided. The enrichment series includes distinguished speakers from outside the Academic Medical Center as well as conferences by investigators from Cincinnati.
Transition to Full Membership - Dr. Phillip Minar

Dr. Phillip Minar, Department of Pediatrics, Division of Gastroenterology, Hepatology and Nutrition at Cincinnati Children’s, received the Leona M. & Harry B. Helmsley Charitable Trust Grant supported by Helmsley funding. The title of his grant is “Precision Crohn’s Disease Management Utilizing Predictive Protein Panels”.

Dr. Minar used preliminary data that was generated from his DHC Pilot and Feasibility Award for his Helmsley grant application. Congratulations to Dr. Minar for transitioning to Full Membership status in the DHC!

DHC Welcomes Three New Members

John Harley, MD, PhD is a Professor and Director of the Center for Autoimmune Genomics and Etiology in the Department of Pediatrics at Cincinnati Children’s. Dr. Harley’s digestive disease research focuses on identifying the role in which Epstein-Barr virus is involved in the pathogenic origins of inflammatory bowel disease.

Juan Sánchez-Gurmaches, PhD is an Assistant Professor in the Department of Pediatrics, Divisions of Endocrinology and Developmental Biology at Cincinnati Children’s. His research focuses on understanding the physiological and pathologic mechanisms that control adipocyte development, growth, and metabolism.

Stephen Waggoner, PhD is an Assistant Professor in the Department of Pediatrics, Center for Autoimmune Genomics and Etiology at Cincinnati Children’s. His research focuses on identifying new targets for therapeutic modulation of innate lymphoid cell function in the pathogenesis of Crohn’s disease.

Interested in Becoming a Member?

By becoming a DHC member, you will receive subsidies for many core services and resources. Your orders will receive priority at the research cores. Membership is open to all Cincinnati Children’s and University of Cincinnati faculty members involved in digestive disease research. If you are interested in joining the DHC, visit our website for further instructions.

For all publications, please acknowledge the DHC as follows:

“This project was supported in part by NIH P30 DK078392 (insert name of core that you used) of the Digestive Diseases Research Core Center in Cincinnati.”

For more information regarding the DHC visit our website or contact one of the following:

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