Cincinnati DHC Digestive Health Center
NIDDK Silvio O. Conte Digestive Diseases Research Core Center

DHC Newsletter

Bench-to-Bedside Research in Pediatric Digestive Disease

Cincinnati Children's changing the outcome together

UNIVERSITY OF Cincinnati

June 2020 Volume 17 Issue 1 | A Quarterly Publication by Cynthia C. Wetzel, PhD

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.

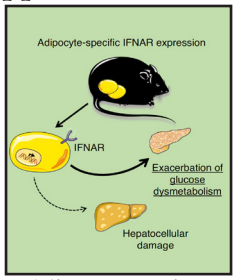
Alex Bondoc, MD
Department of Surgery; Division of Pediatric General and Thoracic Surgery
Project Title: "GPC3 Cleavage Plays an Integral Role in Hepatoblastoma Tumor Proliferation"
Dr. Bondoc will determine the molecular mechanisms of glypican 3 (GPC3) cleavage and its role in the development of hepatoblastoma.

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.

IN THIS ISSUE:

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 causes 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

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

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:

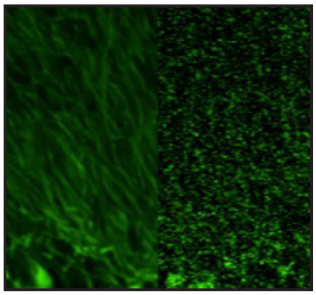
- Rafi Kopan, PhD; Associate Director of Basic Sciences and Director, Division of Developmental Biology
- AP Naren, PhD; Director Cystic Fibrosis Research Center
- Susa Wells, PhD; Director Epithelial Carcinogenesis and Stem Cell Program

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.

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	• Place orders, reservations. • Request access to BN's • Run reports
Business Director	Account Manager	• Run reports • Manage Pre-Invoicing • Manage Budget Numbers for Division
Shared Facility Associate/Manager	Administrator	• Manage Research Shared Facility Operations
CCRF Research Administrator	Super Administrator	• Manage Software System

- 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

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

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 Polymorphism 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 has in controlling inflammation and fibrosis.

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:

Director:	Jorge Bezerra, MD	jorge.bezerra@cchmc.org
Associate Directors:	Ted Denson, MD	lee.denson@cchmc.org
	Heidi Kalkwarf, PhD, RD	heidi.kalkwarf@cchmc.org
	Aaron Zorn, PhD	aaron.zorn@cchmc.org
Center Manager:	Cynthia Wetzel, PhD	cynthia.wetzel@cchmc.org

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September 2020 Volume 17 Issue 2 | A Quarterly Publication by Cynthia C. Wetzel, PhD

Request for Pilot and Feasibility Applications

The Digestive Health Center (DHC) is accepting applications for pilot projects to conduct basic, translational, patient based, or outcomes research broadly relating to pediatric digestive disease.

Funds will support highly focused projects with the goal of generating preliminary data sufficient to support an application for independent research through traditional NIH mechanisms. Funding for projects will range from $40,000 to $50,000.

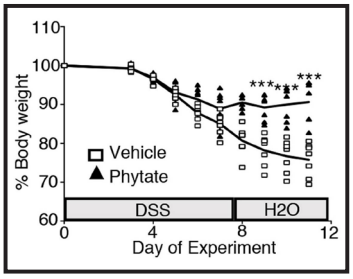
Eligible applicants must have a faculty appointment as of July 2021. DHC membership is not required.

Applications are due Monday November 30, 2020 at 5:00 pm. Application forms and submission guidelines are available on the DHC website.

For more information contact: Aaron Zorn, PhD, DHC Pilot and Feasibility Program Director at aaron.zorn@cchmc.org or Cindy Wetzel, PhD, DHC Manager at cynthia.wetzel@cchmc.org.

IN THIS ISSUE:

Member's Research Receive National Attention



Body weight improved in a mouse model of inflammatory bowl disease (IBD) after treatment with phytate.

The research work of DHC Members Drs. Theresa Alenghat (previous Pilot & Feasibility Award Recipient), Ted Denson, and David Haslam was published online July 30 in *Nature*. The Alenghat lab discovered that the intestinal microbiota generates inositol trisphosphate (IP3) that can in turn activate HDAC3 (histone deacetylase 3, a protein that regulates gene expression) in epithelial cells of the intestine. The research team then used a mouse model system that had human-like intestinal damage and inflammation to demonstrate that healing was enhanced by IP3 and phytate, a dietary product that bacteria break down to IP3. They saw similar intestinal growth when they used cells from patients with Inflammatory Bowel Disease to generate mini intestines called colonoids and treated then with IP3. The research team used the following DHC supported cores: Pathology Research, Confocal Imaging, Research Flow Cytometry, Stem Cell, and Bioinformatics to generate data for their publication. To read more about this study visit the Cincinnati Children's Newsroom Website.

Additionally, the research work of DHC member Dr. Stavra Xanthakos along with members of the NASH (non-alcoholic steatohepatitis) Clinical Research Network (including DHC Member Marialena Mouzaki) was published online July 23 in *Gastroenterology*. Analysis of two multicenter randomized pediatric clinical trials showed that 1/2 of the children with NAFLD (non-alcoholic fatty liver disease) receiving standard of care lifestyle advice experienced improvement in NASH and/or in fibrosis. However, only 3 resolved NAFLD completely. Another 1/3 demonstrated progression in NASH and fibrosis severity within 2 years. Progression of disease severity was associated with increasing obesity and worsening glycemic control. The research team concluded that lifestyle counseling can benefit some children with NAFLD, but a significant proportion fail to respond, highlighting the need to identify more efficacious interventions.

DHC Seminar Series- Fall Virtual Presentations

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 area as well as conferences by internal investigators.

Seminars are held on Tuesdays at noon. Due to the COVID-19 pandemic, our seminars will be virtually via Zoom. Please look for the weekly seminar email announcement for the link.

See page 4 for a complete listing of our Fall 2020 DHC Seminar Series.

2020 William and Rebecca Balistreri Lecture

Dr. Norah Terrault will be the 2020 William and Rebecca Balistreri Lecturer for Translational Research in Hepatology. She is Professor and Chief of Gastroenterology and Hepatology at Keck Medical Center at University of Southern California.

Dr. Terrault's research focuses on the progression and treatment of viral hepatitis C (HCV) and hepatitis B (HBV), especially in liver transplant patients.

Dr. Terrault will present her research on Tuesday October 13 as part of the DHC Seminar Series. Additionally, she will participate in the "Balistreri" Rounds, an opportunity to discuss a complex liver patient case on Wednesday October 14 at 7:30 am. Both events will be virtual.

Please look for email announcements on how to access these events.

Save the Date - Annual Scientific Symposium

The DHC will host its Annual Scientific Symposium and External Advisory Board Meeting on **Tuesday February 23, 2021.** This is a great opportunity to learn about the digestive disease cutting edge research being performed in Cincinnati and to establish new collaborations.

The day will include a poster session and keynote address by Dr. Holger Willenbring from University of California, San Francisco. Dr. Willenbring's research focuses on using hepatocyte stem cell technology to treat liver disease.

We encourage you to present your digestive disease research by submitting an abstract for the poster session. You do not have to be a DHC member to present a poster.

Abstracts are due **Friday January 29, 2021**. Prizes will be given to students and trainees for the best poster presented at the symposium.

As of now we are planning for an in person symposium. The format may change based on the COVID-19 pandemic infection rates.

Stay tuned for more details.

Abstracts Due

Symposium

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."

Keystone Symposium- Tissue Plasticity

Tissue Plasticity: Preservation and Alteration of Cellular Identity
October 5-7, 2020 Virtually

The conference will bring together scientific experts in the fields of stem cell, developmental, regenerative, and cancer biology to explore how cellular plasticity contributes to homeostasis and regeneration after tissue injury. The program will include the following sessions with emphasis on early endoderm and digestive organs:

1. Plasticity in the Early Embryo
2. Tissue Plasticity in Invertebrates and Vertebrates
3. Epigentics, Transcription and Plasticity
4. Inflammation and Plasticity
5. Cancer Stem Cells and their Niche
6. Plasticity and Renewal/Regeneration

Dr. Aaron Zorn, DHC Associate Director, and Dr. Stacey Huppert, DHC member, will be featured speakers.

To register visit the Symposium Website.

For more information contact the Conference Co-scientific Organizer, Dr. Stacey Huppert at Stacey.Huppert@cchmc.org.

Transition to Full Membership - Dr. Xiaonan Han

Xiaonan Han, PhD Department of Pediatrics, Division of Gastroenterology, Hepatology, and Nutrition at Cincinnati Children's received his first NIH R01 from the National Institute of Diabetes and Digestive Kidney Diseases (NIDDK). The title of his grant is "Regulation of Niche Cell Differentiation to Sustain Intestinal Stem Cell Regeneration Against Gut Inflammation".

Congratulations to Dr. Han for transitioning to Full Membership status in the DHC.

DHC Welcomes New Members

Jonathan Dillman, MD, MSc is an Associate Professor and Associate Chief of Research in the Department of Radiology at Cincinnati Children's. Dr. Dillman is the Medical Director of the Imaging Research Center. He investigates novel ultrasound and MRI-based methods for detecting and measuring tissue perturbations in Crohn's disease and chronic liver diseases such as biliary atresia, autoimmune liver diseases, and non-alcoholic fatty liver disease.

Chandrashekhar (Shekhar) Pasare, DVM, PhD is a Professor in the Department of Pediatrics, Division of Immunobiology at Cincinnati Children's and is the Co-Director for the Center for Inflammation and Tolerance. His research focuses on examining the importance of IL-1 receptor signaling in regulating the antimicrobial response by intestinal epithelial cells.

Interested in becoming a DHC member?

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

Director:	Jorge Bezerra, MD	jorge.bezerra@cchmc.org
Associate Directors:	Ted Denson, MD	lee.denson@cchmc.org
	Heidi Kalkwarf, PhD, RD	heidi.kalkwarf@cchmc.org
	Aaron Zorn, PhD	aaron.zorn@cchmc.org
Center Manager:	Cynthia Wetzel, PhD	cynthia.wetzel@cchmc.org

Seminar Series- Tuesdays at Noon, Virtually via Zoom
See weekly email announcement for link

Date	Presenter	Title
9/15/20	Ramesh Shivdasani, MD, PhD Dana-Farber Cancer Institute	"Storage and Retrieval of Developmental Epigenetic Memory"
9/22/20	Krishna Roskin, PhD CCHMC: Bioinformatics Collaborative Services	"The Bioinformatics Collaborative Services (BCS) Group at CCHMC"
9/29/20	Artem Barski, PhD CCHMC: Allergy and Immunology	"Following the Fate of T Cells During Oral Immunotherapy for Food Allergy"
10/6/20	Bryan Copple, PhD Michigan State University	"Immune Dysregulation in Acute Liver Failure"
10/13/20	Norah Terrault, MD, MPH University of Southern California	Topic: Treatment of Viral Hepatitis in Liver Transplant Patients
10/20/20	Jennifer Kaplan, MD, MS CCHMC: Critical Care	"The Effect of Obesity During Critical Illness: Helpful or Harmful?"
10/27/19	Alex Bondoc, MD CCHMC: Pediatric Surgery	"Glypican-3 as a Therapeutic Target for Human Hepatoblastoma"
11/3/20	Kenneth Sherman, MD, PhD UC: Dept. of Internal Medicine Division Digestive Diseases	"CCR5 and Hepatic Fibrosis in HIV-infected Patients"
11/10/20	Christopher Mayhew, PhD Yueh-Chiang Hu, PhD CCHMC: Pluripotent Stem Cell & Transgenic Animal and Genome Editing Cores	"Novel CRISPR Tools for Genome Editing Human IPSCs to Study Digestive System Development and Disease"
11/17/20	No Seminar due to American Association for the Study of Liver Diseases Meeting	
11/24/20	No Seminar Due to the Thanksgiving Holiday	
12/1/20	Leah Kottyan, PhD CCHMC: Center for Autoimmune Genomics and Etiology (CAGE)	"Identification of EOE-Risk Genotype and IL13-dependent Transcriptional Regulation in the Esophagus"
12/8/20	Sarah Orkin, MD CCHMC: Gastroenterology	"Food Insecurity and Non-alcoholic Fatty Liver Disease"

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DHC Newsletter

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Cincinnati Children's changing the outcome together
University of Cincinnati

December 2020 Volume 17 Issue 3 | A Quarterly Publication by Cynthia C. Wetzel, PhD

Annual Scientific Symposium Tuesday February 23, 2021

Virtually via the Zoom Platform
11:00 am to 1:00 pm
Selected Abstract Oral Presentations
Keynote Address: Holger Willenbring, MD, PhD

The Digestive Health Center (DHC) will host its Annual Scientific Symposium and External Advisory Board Meeting on **February 23, 2021.** The day will include a keynote address by Dr. Holger Willenbring from University of California, San Francisco.

Due to the pandemic and not being able to host large events, the DHC leadership team will select the top 4 abstracts to present an 8-10 minute oral presentation with 5 minutes for questions. The 4 selected abstracts will represent the following DHC research themes:

1) Liver Disease & Modeling
2) Digestive Disease & Immunity
3) Digestive Disease & Obesity
4) Translational Embryology

All submitted abstracts will be combined into a single file that will be shared with the DHC community.

To submit an abstract, visit the DHC website for the submission form. Abstracts must be submitted electronically by **Friday, January 29, 2021** to cynthia.wetzel@cchmc.org. Prizes will be given to students and trainees for the best submitted abstracts.

IN THIS ISSUE:

DHC Member Receives NIH Director's New Innovator Award

Takanori Takebe, MD an Assistant Professor in the Department of Pediatrics Divisions of Gastroenterology and Developmental Biology received the National Institutes of Health (NIH) 2020 Director's New Award. This award is part of the NIH high-risk, high-reward program to support exceptional early career investigators proposing innovative high-impact projects. Dr. Takebe will receive $2.4 million for his project entitled "Engineering Multi-Organs in a Dish". The project focuses on directing human induced pluripotent stem cells to generate 3-D organogenesis of the hepato-billary-pancreatic system.

Congratulations to Dr. Takebe for being one of the 53 recipients to receive this prestigious award.

DHC Seminar Series- Virtual Presentations

Our winter seminar series will begin on **Tuesday January 12** with **Alejandro Soto-Gutierrez, MD, PhD** from University of Pittsburgh. His research focuses on using cutting edge technology to generate new liver tissue for transplantation.

Seminars are held on Tuesdays at noon. Due to the COVID-19 pandemic, we will continue to host our seminars virtually via the Zoom platform.

Please look for the weekly seminar email announcement for the link.

See page 4 for a complete listing of our 2021 Winter DHC Seminar Series.

New External Advisory Board Member

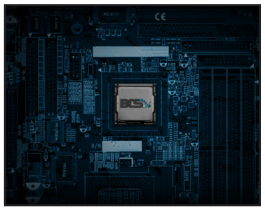
Dr. Thad Stappenbeck has joined the DHC External Advisory Board. He is currently the Chair of the Department of Inflammation and Immunity at the Lerner Research Institute at the Cleveland Clinic.

While Dr. Stappenbeck was at Washington University in St. Louis, he was a member of their NIDDK funded Digestive Diseases Research Core Center (DDRCC).

His research focuses on discovering host and environmental factors that impact inflammation and wound repair at mucosal surfaces.

Dr. Stappenbeck will join current External Advisory Board Members: Drs. Lopa Mishra (George Washington University), Scott Snapper (Boston Children's Hospital), and Holger Willenbring (University of California San Francisco). Dr. Noah Shroyer has stepped down from our External Advisory Board.

New Subsidy for Bioinformatics Collaborative Services



The DHC leaders worked with Krishna Roskin, PhD and Ron Bryson of the Cincinnati Children's Bioinformatics Collaborative Services (BCS), to provide its members bioinformatics tools to accelerate digestive disease research. Researchers are strongly encouraged to contact the BCS staff during the planning stages of their experimental design to ensure that the end results will provide useful data.

Below is a partial list of services that are provided by the BCS staff:

- Genotyping and variant calling (WGS, WES, genotyping arrays)
- Bulk gene expression (RNA-seq, GSEA, expression arrays)
- Protein-DNA interaction and Epigenetics (ChIP-seq, CUT&RUN-seq)
- Chromatin accessibility (ATAC-seq)
- Single-Cell gene expression (scRNA-seq)
- Data storage and sharing
- Training

Benefits for DHC Members: The DHC will provide 25% of the total charge with a subsidy limit of $2,400 per member per year.

To join the Bioinformatics User Group (BUGs) visit the website to signup.

For more information visit the BCS website or contact staff via email at help-bcs@bmi.cchmc.org.

New IsoLight Instrument at the Flow Cytometry Core

The Research Flow Cytometry Core (RFCC) at Cincinnati Children's Hospital recently purchased the IsoLight Instrument.

The IsoLight is capable of analyzing up to 32 cytokines, chemokines and other cellular mediators at a single cell level. This instrument has been shown to be highly valuable for elucidating specific cellular pathways in single cells and will be invaluable to those investigators that have performed single cell gene expression studies or wish to examine mediators that are being produced on a single cell level.

The IsoLight can also measure levels of specific proteins in serum or other fluids (only needing 11 microliters) similar to the multiplex assays using Luminex or Milliplex technologies.

For more information visit the RFCC website or contact Core Director Dr. Sherry Thornton at sherry.thornton@cchmc.org or RFCC staff member Alyssa Sproles at alyssasproles@cchmc.org; 513-636-5880.

FASEB Summer Research Conference 2021- Liver Biology

Liver Biology: Fundamental Mechanisms & Translational Applications
Abbreviated Virtual Meeting
June 15-16, 2021
Full in person meeting will be 2022

This FASEB Conference is the next iteration of a liver-focused meeting that has been held biennially since 1988 (until the COVID-19 pandemic). It is recognized as the premier small conference covering all aspects of basic and translational research involving the liver.

The program will include the following sessions:

1. Hepatogenesis and Hepatic Architecture Establishment
2. Hepatic Plasticity & Regenerative Medicine
3. Non-Parenchymal Cell Biology, Liver Injuries and Fibrosis
4. Steatotic Liver Diseases
5. Comprehensive Analyses of Hepatocellular Carcinogenesis
6. New Technologies, Functional Screening and Target Discovery
7. Liver Immunology, Translational Research and Combinatorial Therapies
8. Metabolism, Bile Acids & Nuclear Receptors

To register visit the Symposium Website.

For more information contact the Conference Co-Director, Dr. Stacey Huppert (Associate Professor and DHC Member in the Division of Gastroenterology at Cincinnati Children's) at Stacey.Huppert@cchmc.org.

DHC Welcomes New Member

Jasbir Dhaliwal, MBBS, MRCPCH is an Assistant Professor and new faculty member in the Department of Pediatrics, Divisions of Gastroenterology, Hepatology, and Nutrition and Biomedical Informatics at Cincinnati Children's. Her research focuses on using machine learning to develop an annotation tool to calculate eosinophilic density for the entire rectal mucosa to predict ulcerative colitis disease progression.

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Center Manager:	Cynthia Wetzel, PhD	cynthia.wetzel@cchmc.org

Seminar Series- Tuesdays at Noon, Virtually via Zoom
See weekly email announcement for link

Date	Presenter	Title
1/12/21	Alejandro Soto-Gutierrez, MD, PhD University of Pittsburgh	"Biofabrication of Human Livers"
1/19/21	Jason Blackard, PhD UC: Department of Internal Medicine Division Digestive Diseases	"Synthetic Opioid Use and Viral Infections: Expanding the Translational Research Agenda"
1/26/21	Joseph Palumbo, MD CCHMC: Hematology	"The Role of the Hemostatic System in Colitis and Colon Cancer Progression"
2/2/21	Nikolai Timchenko, PhD CCHMC: Ped General & Thoracic Surgery	"Molecular Mechanisms of Aggressive Pediatric Liver Cancer"
2/9/21	Heather McCauley, PhD CCHMC: Developmental Biology	"Enteroendocrine Cells Regulate Intestinal Function and Metabolism"
2/16/21	Bruce Aronow, PhD DHC Bioinformatics Core	"Using ToppCell to Understand Development, Disease and Physiologic Functions of GI Tissues"
2/23/21	DHC Annual Scientific Symposium Keynote Address by: Holger Willenbring MD, PhD University of California, San Francisco "Cellular Origins in Liver Regeneration and Cancer"	
3/2/21	Chunyue Yin, PhD CCHMC: Gastroenterology	"Progress Towards the Mechanisms Underlying Progressive Familial Intrahepatic Cholestasis"
3/9/21	Rana Herro, PhD CCHMC: Immunobiology	"The TNF Superfamily Control of Tissue Fibrosis"
3/16/21	Marialena Mouzaki, MD CCHMC: Gastroenterology	"eoNAFLD: The Origins of the Most Common Pediatric Liver Disease"
3/23/21	Matthew Kofron, PhD CCHMC: Confocal Imaging Facility	"Modern Imaging, Sample Preparation, Analysis & AI Processing Tools of DHC Research"
3/30/21	Senu Apewokin, MD UC: Department of Internal Medicine Division Infectious Diseases	"Taking Microbiome Science Beyond Taxonomic Profiling"
4/6/21	Chandrashekhar Gandhi, PhD CCHMC: Gastroenterology	"Hepatic Stellate Cells: The Central Communicators in Liver Inflammation and Injury"

Cincinnati DHC Digestive Health Center
NIDDK Silvio O. Conte Digestive Diseases Research Core Center

DHC Newsletter

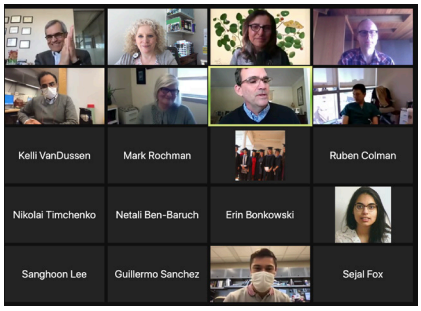
Bench-to-Bedside Research in Pediatric Digestive Disease

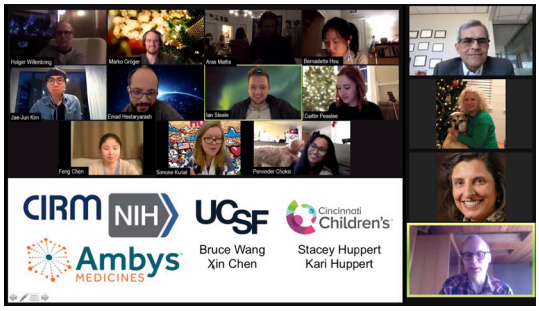
Cincinnati Children's changing the outcome together
University of Cincinnati

March 2021 Volume 17 Issue 4 | A Quarterly Publication by Cynthia C. Wetzel, PhD

Highlights from the 2021 Annual Scientific Symposium

Presentation Winners from Left to Right:
Jacob Enriquez
Julie Osborn, MD
J. Guillermo Sanchez





IN THIS ISSUE:

The Digestive Health Center (DHC) held its Annual Scientific Symposium virtually on Tuesday, February 23. The morning included 2 sessions of outstanding presentations from 17 digestive disease researchers. This was followed by Dr. Holger Willenbring from University of California, San Francisco presenting the keynote address "Cellular Origins in Liver Regeneration and Cancer". The following prizes were awarded for the best presentations:

First Place: Jacob Enriquez (Graduate Student, Department of Pediatrics, Division of Developmental Biology, member of Dr. Jim Wells' lab) for "Intestinal Neurog3 Derived Populations During Homeostasis and Acute High Fat Diet".

Second Place: Julie Osborn, MD (Clinical Fellow, Department of Pediatrics, Division of Gastroenterology, Hepatology and Nutrition, member of Dr. Jorge Bezerra's lab) for "Novel Serum Biomarkers of Portal Hypertension in Children with Biliary Atresia".

Third Place: J. Guillermo Sanchez (Graduate Student, Department of Pediatrics, Division of Developmental Biology, member of Dr. Jim Wells' lab) for "Using Human Pluripotent Stem Cell-derived Organoids to Investigate Regional-Specific Features of the Small Intestine".

See Page 2 for more highlights from the Annual Scientific Symposium.

DHC NIH Competitive Renewal Due July 1

The DHC National Institute of Diabetes and Digestive and Kidney (NIDDK) competitive renewal application is due July 1. Our External Advisory Board provided the DHC leadership valuable feed back regarding our application.

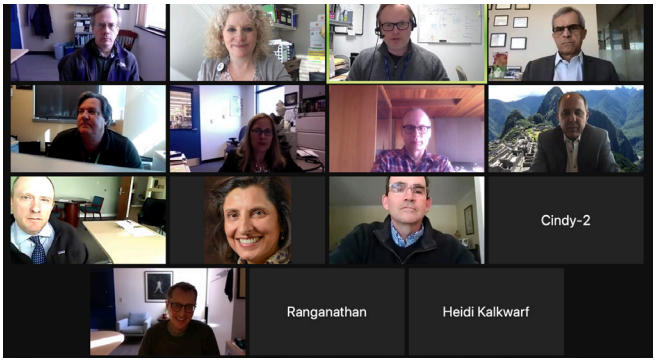
Jill Soldano, DHC administrative assistant, will be contacting all DHC Members requesting their biosketches and information regarding their research program in the upcoming weeks. Please respond to her request in a timely manner.

Let's work together to showcase the strength of our research base, the high quality of core services, and the rich scientific environment at Cincinnati Children's and the University of Cincinnati.

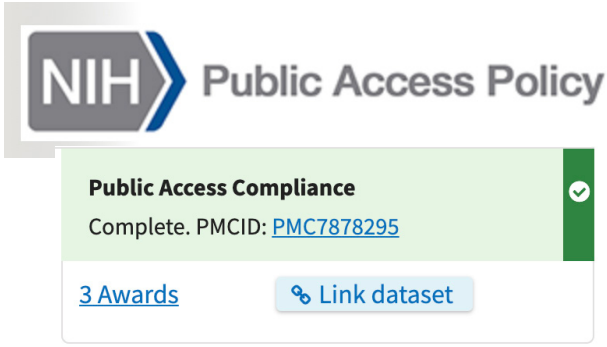
Photos and Highlights from Annual Scientific Symposium Continued

We would like to thank Jill Soldano for her incredible job transitioning the visit of the DHC External Advisory Board Members and the Annual Scientific Symposium to a virtual platform.

We would like to especially thank Drs. Stacey Huppert and Michael Rosen for moderating the abstract presentations. We also thank those who served as judges: Drs. Rajat Madan, Taka Nakamura, Nick Timchenko, Kelli VanDussen, Stephen Waggoner, and Chunyue Yin.



NIH Public Access Policy and Acknowledge DHC Grant



The National Institutes of Health (NIH) Public Access Policy requires that the final version of any peer-reviewed research article resulting from NIH funding must be submitted to the NIH Manuscript Submission (NIHMS) system for the publication to be publicly available in the PubMed Central repository. The publication will be assigned a PubMed Central ID number (PMCID). This is different than the PMID (PubMed ID) number that is assigned to the abstract of the article.

The majority of the journals will submit original research publications to the NIHMS system on behalf of the authors as long as the authors indicate that the work was supported by the NIH at the time of submitting the manuscript to be considered for publication.

For a list of journals that make the final published version of all NIH-funded articles available in PubMed Central visit this website.

For a list of publishers that do not automatically deposit every NIH-fund paper in PubMed Central visit this website. Authors must make arrangements with these journals to submit the article to NIHMS or submit it themselves.

All publications resulting from NIH funding must be submitted to NIHMS immediately upon acceptance for publication either by the journal or the author. Processing an article through the NIHMS system requires time and approving the submission twice.

Publications must have a PMCID number within 3 months from the publication date. The NIH will delay the release of funds if publications associated with NIH funding are not compliant by having a PMCID number.

If you have received a Research Core subsidy from the DHC, please acknowledge the grant in your publication by stating:

> **"This work was supported by NIH grant P30 DK078392 (*insert here the name of the core used*) of the Digestive Diseases Research Core Center in Cincinnati."**

Help the DHC to be compliant by acknowledging the grant and ensuring your publication has a PMCID number.

DHC Member Highlights

Sherman Receives Distinguished Research Award

Kenneth Sherman, MD PhD received the University of Cincinnati Distinguished Research Professor Award for the STEM disciplines. Dr. Sherman is the Division Director of Digestive Diseases in the Department of Medicine. He is internationally known for his research on viral hepatitis epidemiology, immunopathogenesis, diagnostics, and treatment.

Takebe Elected to ASCI and Receives Research Achievement Award

Takanori Takebe, MD was selected as a new member of the prestigious American Society for Clinical Investigation (ASCI). Dr. Takebe is a member in the Divisions of Gastroenterology, Hepatology, and Nutrition & Developmental Biology at Cincinnati Children's. He is the Director for Commercial Innovation for CuSTOM (Center for Stem Cell & Organoid Medicine). Dr. Takebe will be joining one of the nation's oldest and most respected medical honor societies. Other DHC members who are members of ASCI include Drs. Jorge Bezerra, Fred Finkelman, Shailendra Patel, Marc Rothenberg, Sing Sing Way.

Dr. Takebe also received the Cincinnati Children's Research Achievement Faculty Award. He is globally recognized for his pioneering work using human induced pluripotent stem cells to generate liver organoids to model human diseases.

Zorn Receive Research Achievement Award

Aaron Zorn, PhD received the Cincinnati Children's Research Achievement Faculty Award. Dr. Zorn is the DHC Associate Director overseeing the Pilot and Feasibility Program and Director of CuSTOM (Center for Stem Cell & Organoid Medicine). He is a member in the Division of Developmental Biology. Dr. Zorn is a highly accomplished scientist using the Xenopus model system and human pluripotent stem cells to understand the molecular basis of organ development.

Wikenheiser-Brokamp Receives Educational Award

Kathryn Wikenheiser-Brokamp, MD, PhD received the Cincinnati Children's Educational Achievement Faculty Award. She has developed and implemented multiple physician scientists training initiatiaves and plays a critical role in recruiting and traning students in the NIH funded Medical Scientist Training Program as the Associate Director. She has mentored 10 trainees and served on 31 PhD Dissertation Committees. Dr. Wikenheiser-Brokamp is the Director of the DHC Integrative Morphology Core. She is alos a Pathologist and Researcher in the Division of Pathology.

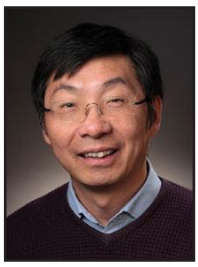
DHC Welcomes New Member and Transition to Full Membership

Iwafuchi New DHC Member

Makiko Iwafuchi, PhD is an Assistant Professor in the Department of Pediatrics, Division of Developmental Biology at Cincinnati Children's who has become a DHC Associate Member.

Her long-term research goal is to understand gene and epigenetic regulatory principles underlying dramatic cell fate changing events that occur in embryonic liver development, tissue repair, and disease.

Zheng Transition to Full Membership



Yi Zheng, PhD Professor and Division Director of Experimental Hematology & Cancer Biology in the Department of Pediatrics at Cincinnati Children's has transitioned to being a Full DHC Member. He used preliminary data generated from his DHC Pilot and Feasibility Award for his R01 that he received from the National Institute on Aging. The title of his grant is "Novel Mechanism of Intestinal Stem Cell Aging".

Seminar Series- Tuesdays at Noon, Virtually via Zoom
See weekly email announcement for link

Date	Presenter	Title
3/23/21	Matthew Kofron, PhD CCHMC: Confocal Imaging Facility	"Modern Imaging, Sample Preparation, Analysis & AI Processing Tools of DHC Research"
3/30/21	Senu Apewokin, MD UC: Department of Internal Medicine Division Infectious Diseases	"Taking Microbiome Science Beyond Taxonomic Profiling"
4/6/21	Chandrashekhar Gandhi, PhD CCHMC: Gastroenterology	"Hepatic Stellate Cells: The Central Communicators in Liver Inflammation and Injury"
4/13/21	Juanita Merchant, MD, PhD University of Arizona Tucson	"Helicobacter, Hedgehog and Orchestrating Myeloid Cell Plasticity"
4/20/21	Allison Ta, MD CCHMC: Gastroenterology	"MR Enterography Findings Associated with Microbial Shifts and Gene Expression in Pediatric Crohn's Disease"
4/27/21	Nicholas Ollberding, PhD CCHMC: Biostatistics and Epidemiology	"The Microbial Metagenomics Analysis Center at CCHMC"
5/4/21	Ruben Colman, MD CCHMC: Gastroenterology	Pharmacokinetic, Pharmacodynamic and Microbial Predictors of Inflixamab in Pediatric Crohn's Disease"
5/11/21	Jonathan Dillman, MD, MSc CCHMC: Radiology	"MRI of Liver Fibrosis - Past, Present and Future"
5/18/21	Kathryn Clarkston, MD CCHMC: Gastroenterology	"Targeted Assessment of Mucosal Immune Gene Expression Predicts Clinical and Endoscopic Outcomes in Children with Ulcerative Colitis"
5/25/21	Julie Osborn, MD CCHMC: Gastroenterology	"Novel Serum Biomarkers of Portal Hypertension in Children with Biliary Atresia"

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

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