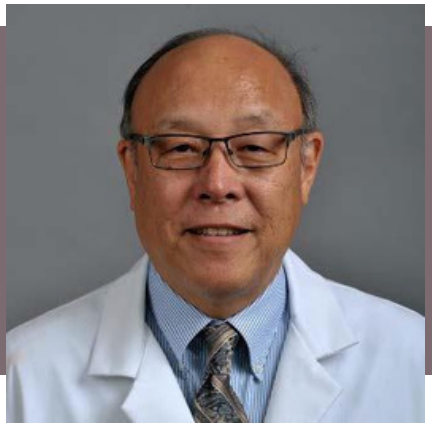
Center for Interdisciplinary Study of Inflammatory Intestinal Disorders (C-IID)

Newsletter

January 2024

Eugene B. Chang transitions to C-IID Director



Eugene B. Chang, MD, Martin Boyer Professor of Medicine, Director, Microbiome Medicine Program, previously the C-IID co-director, transitioned into his role as the Center director in November. Dr. Chang resumes his role as director as he previously served in this capacity for 22 years.

Dr. Chang will continue to increase the C-IID usage by providing innovative, state-of-the-art services; continuously promote collaborative research in digestive diseases; and increase diversity, equity and inclusion efforts.

Center for Interdisciplinary Study of
Inflammatory Intestinal Disorders (C-IID)

Research Cores

Learn more about the Research Cores that are available to the C-IID members.

Integrative Clinical and Biospecimen Core (**Sonia Kupfer, MD, Joel Pekow, MD, Christopher Weber, MD, PhD)**: Offers patient registry, tissue biobanking facilities, and support in designing clinical studies in areas such as human gut microbiomes in health and disease, IBD, gastroenterology, and hepatology, and celiac diseases.

Host-Microbe Core (**Alexander Chervonsky, MD, PhD, Betty Theriault, DVM, DACLAM, Ran Blekhman, PhD)**: Provides unique approaches to the study of host-microbe interactions, including cell/tissue models, gnotobiotic mouse technologies, metagenomics, and approaches for structural and functional profiling of complex microbial communities. The Core also offers bioinformatics analysis and interpretation of microbiome data and other genomic data in the context of digestive disorders. This includes, but not limited to, processing and analysis of data generated by 16S rRNA sequencing, metagenomic shotgun sequencing, metabolomics, transcriptomics, and epigenomics, as well as integration of various datasets using various statistical and computational approaches.

Tissue Engineering and Cell Models Core (**Eugene B. Chang, MD, Cambrian Liu, PhD**): Offers unique cell and tissue models, 2D and 3D enteroids/colonoids, and mouse models along with molecular and genetic engineering approaches to develop new model systems.

Multiparametric Host Cell Analysis Core (**Luis Barreiro, PhD, Bana Jabri, MD, PhD**): Provides expert consultation, training, experimental and bioinformatic support in the use of the growing array of highly specialized cutting-edge technologies that are available for flow cytometry and genomic analysis, specifically related to the study of gastrointestinal disease.

For more information visit the C-IID website: ciid.uchicago.edu

Continue to check the website as it is in the process of being updated to include listing of services offered and request forms.

News And Announcements

Valerie Abadie awarded the 2023 Celiac Disease Foundation Young Investigator Prize for Basic Science

Dr. Abadie was awarded the 2023 Celiac Disease Foundation Young Investigator Prize for Basic Science for her novel research on the development of the first pathophysiological murine model of celiac disease and identifying immune mechanisms in celiac disease pathogenesis. She was formally recognized at the Celiac Disease Foundation Award Reception during Digestive Disease Week in Chicago, IL. Read more.

Cambrian Liu Highlighted on WGN9 and Crain's Chicago Business' HealthPulse newsletter

Cambrian Liu, PhD has identified a unique skin-like stem cell originating from the anal transition zone that induce wound healing in mice colons by utilizing the novel imaging technique Analysis of Cleared Human Intestine (ALCHEMIST) to study regenerative medicine in the GI tract. Dr. Liu's research is funded by a C-IID Pilot & Feasibility Award, GI Research Foundation and a recently awarded NIH RO1 grant. Read more.

C-IID members present at the Midwest Digestive Diseases Research Core Centers Alliance Conference

The annual Midwest Digestive Diseases Research Core Centers Alliance (MWA) Conference was hosted by the Mayo Clinic DDRCC and held in Rochester, MN on October 26-28. The MWA is comprised of the DDRCCs from the University of Chicago, Mayo Clinic, Cincinnati Children's Hospital, and Case Western Reserve University. The inter-center collaboration adds substantial value to the missions of each of the Centers and foster collaborations, provide networking, joint initiatives, and resource development. C-IID members Drs. Cambrian Liu, (2021 C-IID Pilot & Feasibility Awardee) and Valerie Abadie (2018 C-IID Pilot & Feasibility Awardee) presented research talks at the conference.

News And Announcements

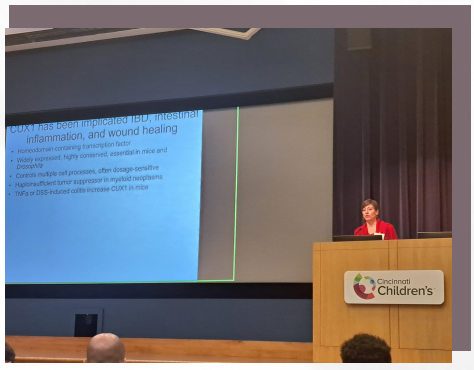
Community Health in Digestive Diseases Program

2024 C-IID Pilot and Feasibility recipient Edwin McDonald, IV, MD, continues to address gastrointestinal health disparities in underserved communities in University of Chicago's local 12 -zip code service area. Dr. McDonald, IV and Jeannine Wise, Director of Good Food is Good Medicine (GFGM) also address nutritional health by providing cooking classes to the community engaging in a eight-week health challenge. This program has been highlighted in The Chicago Tribune and The Chicago Sun-Times.

Increase in Diversity, Equity and Inclusion

The C-IID Administrative Core is working to increase Diversity, Equity and Inclusion efforts by working with the Enrichment Program in establishing collaborations with community organizations that work with underrepresented communities. The goals are to address digestive diseases health disparities and establish partnerships with students starting at the highschool level to encourage them to pursue careers in gastrointestinal medicine and research fields. Additional DEI efforts were utilized in the Pilot & Feasibility Program with the encouragement of investigators from underrepresented communities and also investigators that conduct research in underserved populations to apply for the award. The C-IID is also in the progress of establishing a Community Advisory Board.

Pilot and Feasibility Recipients present at Silvio O. Conte Digestive Diseases Research Core Centers Meeting



The annual Silvio O. Conte Digestive Diseases Research Core Centers (DDRCC) meeting was hosted by the Digestive Health Center (DHC) at the Cincinnati Children's Hospital Medical Center at the University of Cincinnati on November 6-7,2023. This meeting is comprised of the 17 DDRCCs leadership and numerous NIDDK staff. Megan McNerney, MD, PhD, Associate Professor, Department of Pathology, Division of Genomic and Molecular Pathology and Department of Pediatrics, Section of Hematology/Oncology, presented "CUX1 Transcriptional Regulation of Intestinal Epithelium Differentiation". Sebastian Pott, PhD, Assistant Professor of Medicine, presented his research titled "Multiomic Analysis Reveals Cellular and Epigenetic Plasticity in Intestinal Pouches of Ulcerative Colitis Patients".

News And Announcements

Congratulations

C-IID member Maria-Luisa Alegre, MD, PhD was named a Distinguished Fellow of the American Association of Immunologists (DFAAI) and elected Council Member and Leadership Track, American Association of Immunologist (2023-2030). Dr. Alegre also was awarded a 2P01AI097113 (Alegre and Chong, Multi-PD): Infections and the Stability of Transplantation Tolerance.

Aly Khan, PhD received a NIH DP2 NIAID New Innovator Award for: Unraveling the functional diversity of B cells in health and disease.

Notice of Funding Opportunity

NIDDK has joined PAR-23-309, Health and Health Care Disparities Among Persons Living with Disabilities (R01 - Clinical Trials Optional)" with the issue of NOT-DK-24-006.

In Memoriam: Albert Bendelac,MD, PhD

Albert Bendelac, MD, PhD, the A.N. Pritzker Distinguished Service Professor of Pathology at the University of Chicago, died at his home on August 23, 2023, surrounded by family. Dr. Bendelac was known for his pioneering research on lymphocyte biology, numerous awards recipient, including teaching, he received the Quantrell Teaching Award for Excellence in undergraduate teaching, and his contributions toward establishing UChicago's Committee on Immunology. Read more.

Pilot And Feasibility Award

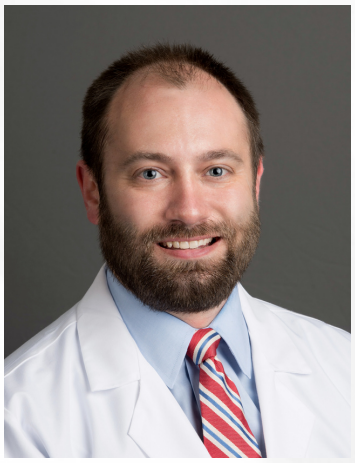
The C-IID and the Duchossois Family Institute (DFI) joined in partnership to award 5 Pilot and Feasibility awards of $50,000 each for research on digestive health and diseases. Proposals that involved studies of inflammatory bowel diseases (IBD) and related areas of intestinal inflammation, the gut immune system, the gut microbiome, host-microbe interactions, microbiome-based biotherapeutics, hepatic and digestive functions, host-microbe metabolism, and epithelial biology/developmental regulation of the gut were given special consideration. Please consider applying for the 2024-2025 cycle. The **RFA will be disseminated in July.**

2024 P&F Awardees

Anindita Basu, PhD, Assistant Professor, with co-investigator, Ran Blekhman, PhD, were awarded for “Coherent Multi-Omics of Host and Microbiome in Crohn’s Disease”.

Axel R. Concepcion, PhD, Neubauer Family Assistant Professor, Department of Biochemistry and Molecular Biology was awarded for "Decoding the mechanism underlying the autoimmune liver inflammation in a mouse model of Primary Biliary Cholangitis”.

Edwin McDonald IV, MD, Assistant Professor of Medicine, with co-Investigator Ashley Sidebottom, PhD, DFI Metabolomics director, collaborator, Eugene Chang, MD, were awarded for "Assessment of Fecal Microbial Metabolomics to Evaluate the Efficacy of Nutritional Education and Practices for Metabolic Health of Underserved and Underrepresented Minority Urban Communities".



Benjamin Shogan,MD, Associate Professor of Surgery, with General Surgery resident Nicholas Suss, MD, co-investigator. were awarded for "Elucidating the mechanisms by which preoperative nutritional modulation presents colorectal cancer recurrence in a murine model “.

Bozhi Tian, PhD, Professor, Department of Chemistry, with senior scientist Jiping Yue, PhD were awarded for "The microbiota- T cell axis in the link between the appendix and ulcerative colitis".

Enrichment Program

Academic Skills Retreat

The Section of Gastroenterology, Hepatology and Nutrition hosted the 15th annual academic skills retreat on July 30, 2023 organized by Drs. Sonia Kupfer (C-IID Enrichment Program Director and Integrative Clinical and Biospecimen Core Director) and Celina Canchola. The retreat was attended by GI fellows including research fellows who are working with mentors who are members of the C-IID. The event enabled trainees to learn critical academic skills such as effective science communication and to be inspired from successful academics in GI and Hepatology.

C-IID host Joint T32 retreat with the University of Wisconsin /Madison

The C-IID hosted a joint T32 retreat October 13-24, 2023 with the University of Wisconsin /Madison focused on Diversity, Equity, and Inclusion. The retreat included faculty research talks, trainee research presentations, academic skills sessions, and keynote speaker Angela Byars-Winston, PhD (UW-Madison, Co-PI on National Research Mentoring Network; Chair of the National Academies of Sciences' 2019 consensus report, The Science of Effective Mentorship in STEMM).

Recent C-IID Members' Publications

Please acknowledge support from the UChicago DDRCC, Center for Interdisciplinary Study of Inflammatory Intestinal Disorders (NIDDK P30 DK042086) in your publication and presentations (include the 0 in front of the 4).

Little AS, Younker IT, Schechter MS, Bernardino PN, Méheust R, Stemczynski J, Scorza K, Mullowney MW, Sharan D, Waligurski E, Smith R, Ramanswamy R, Leiter W, Moran D, McMillin M, Odenwald MA, Iavarone AT, Sidebottom AM, Sundararajan A, Pamer EG, Eren AM, Light SH. Dietary- and host-derived metabolites are used by diverse gut bacteria for anaerobic respiration. Nat Microbiol. 2024 Jan;9(1):55-69. doi: 10.1038/s41564-023-01560-2. Epub 2024 Jan 4. PMID: 38177297.

Li Z*, Rasic M*, Kwan M, Sepulveda M, McIntosh C, Shastry V, Chen L, Finn P, Perkins D*, Alegre ML*. Oral administration of the commensal Alistipes onderdonkii prolongs allograft survival. Am. J. Transplant., in press, 2023. *co-first and co-last authors. PMCID: PMC10041932.

Adam I, Motyka B, Tao K, Alegre ML, West L. Sex, T cells and the microbiome in natural ABO antibody production in mice. Transplantation, in press, 2023.

Li Z, Chen L, Sepulveda M, Wang P, Rasic M, Tullius SG, Perkins D, Alegre ML. Microbiota-dependent and -independent effects of obesity on transplant rejection and hyperglycemia. American Journal of Transplantation, DOI: 10.1016/j.ajt.2023.06.011, 23:1526-1535, 2023

Dela Cruz Mark, Lin Huaiying, Han Jiho, Adler Emerald, Boissiere Jaye, Khalid Maryam, Sidebottom Ashley, Sundararajan Anitha, Lehmann Christopher, Moran Angelica, Odenwald Matthew, Stutz Matthew, Kim Gene, Pinney Sean, Jeevanandam Valluvan, Alegre Maria-Luisa, Pamer Eric, Nguyen Ann B. Reduced immunomodulatory metabolite concentrations in peri-transplant fecal samples from heart allograft recipients. Frontiers in Transplantation. Volume=2.2023

Abadie V, Khosla C, Jabri B. A Mouse Model of Celiac Disease. Curr Protoc. 2022 Aug;2(8):e515. doi: 10.1002/cpz1.515. PMID: 35994521; PMCID: PMC10203737.

Hyoju S, Machutta K, Krezalek MA, Alverdy JC. What Is the Role of the Gut in Wound Infections? Adv Surg. 2023 Sep;57(1):31-46. doi: 10.1016/j.yasu.2023.05.002. Epub 2023 Jun 25. PMID: 37536860.

Alverdy JC. Biologically inspired gastrointestinal stapler design: "Getting to Zero" complications.Am J Surg. 2023 Jul;226(1):48-52. doi: 10.1016/j.amjsurg.2023.01.030. Epub 2023 Feb 1. PMID: 36775790; PMCID: PMC10293041.

Alverdy JC. The role of dietary prehabilitation on anastomotic healing. Curr Opin Clin Nutr Metab Care.2023 Sep 1;26(5):470-475. doi: 10.1097/MCO.0000000000000956. Epub 2023 Jun 20. PMID: 37389468.

Alverdy JC. Rationale for Colonic Pre-Habilitation Prior to Restoration of Gastrointestinal Continuity. Surg Infect (Larchmt).2023 Apr;24(3):265-270. doi: 10.1089/sur.2023.001. PMID: 37010975; PMCID: PMC10061335.

Krezalek MA, Alverdy JC. The Role of the Gut Microbiome on the Development of Surgical Site Infections. Clin Colon Rectal Surg. 2023 Jan 19;36(2):133-137. doi: 10.1055/s-0043-1760719. PMID: 36844709; PMCID: PMC9946714.

Alverdy JC. "It Is Not Necessary to Kill Them in Order to Make Them Relatively Harmless": Molecular Diplomacy in the Pathogen-Host Interaction. Surg Infect (Larchmt). 2023 Feb;24(1):1-3. doi: 10.1089/sur.2022.345. Epub 2022 Dec 15. PMID: 36521176; PMCID: PMC9894596.

Klunk J, Vilgalys TP, Demeure CE, Cheng X, Shiratori M, Madej J, Beau R, Elli D, Patino MI, Redfern R, DeWitte SN, Gamble JA, Boldsen JL, Carmichael A, Varlik N, Eaton K, Grenier JC, Golding GB, Devault A, Rouillard JM, Yotova V, Sindeaux R, Ye CJ, Bikaran M, Dumaine A, Brinkworth JF, Missiakas D, Rouleau GA, Steinrücken M, Pizarro-Cerdá J, Poinar HN, Barreiro LB. Evolution of immune genes is associated with the Black Death. Nature. 2022 Nov;611(7935):312-319. doi: 10.1038/s41586-022-05349-x. Epub 2022 Oct 19. PMID: 36261521; PMCID: PMC9580435.

Nittala PVK, Hohreiter A, Rosas Linhard E, Dohn R, Mishra S, Konda A, Divan R, Guha S, Basu A. Integration of silicon chip microstructures for in-line microbial cell lysis in soft microfluidics. Lab Chip. 2023 May 2;23(9):2327-2340. doi: 10.1039/d2lc00896c. PMID: 37083052; PMCID: PMC10259373.

Kibriya MG, Jasmine F, Pekow J, Munoz A, Weber C, Raza M, Kamal M, Ahsan H, Bissonnette M. Pathways Related to Colon Inflammation Are Associated with Colorectal Carcinoma: A Transcriptome- and Methylome-Wide Study. Cancers (Basel). 2023 May 26;15(11):2921. doi: 10.3390/cancers15112921. PMID: 37296884; PMCID: PMC10251872.

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Suzuki TA, Fitzstevens JL, Schmidt VT, Enav H, Huus KE, Mbong Ngwese M, Grießhammer A, Pfleiderer A, Adegbite BR, Zinsou JF, Esen M, Velavan TP, Adegnika AA, Song LH, Spector TD, Muehlbauer AL, Marchi N, Kang H, Maier L, Blekhman R, Ségurel L, Ko G, Youngblut ND, Kremsner P, Ley RE. Codiversification of gut microbiota with humans. Science. 2022 Sep 16;377(6612):1328-1332. doi: 10.1126/science.abm7759. Epub 2022 Sep 15. PMID: 36108023.

Johnson KE, Heisel T, Allert M, Fürst A, Yerabandi N, Knights D, Jacobs KM, Lock EF, Bode L, Fields DA, Rudolph MC, Gale CA,Albert FW, Demerath EW, Blekhman R. Human milk variation is shaped by maternal genetics and impacts the infant gut microbiome. bioRxiv [Preprint]. 2023 Jan 25:2023.01.24.525211. doi: 10.1101/2023.01.24.525211. PMID: 36747843; PMCID: PMC9900818.

Veseli I, Chen YT, Schechter MS, Vanni C, Fogarty EC, Watson AR, Jabri B, Blekhman R, Willis AD, Yu MK, Fernàndez-Guerra A, Füssel J, Eren AM. Microbes with higher metabolic independence are enriched in human gut microbiomes under stress. bioRxiv [Preprint]. 2023 May 26:2023.05.10.540289. doi: 10.1101/2023.05.10.540289. PMID: 37293035; PMCID: PMC10245760.

Johnson KE, Heisel T, Fields DA, Isganaitis E, Jacobs KM, Knights D, Lock EF, Rudolph MC, Gale CA, Schleiss MR, Albert FW, Demerath EW, Blekhman R. Human Cytomegalovirus in breast milk is associated with milk composition, the infant gut microbiome, and infant growth. bioRxiv [Preprint]. 2023 Jul 19:2023.07.19.549370. doi: 10.1101/2023.07.19.549370. PMID: 37503212; PMCID: PMC10370112.

Roche KE, Bjork JR, Dasari MR, Grieneisen L, Jansen D, Gould TJ, Gesquiere LR, Barreiro LB, Alberts SC, Blekhman R, Gilbert JA, Tung J, Mukherjee S, Archie EA. Universal gut microbial relationships in the gut microbiome of wild baboons. Elife. 2023 May 9;12:e83152. doi: 10.7554/eLife.83152. PMID: 37158607; PMCID: PMC10292843.

Pierre JF, Peters BM, La Torre D, Sidebottom AM, Tao Y, Zhu X, Cham CM, Wang L, Kambal A, Harris KG, Silva JE, Zaborina O, Alverdy JC, Herzog H, Witchley J, Noble SM, Leone VA, Chang EB. Peptide YY: A Paneth cell antimicrobial peptide that maintains Candida gut commensalism. Science. 2023 Aug 4;381(6657):502-508. doi: 10.1126/science.abq3178. Epub 2023 Aug 3. PMID: 37535745.

Zhuo R, Xu M, Wang X, Zhou B, Wu X, Leone V, Chang EB, Zhong X. The regulatory role of N6 -methyladenosine modification in the interaction between host and microbes. Wiley Interdiscip Rev RNA. 2022 Nov;13(6):e1725. doi: 10.1002/wrna.1725. Epub 2022 Mar 17. PMID: 35301791.

Kennedy MS, Zhang M, DeLeon O, Bissell J, Trigodet F, Lolans K, Temelkova S, Carroll KT, Fiebig A, Deutschbauer A, Sidebottom AM, Lake J, Henry C, Rice PA, Bergelson J, Chang EB. Dynamic genetic adaptation of Bacteroides thetaiotaomicron during murine gut colonization. Cell Rep. 2023 Aug 29;42(8):113009. doi: 10.1016/j.celrep.2023.113009. Epub 2023 Aug 21. PMID: 37598339.

Cho S, Yang X, Won KJ, Leone VA, Chang EB, Guzman G, Ko Y, Bae ON, Lee H, Jeong H. Phenylpropionic acid produced by gut microbiota alleviates acetaminophen-induced hepatotoxicity. Gut Microbes. 2023 Jan-Dec;15(1):2231590. doi: 10.1080/19490976.2023.2231590. PMID: 37431867; PMCID: PMC10337503.

Yoon YM, Hrusch CL, Fei N, Barrón GM, Mills KAM, Hollinger MK, Velez TE, Leone VA, Chang EB, Sperling AI. Gut microbiota modulates bleomycin-induced acute lung injury response in mice. Respir Res. 2022 Dec 10;23(1):337. doi: 10.1186/s12931-022-02264-7. PMID: 36496380; PMCID: PMC9741526.

Fogarty EC, Schechter MS, Lolans K, Sheahan ML, Veseli I, Moore R, Kiefl E, Moody T, Rice PA, Yu MK, Mimee M, Chang EB, Mclellan SL, Willis AD, Comstock LE, Eren AM.A highly conserved and globally prevalent cryptic plasmid is among the most numerous mobile genetic elements in the human gut. bioRxiv [Preprint]. 2023 Mar 25:2023.03.25.534219. doi: 10.1101/2023.03.25.534219. PMID: 36993556; PMCID: PMC10055365.

Fei N, Miyoshi S, Hermanson JB, Miyoshi J, Xie B, DeLeon O, Hawkins M, Charlton W, Dâ Souza M, Hart J, Sulakhe D, Martinez-Guryn KB, Chang EB, Charlton MR, Leone VA. Imbalanced gut microbiota predicts and drives the progression of nonalcoholic fatty liver disease and nonalcoholic steatohepatitis in a fast-food diet mouse model. bioRxiv [Preprint]. 2023 Jan 9:2023.01.09.523249. doi: 10.1101/2023.01.09.523249. PMID: 36712061; PMCID: PMC9882021.

Frazier K, Manzoor S, Carroll K, DeLeon O, Miyoshi S, Miyoshi J, St George M, Tan A, Chrisler EA, Izumo M, Takahashi JS, Rao MC, Leone VA, Chang EB. Gut microbes and the liver circadian clock partition glucose and lipid metabolism. J Clin Invest. 2023 Sep 15;133(18):e162515. doi: 10.1172/JCI162515. PMID: 37712426.

Funsten MC, Yurkovetskiy LA, Kuznetsov A, Reiman D, Hansen CHF, Senter KI, Lee J, Ratiu J, Dahal-Koirala S, Antonopoulos DA, Dunny GM, Sollid LM, Serreze D, Khan AA, Chervonsky AV. Microbiota-dependent proteolysis of gluten subverts diet-mediated protection against type 1 diabetes. Cell Host Microbe. 2023 Feb 8;31(2):213-227.e9. doi: 10.1016/j.chom.2022.12.009. Epub 2023 Jan 4. PMID: 36603588; PMCID: PMC9911364.

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Takahama M, Patil A, Johnson K, Cipurko D, Miki Y, Taketomi Y, Carbonetto P, Plaster M, Richey G, Pandey S, Cheronis K, Ueda T, Gruenbaum A, Dudek SM, Stephens M, Murakami M, Chevrier N. Organism-Wide Analysis of Sepsis Reveals Mechanisms of Systemic Inflammation. bioRxiv [Preprint]. 2023 Feb 2:2023.01.30.526342. doi: 10.1101/2023.01.30.526342. PMID: 36778287; PMCID: PMC9915512.

Lu J, Martin CR, Claud EC. Neurodevelopmental outcome of infants who develop necrotizing enterocolitis: The gut-brain axis. Semin Perinatol. 2023 Feb;47(1):151694. doi: 10.1016/j.semperi.2022.151694. Epub 2022 Dec 20. PMID: 36572620; PMCID: PMC9974904.

Xia J, Claud EC. Gut Microbiome-Brain Axis as an Explanation for the Risk of Poor Neurodevelopment Outcome in Preterm Infantswith Necrotizing Enterocolitis. Microorganisms. 2023 Apr 15;11(4):1035. doi: 10.3390/microorganisms11041035. PMID: 37110458; PMCID: PMC10142133.

Sharma A, Yu Y, Lu J, Lu L, Zhang YG, Xia Y, Sun J, Claud EC. The Impact of Maternal Probiotics on Intestinal Vitamin D Receptor Expression in Early Life. Biomolecules. 2023 May 16;13(5):847. doi: 10.3390/biom13050847. PMID: 37238716; PMCID: PMC10216467.

Lu J, Fan X, Lu L, Yu Y, Markiewicz E, Little JC, Sidebottom AM, Claud EC. Limosilactobacillus reuteri normalizes blood-brain barrier dysfunction and neurodevelopment deficits associated with prenatal exposure to lipopolysaccharide. Gut Microbes. 2023 Jan-Dec;15(1):2178800. doi: 10.1080/19490976.2023.2178800. PMID: 36799469; PMCID: PMC9980478.

Lu J, Drobyshevsky A, Lu L, Yu Y, Caplan MS, Claud EC. Microbiota from Preterm Infants Who Develop Necrotizing Enterocolitis Drives the Neurodevelopment Impairment in a Humanized Mouse Model. Microorganisms. 2023 Apr 26;11(5):1131. doi: 10.3390/microorganisms11051131. PMID: 37317106; PMCID: PMC10224461.

Reschke R, Shapiro JW, Yu J, Rouhani SJ, Olson DJ, Zha Y, Gajewski TF. Checkpoint Blockade-Induced Dermatitis and Colitis Are Dominated byTissue-Resident Memory T Cells and Th1/Tc1 Cytokines. Cancer Immunol Res. 2022 Oct 4;10(10):1167-1174. doi: 10.1158/2326-6066.CIR-22-0362. PMID: 35977003; PMCID: PMC9530647.

Beilinson HA, Sevilleja A, Spring J, Benavides F, Beilinson V, Neokosmidis N, Golovkina T. A single dominant locus restricts retrovirus replication in YBR/Ei mice. J Virol. 2023 Aug 31;97(8):e0068523. doi: 10.1128/jvi.00685-23. Epub 2023 Aug 14. PMID: 37578238.

Spring J, Beilinson V, DeFelice BC, Sanchez JM, Fischbach M, Chervonsky A, Golovkina T. Retroviral Infection and Commensal Bacteria Dependently Alter the Metabolomic Profile in a Sterile Organ. Viruses. 2023 Jan 29;15(2):386. doi: 10.3390/v15020386. PMID: 36851600; PMCID: PMC9967258.

Yang D, Jacobson A, Meerschaert KA, Sifakis JJ, Wu M, Chen X, Yang T, Zhou Y, Anekal PV, Rucker RA, Sharma D, Sontheimer-Phelps A, Wu GS, Deng L, Anderson MD, Choi S, Neel D, Lee N, Kasper DL, Jabri B, Huh JR, Johansson M, Thiagarajah JR, Riesenfeld SJ, Chiu IM. Nociceptor neurons direct goblet cells via a CGRP-RAMP1 axis to drive mucus production and gut barrier protection. Cell. 2022 Oct 27;185(22):4190-4205.e25. doi: 10.1016/j.cell.2022.09.024. Epub 2022 Oct 14. PMID: 36243004; PMCID: PMC9617795.

Earley ZM, Lisicka W, Sifakis JJ, Aguirre-Gamboa R, Kowalczyk A, Barlow JT, Shaw DG, Discepolo V, Tan IL, Gona S, Ernest JD, Matzinger P, Barreiro LB, Morgun A, Bendelac A, Ismagilov RF, Shulzhenko N, Riesenfeld SJ, Jabri B. GATA4 controls regionalization of tissue immunity and commensal-driven immunopathology. Immunity. 2023 Jan 10;56(1):43-57.e10. doi: 10.1016/j.immuni.2022.12.009. PMID: 36630917; PMCID: PMC10262782.

Halper-Stromberg A, Jabri B. Maladaptive consequences of inflammatory events shape individual immune identity. Nat Immunol. 2022 Dec;23(12):1675-1686. doi: 10.1038/s41590-022-01342-8. Epub 2022 Nov 21. PMID: 36411382.

Watson AR, Füssel J, Veseli I, DeLongchamp JZ, Silva M, Trigodet F, Lolans K, Shaiber A, Fogarty E, Runde JM, Quince C, Yu MK, Söylev A, Morrison HG, Lee STM, Kao D, Rubin DT, Jabri B, Louie T, Eren AM. Metabolic independence drives gut microbial colonization and resilience in health and disease. Genome Biol. 2023 Apr 17;24(1):78. doi: 10.1186/s13059-023-02924-x. PMID: 37069665; PMCID: PMC10108530.

Shaw DG, Aguirre-Gamboa R, Vieira MC, Gona S, DiNardi N, Wang A, Dumaine A, Gelderloos-Arends J, Earley ZM, Meckel KR, Ciszewski C, Castillo A, Monroe K, Torres J, Shah SC, Colombel JF, Itzkowitz S, Newberry R, Cohen RD, Rubin DT, Quince C, Cobey S, Jonkers IH, Weber CR, Pekow J, Wilson PC, Barreiro LB, Jabri B. Antigen-driven colonic inflammation is associated with development of dysplasia in primary sclerosing cholangitis. Nat Med. 2023 Jun;29(6):1520-1529. doi: 10.1038/s41591-023-02372-x. Epub 2023 Jun 15. PMID: 37322120; PMCID: PMC10287559.

Witonsky D, Bielski MC, Li J, Lawrence KM, Mendoza IN, Usman H, Kupfer SS. Genomic and epigenomic responses to aspirin in human colonic organoids. Physiol Genomics. 2023 Mar 1;55(3):101-112. doi: 10.1152/physiolgenomics.00070.2022. Epub 2023 Jan 16. PMID: 36645669; PMCID: PMC10069959.

Recent C-IID Members' Publications

Please acknowledge support from the UChicago DDRCC, Center for Interdisciplinary Study of Inflammatory Intestinal Disorders (NIDDK P30 DK042086) in your publication and presentations (include the 0 in front of the 4).

Arnold J, Glazier J, Mimee M. Genetic Engineering of Resident Bacteria in the Gut Microbiome. J Bacteriol. 2023 Jul 25;205(7):e0012723. doi: 10.1128/jb.00127-23. Epub 2023 Jun 29. PMID: 37382533; PMCID: PMC10367592.

Oliveira RA, Pamer EG. Assembling symbiotic bacterial species into live therapeutic consortia that reconstitute microbiome functions. Cell Host Microbe. 2023 Apr 12;31(4):472-484. doi: 10.1016/j.chom.2023.03.002. PMID: 37054670.

Dong Q, Lin H, Allen MM, Garneau JR, Sia JK, Smith RC, Haro F, McMillen T, Pope RL, Metcalfe C, Burgo V, Woodson C, Dylla N, Kohout C, Sundararajan A, Snitkin ES, Young VB, Fortier LC, Kamboj M, Pamer EG. Virulence and genomic diversity among clinical isolates of ST1 (BI/NAP1/027) Clostridioides difficile. Cell Rep. 2023 Aug 29;42(8):112861. doi: 10.1016/j.celrep.2023.112861. Epub 2023 Jul 30. PMID: 37523264.

Jamil OK, Shaw D, Deng Z, Dinardi N, Fillman N, Khanna S, Krugliak Cleveland N, Sakuraba A, Weber CR, Cohen RD, Dalal S, Jabri B, Rubin DT, Pekow J. Inflammation in the proximal colon is a risk factor for the development of colorectal neoplasia in inflammatory owel disease patients with primary sclerosing cholangitis. Therap Adv Gastroenterol. 2023 Sep 7;16:17562848231184985. doi: 10.1177/17562848231184985. PMID: 37692199; PMCID: PMC10486214.

Traboulsi C, Ayoub F, Silfen A, Rodriguez TG, Rubin DT. Upadacitinib Is Safe and Effective for Crohn's Disease: Real-World Data from a Tertiary Center. Dig Dis Sci. 2023 Feb;68(2):385-388. doi: 10.1007/s10620-022-07582-w. Epub 2022 Jun 13. PMID: 35695972.

Friedberg S, Choi D, Hunold T, Choi NK, Garcia NM, Picker EA, Cohen NA, Cohen RD, Dalal SR, Pekow J, Sakuraba A, Krugliak Cleveland N, Rubin DT. Upadacitinib Is Effective and Safe in Both Ulcerative Colitis and Crohn's Disease: Prospective Real-World Experience. Clin Gastroenterol Hepatol. 2023 Jul;21(7):1913-1923.e2. doi: 10.1016/j.cgh.2023.03.001. Epub 2023 Mar 8. PMID: 36898598.

Miyatani Y, Choi D, Du X, Hart J, Rubin DT. Medically Refractory Lymphocytic Colitis Successfully Treated With Upadacitinib. ACG Case Rep J. 2023 Feb 10;10(2):e00979. doi: 10.14309/crj.0000000000000979. PMID: 36788789; PMCID: PMC9916037.
Cohen NA, Choi D, Choden T, Cleveland NK, Cohen RD, Rubin DT. Ozanimod in the Treatment of Ulcerative Colitis: Initial Real-World Data From a Large Tertiary Center.

Clin Gastroenterol Hepatol. 2023 Aug;21(9):2407-2409.e2. doi: 10.1016/j.cgh.2022.03.035. Epub 2022 Apr 2. PMID: 35381385.
Akiyama S, Cohen NA, Kayal M, Dubinsky MC, Colombel JF, Rubin DT. Treatment of Chronic Inflammatory Pouch Conditions With Tofacitinib: A Case Series From 2 Tertiary IBD Centers in the United States. Inflamm Bowel Dis. 2023 Sep 1;29(9):1504-1507. doi: 10.1093/ibd/izad011. PMID: 36745039; PMCID: PMC10472733.

Runde J, Veseli I, Fogarty EC, Watson AR, Clayssen Q, Yosef M, Shaiber A, Verma R, Quince C, Gerasimidis K, Rubin DT, Eren AM. Transient Suppression of Bacterial Populations Associated with Gut Health is Critical in Success of Exclusive Enteral Nutrition for Children with Crohn's Disease. J Crohns Colitis. 2023 Jul 5;17(7):1103-1113. doi: 10.1093/ecco-jcc/jjad031. PMID: 36934439.

Seo DO, O'Donnell D, Jain N, Ulrich JD, Herz J, Li Y, Lemieux M, Cheng J, Hu H, Serrano JR, Bao X, Franke E, Karlsson M, Meier M, Deng S, Desai C, Dodiya H, Lelwala-Guruge J, Handley SA, Kipnis J, Sisodia SS, Gordon JI, Holtzman DM. ApoE isoform- and microbiota-dependent progression of neurodegeneration in a mouse model of tauopathy. Science. 2023 Jan 13;379(6628):eadd1236. doi: 10.1126/science.add1236. Epub 2023 Jan 13. PMID: 36634180; PMCID: PMC9901565.

Matthews JM, Schuster B, Kashaf SS, Liu P, Ben-Yishay R, Ishay-Ronen D, Izumchenko E, Shen L, Weber CR, Bielski M, Kupfer SS Bilgic M, Rzhetsky A, Tay S. OrganoID: A versatile deep learning platform for tracking and analysis of single-organoid dynamics. PLoS Comput Biol. 2022 Nov 9;18(11):e1010584. doi: 10.1371/journal.pcbi.1010584. PMID: 36350878; PMCID: PMC9645660.

Lin Y, Gao X, Yue J, Fang Y, Shi J, Meng L, Clayton C, Zhang XX, Shi F, Deng J, Chen S, Jiang Y, Marin F, Hu J, Tsai HM, Tu Q, Roth EW,Bleher R, Chen X, Griffin P, Cai Z, Prominski A, Odom TW, Tian B. A soil-inspired dynamically responsive chemical system for microbial modulation. Nat Chem. 2023 Jan;15(1):119-128. doi: 10.1038/s41557-022-01064-2. Epub 2022 Oct 24. PMID: 36280766.

Zilbauer M, James KR, Kaur M, Pott S, Li Z, Burger A, Thiagarajah JR, Burclaff J, Jahnsen FL, Perrone F, Ross AD, Matteoli G, Stakenborg N, Sujino T, Moor A, Bartolome-Casado R, Bækkevold ES, Zhou R, Xie B, Lau KS, Din S, Magness ST, Yao Q, Beyaz S, Arends M, Denadai-Souza A, Coburn LA, Gaublomme JT, Baldock R, Papatheodorou I, Ordovas-Montanes J, Boeckxstaens G, Hupalowska A, Teichmann SA, Regev A, Xavier RJ, Simmons A, Snyder MP, Wilson KT; Gut Cell Atlas Consortium; Human Cell Atlas Gut Biological Network Consortium. A Roadmap for the Human Gut Cell Atlas. Nat Rev Gastroenterol Hepatol. 2023 Sep;20(9):597-614. doi: 10.1038/s41575-023-00784-1. Epub 2023 May 31. PMID: 37258747.

Recent C-IID Members' Publications

Please acknowledge support from the UChicago DDRCC, Center for Interdisciplinary Study of Inflammatory Intestinal Disorders (NIDDK P30 DK042086) in your publication and presentations (include the 0 in front of the 4).

Sheahan ML, Coyne MJ, Flores K, Garcia-Bayona L, Chatzidaki-Livanis M, Sundararajan A, Holst AQ, Barquera B, Comstock LE. A ubiquitous mobile genetic element disarms a bacterial antagonist of the gut microbiota. bioRxiv [Preprint]. 2023 Aug 26:2023.08.25.553775. doi: 10.1101/2023.08.25.553775. PMID: 37662397; PMCID: PMC10473720.

Fogarty EC, Schechter MS, Lolans K, Sheahan ML, Veseli I, Moore R, Kiefl E, Moody T, Rice PA, Yu MK, Mimee M, Chang EB, Mclellan SL, Willis AD, Comstock LE, Eren AM. A highly conserved and globally prevalent cryptic plasmid is among the most numerous mobile genetic elements in the human gut. bioRxiv [Preprint]. 2023 Mar 25:2023.03.25.534219. doi: 10.1101/2023.03.25.534219. PMID: 36993556; PMCID: PMC10055365.

Liu CY, Girish N, Gomez ML, Kalski M, Bernard JK, Simons BD, Polk DB. Wound-healing plasticity enables clonal expansion of founder progenitor cells in colitis. Dev Cell. 2023 Aug 25:S1534-5807(23)00407-0. doi: 10.1016/j.devcel.2023.08.011. Epub ahead of print. PMID: 37652012.

Bernard JK, Bucar EB, Liu CY, Katada K, Washington MK, Schumacher MA, Frey MR. Deletion of Endogenous Neuregulin-4 Limits Adaptive Immunity During Interleukin-10 Receptor-Neutralizing Colitis. Inflamm Bowel Dis. 2023 Jun 2:izad092. doi: 10.1093/ibd/izad092. Epub ahead of print. PMID: 37265326.

Schumacher MA, Liu CY, Katada K, Thai MH, Hsieh JJ, Hansten BJ, Waddell A, Rosen MJ, Frey MR. Deep Crypt Secretory Cell Differentiation in the Colonic Epithelium Is Regulated by Sprouty2 and Interleukin 13. Cell Mol Gastroenterol Hepatol. 2023;15(4):971-984. doi: 10.1016/j.jcmgh.2022.11.004. Epub 2022 Nov 19. PMID: 36414210; PMCID: PMC9982040.

Choden T, Yeager M, Cohen RD. Checking Out the Associations Between Inflammatory Bowel Disease and Checkpoint Inhibitor Colitis. Dig Dis Sci. 2022 Nov;67(11):5010-5013. doi: 10.1007/s10620-022-07668-5. Epub 2022 Sep 13. PMID: 36098874.

Halper-Stromberg A, Dalal SR. The Role of the Microbiome in the Etiology of Inflammatory Bowel Diseases. Clin Colon Rectal Surg. 2023 Jan 25;36(2):120-126. doi: 10.1055/s-0042-1760680. PMID: 36844713; PMCID: PMC9946717.

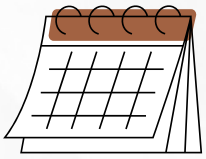
Chun LY, Dahmer DJ, Amin SV, Hariprasad SM, Skondra D. Update on Current MicrobiologicalTechniques for Pathogen Identification in Infectious Endophthalmitis. Int J Mol Sci. 2022 Oct 6;23(19):11883. doi: 10.3390/ijms231911883. PMID: 36233183; PMCID: PMC9570044.
Xiao J, Zhang JY, Luo W, He PC, Skondra D. The Emerging Role of Gut Microbiota in Age-Related Macular Degeneration. Am J Pathol. 2023 May 6:S0002-9440(23)00162-1. doi: 10.1016/j.ajpath.2023.04.006. Epub ahead of print. PMID: 37156326.

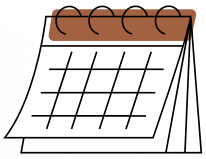
Luo W, Skondra D. Implication of gut microbiome in age-related macular degeneration.
Neural Regen Res. 2023 Dec;18(12):2699-2700. doi: 10.4103/1673-5374.373687. PMID: 37449629; PMCID: PMC10358697.

Brown H, Komnick MR, Brigleb PH, Dermody TS, Esterházy D. Lymph node sharing between pancreas, gut, and liver leads to immune crosstalk and regulation of pancreatic autoimmunity. Immunity. 2023 Sep 12;56(9):2070-2085.e11.
doi: 10.1016/j.immuni.2023.07.008. Epub 2023 Aug 8. PMID: 37557168.

Zhao Y, Zhou R, Xie B, Liu CY, Kalski M, Cham CM, Koval J, Weber CR, Rubin DT, Sogin M, Crosson S, Huang J, Fiebig A, Dalal S, Chang EB, Basu A, Pott S. Multiomic analysis reveals cellular and epigenetic plasticity in intestinal pouches of ulcerative colitis patients. medRxiv [Preprint]. 2023 Nov 13:2023.11.11.23298309. doi: 10.1101/2023.11.11.23298309. PMID: 38014192; PMCID: PMC10680893.

Upcoming Events





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