

## 2020 Digestive Health Center (DHC) Pilot and Feasibility Recipients



**Artem Barski, PhD**

Department of Pediatrics; Division of Allergy & Immunology  
Project Title: "Following Allergen-Specific T Cells in Food Allergy"

Dr. Barski aims to profile gene expression and T cell receptor sequence of antigen-specific T cells in order to understand the fate of peanut-specific T cells during immunotherapy for food allergy.



**Alex Bondoc, MD**

Department of Surgery; Division of Pediatric General and Thoracic Surgery  
Project Title: "GPC3 Cleavage Plays an Integral Role in Hepatoblastoma Tumor Proliferation"

Dr. Bondoc will determine the molecular mechanisms of glypican 3 (GPC3) cleavage and its role in the development of hepatoblastoma.



**Sarah Orkin, MD**

Department of Pediatrics; Division of Gastroenterology, Hepatology and Nutrition  
Project Title: "Food Insecurity and Non-Alcoholic Fatty Liver Disease Severity"

Dr. Orkin will collect skin samples to identify biomarkers that are associated with both food insecurity and liver disease severity.

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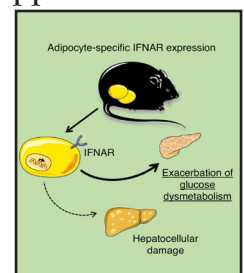
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## Member's Research Receive National Attention



The research work of DHC Members Drs. Ting Wen (previous Pilot & Feasibility Award Recipient) and Marc Rothenberg along with lead author Dr. Nurit Azouz was featured on the cover of May issue of the *Science Translational Medicine*. The research team demonstrated that SPINK7 (a serine peptidase inhibitor, kazal 7) is not present in patients with Eosinophilic Esophagitis (EoE), a chronic, allergic inflammatory disease of the esophagus. The absence of SPINK7 leads to an increase in protease, KLK5 (kallikrein), resulting in damage to the esophagus. The team also demonstrated that the FDA approved drug, alpha-1 antitrypsin used to treat emphysema, as well as the inhibitor of protease activated receptor (PAR2) reversed the inflammation damage of the esophagus in an EoE animal model suggesting these approaches could be used in patients.

Also, the research work of DHC members Drs. Mike Helmrath and Senad Divanovic (previous Pilot & Feasibility Award Recipient) with lead author Calvin Chan was published in the June 2 issue of *Nature Communications*. The team reports that type I interferons, which are produced by both immune cells and adipocytes, drives a constant low-level, chronic immune response that amplifies inflammation within white adipose tissue (unwanted fat bulges). This inflammation appears to cause a cascade of cellular responses that promotes obesity-related diseases such as non-alcoholic fatty liver disease. These findings suggest the interplay between adipocytes and the immune system may alter the ability to fight off infections such as COVID-19 in obesity.



## New DHC Internal Advisory Board Members

The DHC Internal Advisory Board (IAB) consists of senior faculty and institutional leaders. The IAB ensures that the strategic objectives of the DHC are aligned with the strategic goals of Cincinnati Children's and the University of Cincinnati, College of Medicine. The DHC leadership announces the following 3 individuals have joined the IAB:



From Left to Right:  
Drs. Kopan,  
Naren, and  
Wells

- Rafi Kopan, PhD; Associate Director of Basic Sciences and Director, Division of Developmental Biology
- AP Naren, PhD; Director Cystic Fibrosis Research Center

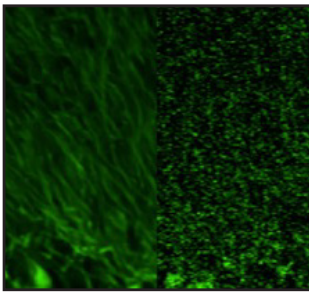
- Susa Wells, PhD; Director Epithelial Carcinogenesis and Stem Cell Program

They have joined the following current IAB members:

- James Heubi, MD; Director Center for Clinical and Translational Science and Training (CCTST)
- Kris Justus, PhD; Vice President and Associate Director Research Operations, Cincinnati Children's Research Foundation (CCRF)
- Patrick Tso, PhD; Director of the Mouse Metabolic Phenotype Center at the University of Cincinnati

The DHC leadership met with the IAB on June 9 to present an overview of the Center and plans for the competitive renewal application next summer. The IAB provided insightful feedback and suggestions for advancing the center.

## New Techniques at the Confocal Imaging Core



Artificial intelligence-based denoising removes Poisson noise from image datasets without eliminating image detail

The Confocal Imaging Core at Cincinnati Children's provides access to and training in light microscopy, laser scanning confocal microscopy, sample preparation and image analysis. The core has 6 inverted single photo microscopes, an upright multiphoton microscope, 6 wide-field microscopes, and 6 image analysis workstations. Below are

some recent techniques the core has optimized to capture high quality imaging of your samples.

- Expansion Microscopy- this is a virtual super resolution technique in which a sample is stained and then expanded 5 to 10-fold. This allows users to resolve details with apparent resolutions of 50-75nm using conventional diffraction-limited confocal microscopes.

- DeNoise AI (Artificial Intelligence) function- This option within Nikon Elements software uses machine learning to remove shot noise from confocal data while preserving image detail. When used appropriately with the high definition resonant scanner systems, imaging throughput is increased 3-5-fold.
- Red blood cell (RBC) autofluorescence-pretreating samples with Quadrol and mild heating can reduce autofluorescence of RBCs formalin-fixed paraffin-embedded (FFPE) samples

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

The Confocal Imaging Facility is located in Location R Room 3007A and 3020-3024.

For more information visit:

Visit the [Confocal Imaging Core website](#) or contact Dr. Matt Kofron at 513-803-9055; [matthew.kofron@cchmc.org](mailto:matthew.kofron@cchmc.org).

## New Shared Facilities Billing System- Stratocore



As of Monday July 6, Cincinnati Children's Research Foundation (CCRF) will be using a new Shared Facilities billing system called Stratocore. This new billing system will be replacing the current CORES (Core Ordering and Reporting Enterprise System) Billing system that CCRF has been using over the last five years.

All CORES billing users have been migrated to the new Stratocore system. Users will need to log into Stratocore and complete the following after July 6.

1. Verify your profile information on the "MyPPMS" homepage
2. Ensure you are associated with the correct lab membership before placing orders
3. Confirm you have access to the correct budget numbers

Listed below are some important notes regarding the transition to Stratocore:

- **Roles:** are classified differently. See picture top right.
- **Budget Access:** Users will now request access to a budget number directly in Stratocore. The request is automatically sent to the account manager for approval. In CORES this process was known as the CORES billing budget override and was done in the PeopleSoft System for users at Cincinnati Children's.

CORES Role	Stratocore Role	Access Permissions
Resource User/Lab Manger /PI	User	<ul style="list-style-type: none"> <li>• Place orders, reservations.</li> <li>• Request access to BN's</li> <li>• Run reports</li> </ul>
Business Director	Account Manager	<ul style="list-style-type: none"> <li>• Run reports</li> <li>• Manage Pre-Invoicing</li> <li>• Manage Budget Numbers for Division</li> </ul>
Shared Facility Associate/Manager	Administrator	<ul style="list-style-type: none"> <li>• Manage Research Shared Facility Operations</li> </ul>
CCRF Research Administrator	Super Administrator	<ul style="list-style-type: none"> <li>• Manage Software System</li> </ul>

- **Projects:** There is a feature in Stratocore that allows users to manage long term studies across time and maintain order history in a single dashboard for specific projects.
- **Reservations:** For July 1 and later, reservations may be placed in the Stratocore system for certain facilities. Please check with the staff of the Shared Facility you are interested in using.
- **Invoicing:** CORES billing system will issue its final set of invoices in August as CCRF works to close out old orders. In August you will receive an invoice from both CORES and Stratocore.

DHC members will continue to receive the same subsidies when a budget number that supports digestive disease research pays for a core service that the center supports. For a complete list of services the DHC supports please visit the [DHC Website](#). For questions regarding the DHC subsidies please contact Cindy Wetzel, PhD at [cynthia.wetzel@cchmc.org](mailto:cynthia.wetzel@cchmc.org)

For video tutorials and job aides visit the Cincinnati Children's Centerlink [Stratocore website](#). For those outside Cincinnati Children's with questions please contact: [help-cores@bmi.cchmc.org](mailto:help-cores@bmi.cchmc.org)

## DHC Competitive Renewal Due Summer 2021



The DHC leadership is beginning to plan for the competitive renewal application that will be submitted to NIH next summer. In August, the DHC leadership will be sending a survey to its members to assess your future

needs to advance your digestive disease research program. Please look for an email with the survey link from Dr. Cindy Wetzel. It will be important that all DHC members complete the survey so that the DHC Leaders can address your future needs.

Thank you in advance for taking time to complete the survey.

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."**



## Transition to Full Membership - Dr. Rajat Madan



Rajat Madan, MBBS, PhD Department of Internal Medicine, Division of Infectious Disease at the University of Cincinnati, received a VA (Veterans Affairs) Merit Award. The title of his grant is “Role of a Common Leptin Receptor Polymor-

phism in Regulating Neutrophil Heterogeneity after *C. Difficile* Infection”.

Dr. Madan used preliminary data that was generated from his DHC Pilot and Feasibility Award for his R01 grant application. Congratulations to Dr. Madan for transitioning to Full Membership status in the DHC!

## DHC Welcomes Three New Members



Senu Apewokin, MD is an Associate Professor and Medical Director of Transplant in the Division of Infectious Diseases in the Department of Internal Medicine at the University of Cincinnati. Dr. Apewokin studies host-microbe interactions and how these interactions influence epithelial barrier biology particularly during cancer chemotherapy-associated *Clostridium*.



Rana Herro, PhD is an Assistant Professor in the Department of Pediatrics, Division of Immunobiology at Cincinnati Children's. She investigates the involvement of the tumor necrosis factor (TNF) superfamily molecular called LIGHT



Sarah Orkin MD is an Instructor in the Department of Pediatrics, Division of Gastroenterology, Hepatology, and Nutrition at Cincinnati Children's. Her research focuses on investigating how food insecurity may affect non-alcoholic fatty liver disease severity in children.

### Interested in becoming a DHC member?

By becoming a DHC member, you will receive subsidies for many core services.

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.

## DHC Seminar Series- Summer Break and Fall Virtual Presentations



There will be no DHC seminars during the summer.

Our fall seminar series will begin on Tuesday September 15 with Ramesh Shivdasani, MD, PhD from Dana-Farber Cancer Institute. His research focuses on the molecular mechanisms of the gut.

The enrichment series includes distinguished speakers from outside the Cincinnati as well as conferences by internal investigators.

Seminars are held on Tuesdays at noon. Due to the uncertainty around the COVID-19 pandemic, we have decided to host our seminars virtually for the fall. Please look for the weekly seminar email announcements for more information.

For more information regarding the DHC visit our [website](#) or contact one of the following:

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