EDITION
MARCH 2024

UC San Diego
School of Medicine

Division of Gastroenterology & Hepatology

INSIDE THIS ISSUE

- Message from the Chief
- Faculty Spotlight
- Research Fellows Spotlight
- Division Research Activites
- Liver Transplant
- Center Highlights
- DDW 2024 Activities
- Upcoming Events

Dear UCSD Division of Gastroenterology and Hepatology Team,

I am thrilled to share with you the March 2024 Newsletter that highlights our research. US World News Rankings has recognized UCSD as the top most institution in the world in research in Gastroenterology and Hepatology. This achievement is a testament to the incredible dedication, passion, and hard work of each and every member of our division.

As we embark on another year of groundbreaking research in gastroenterology and hepatology at UCSD, I am excited to reaffirm our commitment to fostering a culture of collaboration and innovation within our division.

Collaboration lies at the heart of scientific progress, and it is through the collective efforts of diverse minds coming together that we can tackle the most pressing challenges and make meaningful advancements in our field. At UCSD, we have long recognized the transformative power of collaboration, and it is this spirit of partnership that has propelled us to the forefront of gastroenterology research.

We believe that there are several key ways in which we can continue to inspire, and facilitate collaboration within our division:

1. Open Communication Channels: We must create avenues for open and transparent communication among members of our division, encouraging the sharing of ideas, feedback, and resources. Whether through regular meetings, seminars, or digital platforms, we should strive to maintain an environment where everyone feels empowered to contribute and collaborate. To this end, we will have a research retreat for the division on April 19th, 2024. I am grateful to Dr. Schnabl and the rest of the planning committee for organizing the research retreat to set the stage for this excellent forum to advance our science and collaboration.

2. Interdisciplinary Partnerships: Gastroenterology research is inherently multidisciplinary, drawing upon insights from fields such as microbiology, immunology, pathology, genetics, imaging and biomedical engineering. By forging partnerships with researchers across different disciplines both within UCSD and beyond, we can leverage complementary expertise and perspectives to tackle complex problems from multiple angles.

3. Team Science Initiatives: Team science approaches, which involve bringing together investigators with diverse backgrounds and skill sets to work towards a common goal, have proven to be highly effective in driving scientific discovery. Let us continue to support and champion team science initiatives within our division, whether through collaborative grant proposals, joint research projects, or interdisciplinary training programs.

4. Promoting Diversity and Inclusion: Diversity is not only a moral imperative but also a catalyst for innovation. By fostering a culture of inclusivity and equity, we can harness the full potential of our diverse community of researchers and ensure that everyone has an equal opportunity to contribute and succeed.

5. Celebrating Successes Together: Finally, let us not forget to celebrate our successes as a team. Whether it's a groundbreaking publication, a successful grant award, or a significant milestone in our research, these achievements belong to all of us, and they serve as a testament to the power of collaboration and collective effort such as our recent pickle ball event.
As we look ahead to the future, let us reaffirm our commitment to collaboration and redouble our efforts to push the boundaries of knowledge in gastroenterology and hepatology. Together, there is no limit to what we can achieve.

Thank you for your dedication, passion, and unwavering commitment to advancing the frontiers of science.

Warm regards,

Rohit Loomba, MD, MHSc
Professor of Medicine
Director, MASLD Research Center
Chief, Division of Gastroenterology and Hepatology
UC San Diego Health

BEST HOSPITALS U.S.News GASTROENTEROLOGY & GI SURGERY 2023-2024

#18 GASTROENTEROLOGY & GI SURGERY

UC San Diego Health

BEST GLOBAL UNIVERSITIES U.S.News

UC San Diego #1 for Gastroenterology & Hepatology Research

FACULTY SPOTLIGHT

Bernd Schnabl, M.D., AGAF, FAASLD

Professor of Medicine
Director,
San Diego Digestive Diseases Research Center
Director of Research,
Division of Gastroenterology & Hepatology

Trained as physician scientist, Dr. Schnabl is combining his expertise in clinical medicine with basic science in the field of chronic liver diseases. His research focus is to understand the complex multi-directional interactions that occur between the gut microbiota and the liver. His lab pioneered the characterization of the intestinal bacterial microbiota, mycobiome and virome in patients with liver disease. His studies have resulted in over 230 publications in journals including NEJM, Cell, Nature, Nature Medicine, Cell Host & Microbe, PNAS, and Journal of Clinical Investigation. He has been among the top 1% highly-cited researcher by citations in recent years. In recognition of this work, he was elected to the American Society of Clinical Investigation and the Association of American Physicians, and gave keynote addresses at national and international meetings. He received the Harrington Scholar-Innovator Award in 2022. In addition, he is directing the NIH-funded San Diego Digestive Diseases Research Center (SDDRC) together with Dr. Eckmann. Dr. Schnabl is principal investigator of a VA Merit Award, multiple NIH grants, foundation awards and industry-sponsored projects.

In his new role as Director of Research of the GI Division, his goal is to bring together the diverse expertise within the division, foster collaborations, and strategize the direction of research endeavors for the coming years. He will continue providing mentorship and support to junior researchers, including residents, fellows, and junior faculty members.

Top 3 Publications:

Duan Y, Llorente C, Lang S, Brandl K, Chu H, Jiang L, White RC, Clarke TH, Nguyen K, Torralba M, Shao Y, Liu J, Hernandez-Morales A, Lessor L, Rahman IR, Miyamoto Y, Ly M, Gao B, Sun W, Kiesel R, Hutmacher F, Lee S, Ventura-Cots M, Bosques-Padilla F, Verna EC, Abraldes JG, Brown RS Jr, Vargas V, Altamirano J, Caballería J, Shawcross DL, Ho SB, Louvet A, Lucey MR, Mathurin P, Garcia-Tsao G, Bataller R, Tu XM, Eckmann L, van der Donk WA, Young R, Lawley TD, Stärkel P, Pride D, Fouts DE, Schnabl B. Bacteriophage targeting of gut bacterium attenuates alcoholic liver disease. Nature. 2019, 575(7783):505-511. PMCID: PMC6872939

Zeng S, Rosati E, Saggau C, Messner B, Chu H, Duan Y, Hartmann P, Wang Y, Ma S, Huang WJM, Lee J, Lee SM, Carvalho-Gontijo R, Zhang V, Hoffmann JP, Kolls JK, Raz E, Brenner DA, Kisseleva T, LeibundGut-Landmann S, Bacher P, Stärkel P, Schnabl B. Candida albicans-specific Th17 cell-mediated response contributes to alcohol-associated liver disease. Cell Host Microbe. 2023; 31(3):389-404. PMCID: PMC10039706

Schnabl B. PPAR Agonists in Primary Biliary Cholangitis. N Engl J Med. 2024; 390(9):855-858. PMID: 38381666.

AGA FORWARD Program

Advancing equity in GI

The FORWARD Program, an AGA leadership pathway, prepares physician-scientists from underrepresented populations for a successful career in academic medicine with research and management skills training from top GI investigators and research skills experts, leadership development partnering with an executive coach, and a community of leaders and peers with similar backgrounds to learn from and share experiences with.

Figure 1. FORWARD CLASS 2021-2023 at AGA Academic Skills Workshop. Top row L to R: 27. Joel Gabre MD, Columbia 28. Nicolette Rodriguez, MD MPH, Harvard; 29. Bubu Banini MD PhD, Yale 30. Manuel Braga Neto MD PhD, Cleveland Clinic; 31. Jihane Benhammou MD PhD, UCLA 32. Cassandra Fritz MD, Washington University; Olu Aidefferen AGA staff; Wilma Smith AGA staff, 33. Jeremy Louissant UTSW; 34. Vivian Ortiz MD, Mayo Clinic; 35. Muyiwa Awoniyi MD PhD, Cleveland Clinic; 36. Rachel Issaka MD MAS, U of Washington; Jesus Rivera-Nieves MD, UCSD/AGA.

The Fostering Opportunities Resulting in Workforce and Research Diversity (FORWARD) Program is a key part of the American Gastroenterological Association's organizational commitment to expand the pool of physicians and scientists from underrepresented backgrounds and reduce disparities in digestive disease. The next phase of the program aims to retain a diverse research workforce in gastroenterology by preparing and aiding the transition of early-career individuals from underrepresented backgrounds to assume leadership positions within the professional association and in academic medicine. We will build on the successes of our initial five years through a comprehensive curriculum covering essential research skills such as manuscript writing and grant writing emphasis on preparation of an NIH K or R01 grant application); leadership skills aimed at preparing and transitioning participants to roles within AGA committees and academic leadership; and intensive mentorship through a team-based approach.

Dr. Jesus Rivera-Nieves receives NIDDK Investigator Award to Support Mentoring of Early Career Researchers from Diverse Backgrounds

The objective of the Midcareer Investigator Award in Biomedical and Behavioral Research (K26) is to support investigators by providing them protected time to devote to their research and to serve as mentors and role models for junior investigators, thus enhancing their career progression to obtaining independent positions and successfully competing for their own research grants. The Midcareer Investigator Award is intended for experienced scientists with objectives to: 1) Provide protected time for intensive, focused, state-of-the-art research by relieving these investigators from time-consuming institutional service; and 2) Increase their mentoring of junior investigators to build up the pool of skilled investigators who can fill the growing need for trained professionals.

GIANTS IN MEDICINE

Our division was honored to host Dr. John Ioannidis, MD from Stanford University to give a talk titled, *In Quest of Reproducible and Useful Medical Research.*

Professor Dr. Ronald Evans honored with Japan Prize

Division of Gastroenterology & Hepatology congratulates Dr. Ronald Evans of being named the 2024 recipient of the Japan Prize in the field of Medical Science and Pharmaceutical Science of his discovery of nuclear hormone receptors. A long standing collaborator with the Division of GI, Dr. Ronald Evans is a professor, the director of the Gene Expression Laboratory, and the March of Dimes Chair in Molecular and Developmental Biology at Salk. His receipt of the Japan Prize recognizes his groundbreaking discovery of nuclear hormone receptors—a large family of molecules that respond to various steroid hormones, vitamin A, and thyroid hormones.

Evans earned his BA in bacteriology and PhD in microbiology and immunology from the University of California, Los Angeles, and completed his postdoctoral fellowship at Rockefeller University. He has received such accolades as the Albert Lasker Basic Medical Research Award, the Gairdner Foundation International Award, the Wolf Prize in Medicine, the Keio Medical Science Prize, the Asan Award in Basic Medicine, and the NOMIS Distinguished Scientist and Scholar Award, among many others. He is a member of the US National Academy of Sciences and the US National Academy of Medicine.

RESEARCH FELLOWS SPOTLIGHT

Amanda Krause, M.D.

Dr. Krause completed her undergraduate degree in Food Science and Human Nutrition at the University of Illinois at Urbana-Champaign. After working two years at the National Institutes of Health conducting childhood obesity research, she attended Rush Medical College where she obtained her MD. Thereafter, she went to Northwestern for her internal medicine residency where she developed an interest in esophageal disorders and began conducting research on motility disorders and eosinophilic esophagitis. Following residency she began Gastroenterology fellowship, combined with a two-year NIH T32 research fellowship, at UCSD, working under the mentorship of Rena Yadlapati, MD, MSHS. In this position she continued to study esophageal diseases, with a focus on gastroesophageal reflux disease and laryngopharyngeal reflux disease, specifically diagnostics, presentation, and overlapping cognitive-affective processes. Next year, Dr. Krause plans to complete her advanced esophageal fellowship under the mentorship or Dr. Yadlapati and plans to continue esophageal research, with a focus on dietary and lifestyle-based therapies.

Recent papers since 2023:

- Krause AJ, Greytak M, Kaizer AM, et al. Diagnostic yield of ambulatory reflux monitoring systems for evaluation of chronic laryngeal symptoms [published online ahead of print, 2023 Nov 10]. Am J Gastroenterol. 2023. doi:10.14309/ajg.0000000000002557.
- Krause AJ, Kaizer AM, Carlson DA, et al. Validated clinical score to predict gastroesophageal reflux in patients with chronic laryngeal symptoms: Cough reflux. Clin Gastroenterol Hepatol. Published online February 1, 2024. doi:10.1016/j.cgh.2024.01.021
- Krause AJ, Taft T, Greytak M, et al. Validation of the laryngeal cognitive-affective tool. Clin Gastroenterol Hepatol. Published online February 1, 2024. doi:10.1016/j.cgh.2024.01.023

Other honors:

- 6/2023 - present: AGA institute Education and Training Committee Member and AGA Trainee and Early Career Committee Member
- Chief GI fellow 2023-2024
- 4/27/2024: AGA Western Region Junior Course Director for AGA Women in GI Regional Leadership Workshop
- Invited to moderate the AGA Board Review Course and Advancing Clinical Practice: GI Fellow-Directed Quality Improvement Projects at DDW 2024

RESEARCH FELLOWS SPOTLIGHT

Nabil Noureddin, M.D.

Dr. Noureddin earned his medical degree from the University of Aleppo. He then completed a post-doctoral research fellowship in Los Angeles before finishing his residency at UNLV, where he served as a chief resident. Before he joined UC San Diego, Nabil worked on various research projects in hepatology, which resulted in multiple manuscripts published in various journals, including Hepatology.

Since joining UC San Diego, Nabil has been working under the mentorship of Dr. Rohit Loomba. He has been actively involved in research projects on non-invasive biomarkers for metabolic dysfunction-associated steatotic liver disease (MASLD), the natural history of hepatic decompensation and hepatocellular carcinoma (HCC) in MASLD, and therapeutics for MASLD. He has collaborated closely with other members of the MASLD research center, including Dr. Veeral Ajmera and Dr. Monica Tincopa. This work has resulted in multiple oral presentations at national meetings and several manuscripts in journals such as Lancet Gastro Hep and Aliment Pharmacol Ther.

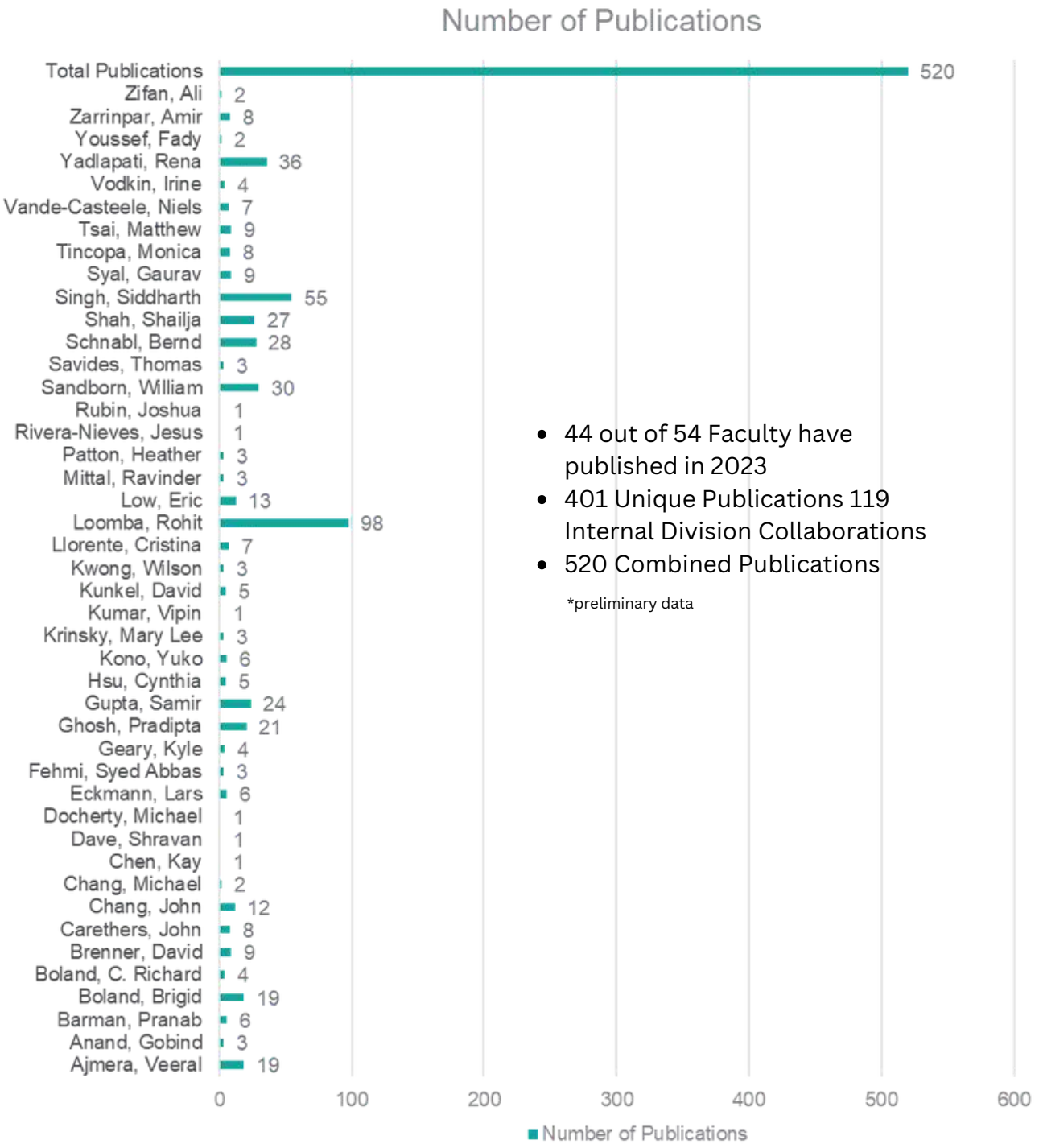
Currently, Nabil is working on projects related to novel biomarkers for HCC and is actively involved in recruiting patients for NIH-funded trials. Furthermore, Nabil developed a clinical interest in interventional endoscopy during his fellowship and plans to extend his research projects to include areas of overlap between hepatology and interventional endoscopy. Dr. Noureddin will be joining our division staff in July 2024.

Key publications:

- Monitoring Disease Progression in Metabolic dysfunction-associated steatotic liver disease (MASLD)
  Noureddin N, Copur-Dahi N, Loomba R
  Aliment Pharmacol Ther. In press.
- MEFIB-Index and MAST-Score in the assessment of incident liver-related outcomes in nonalcoholic fatty liver disease: an individual patient meta-analysis
  Noureddin N, Ajmera V, Bergstrom J, Bettencourt R, Huang D, Harris S, Majzoub AM, Nayfeh T, Tamaki N, Izumi N, Yoneda M, Nakajima A, Idilman R, Gumussoy M, Oz DK, Erden A, Loomba R
  Aliment Pharmacol Ther. 2023 Nov;58(9):856-865. PMID: 37694993.
- Type 2 diabetes, hepatic decompensation, and hepatocellular carcinoma in patients with non-alcoholic fatty liver disease: an individual participant-level data meta-analysis
  Huang DQ, Noureddin N, Ajmera V, Amangurbanova M, Bettencourt R, Truong E, Gidener T, Siddiqi H, Majzoub AM, Nayfeh T, Tamaki N, Izumi N, Yoneda M, Nakajima A, Idilman R, Gumussoy M, Oz DK, Erden A, Allen AM, Noureddin M, Loomba R
  Lancet Gastroenterol Hepatol. 2023 Sep;8(9):829-836. PMID: 37419133.

DIVISION RESEARCH ACTIVITIES

Research Publication Data



- 44 out of 54 Faculty have published in 2023
- 401 Unique Publications 119 Internal Division Collaborations
- 520 Combined Publications

*preliminary data

Division of Gastroenterology & Hepatology Retreat

UCSD Division of Gastroenterology & Hepatology

Research Retreat

Estancia La Jolla Hotel & Spa

Friday, April 19, 2024 / 7:30AM – 8:00PM

Retreat Agenda

7:30 AM – 8:00 AM	Breakfast	Hacienda Lawn
8:00 AM – 10:00 AM	Basic and Translational Gastrointestinal Research	Estancia Theater
10:00 AM – 10:30 AM	Break	Pacifica Foyer
10:30 AM – 12:30 PM	Clinical Gastrointestinal Research	Estancia Theater
12:30 PM – 2:00 PM	Lunch	Hacienda Lawn
2:00 PM – 3:30 PM	Basic and Translational Liver Research	Estancia Theater
3:30 PM – 4:00 PM	Break	Pacifica Foyer
4:00 PM – 5:00 PM	Clinical Liver Research	Estancia Theater
5:00 PM – 5:30 PM	Research within the GI Division	Estancia Theater
5:30 PM – 6:00 PM	Reception	Magnolia Foyer
6:00 PM – 8:00 PM	Dinner	Magnolia Room

HIGHLIGHTS FROM THE RESEARCH SYMPOSIUM

UC San Diego Health Liver Transplant

After closing an outstanding 2023 marked with exceptional achievements, the stage has been set for an even more promising 2024. The liver transplant team is extremely proud of the success of the Liver Transplant Program including:

- A milestone 2023. 148 livers transplanted in a single year *(Figure 1)* and a decrease in the Median Meld at transplant to 24 *(Figure 2)*. The use of normothermic machine perfusion ("NMP") has increased the opportunity to utilize livers from deceased cardiac death ("DCD") donors. Normothermic Machine Perfusion maintains the liver in a nonischemic, metabolically active state for improved interoperative and post-operative outcomes. The Scientific Registry of Transplant Recipients (SRTR) has released its semi-annual reports on transplant programs across the country and UC San Diego Health Liver Transplant is among the top programs nationally.

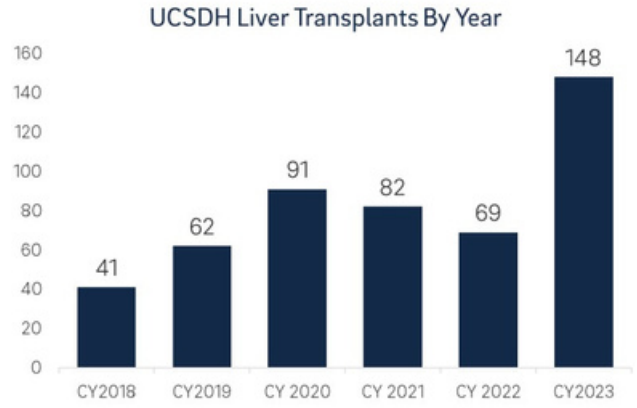


Figure 1

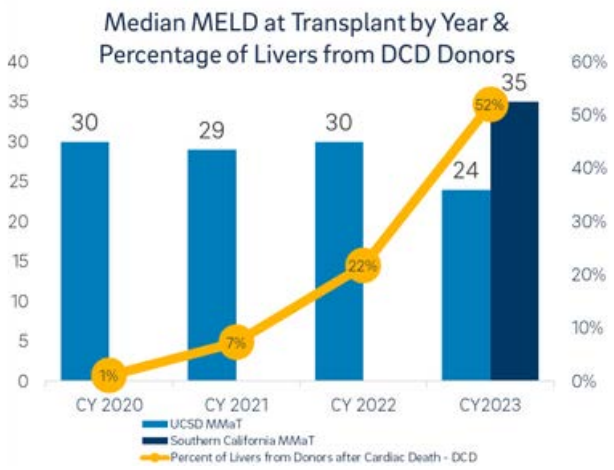


Figure 2

- New strategic partnerships. In 2023, UCSDH became CalOptima Health's designated liver transplant center. CalOptima Health provides Medi-Cal and Medicare coverage for low-income children, adults, seniors and people with disabilities in Orange County, California. The liver transplant team also has new strategic partnerships with Hoag Hospital in Orange County and Kaiser Permanente Southern California. 26% of the referrals UCSDH Liver Transplant received in 2023 came from Orange County alone.
- Providing the best patient experience. In 2023, the UCSDH Liver Transplant Team is performing in the top quartile of the country for a net promotor score ("NPS"), achieving an NPS of 91.2. The NPS is a loyalty metric that was developed to give a score to reflect how likely an individual may be to recommend an organization to others.
- Leading the way in research and innovation. At the upcoming American Transplant Congress in June 2024, the UCSDH Transplant Hepatologists and Hepatobiliary Surgeons will be presenting more than 10 abstracts.
- Continuing to provide great outcomes. UCSDH Liver Transplant continues to provide outstanding outcomes in both pre- and post-transplant. According to the January 2024 SRTR report, liver patients at UCSDH have lower than expected pre-transplant mortality *(Figure 3)* and better than expected long-term survival rates *(Figure 4)*.

The UC San Diego Health Liver Transplant Team is grateful for all their collaborative partners and the team will continue to live the promise to be, "*Worldwide leaders in liver transplantation: Breaking barriers to transform lives through compassionate and innovative care*".

Members of the liver transplant team attended the 12th Annual Advances in GI & Hepatology Conference on March 2, 2024, at UCSD. They are pictured alongside one of the keynote speakers, Dr. Naga Chalasani from Indiana University.

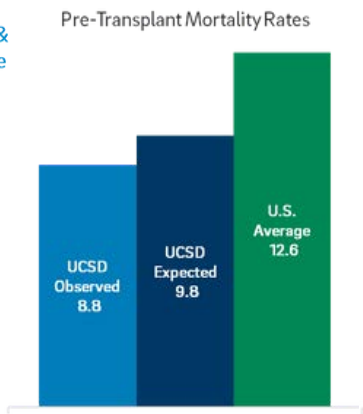


Figure 3

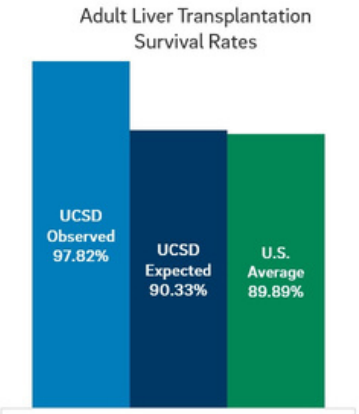


Figure 4

Updates from the San Diego Digestive Diseases Research Center (SDDRC)

The overall mission of the SDDRC is to support basic, translational and clinical research that will lead to improved treatment and prevention of important inflammatory diseases of the gastrointestinal tract and liver. Drs. Schnabl and Eckmann have been directing the Center since its inception in 2019. The SDDRC is providing the following services:

Core Services and Updates

Human Translational Core provides:

- Access to well-characterized human biospecimens for patients with Metabolic dysfunction-associated steatotic liver disease (MASLD) and Inflammatory Bowel Disease (IBD).
- Access to archival clinical (GI/liver) tissue samples (stained or unstained slides) from the Pathology Department.
- Consultation in pathology, biostatistics, and protocol design.

Preclinical Models Core provides:

- Services in histology and microscopy including tissue preparation, help in establishing proper fixation, routine and specialized staining, slide scanning, multiplex immunofluorescence, state-of-the-art microscopy, second harmonic generation collagen imaging, intravital imaging, and image analysis.
- Access to germ-free and gnotobiotic mice, and various murine models of liver and gastrointestinal disease.
- **Now offering** access to Human Liver Resource services, which include primary liver cells and liver tissue

Microbiomics & Functional Genomics Core provides:

- Sample processing
- Sequencing-based assays: Microbiome sequencing (16S, ITS, shotgun), RNA-seq, Single-cell sequencing (RNA, ATAC, Multiome), Spatial transcriptomics, Other sequencing-based assays (e.g. miRNA-Seq, ChIP-Seq)
- Bioinformatics support:
  - Microbiomics (e.g. OTU, α/β diversity, shotgun metagenomics, archiving)
  - Functional genomics (e.g. transcript quantitation, systems biology interpretation)
  - Consultation and training in specific experimental and analytical techniques related to microbiomics and functional genomics.

Congratulations to the 2023-24 Pilot & Feasibility Awardees

The Pilot & Feasibility program has awarded a total of $80,000 to the following investigators with promising research projects in digestive diseases:

Thomas Riffelmacher, PhD
Instructor, Director of Immunometabolism Core, La Jolla Institute for Immunology
Project Title: "*Targeting metabolic dependencies of MAIT cells in fatty liver disease*"

Karsten Zengler, PhD
Professor, Department of Pediatrics, UC San Diego Health
Project Title: "Leveraging Microbial Competition to Fight Intestinal Multidrug-Resistant Infections"

The next round of Pilot & Feasibility grants for the academic year 2024-25 will be announced in the summer/fall of 2024.

SDDRC Seminar

Date/Time:
Monday 3/18/24, 9:00 – 10:00 am, Pacific Time, Online Only

Presenter:
Bärbel Stecher-Letsch, PhD,
Associate Professor for Hygiene and Microbiology, Max von Pettenkofer-Institute, Ludwig Maximilian University, Munich, Germany

Title:
"Exploring Ecological and Evolutionary Mechanisms of Colonization Resistance against Salmonella"

SDDRC Workshop

Date/Time:
Monday 4/8/24, 12:00 – 1:15 pm, Pacific Time, Online Only

Presenter:
Frank A. Anania, MD, FACP, AGAF, FAASLD,
Deputy Director, Division of Hepatology and Nutrition, U.S. Food & Drug Administration (FDA)

Title:
"FDA Regulations Decoded: A Practical Workshop for Researchers and Clinical Trialists"

Please visit our website http://sddrc.ucsd.edu for up-to-date information about the Center and its upcoming events.
Follow us on X (Formerly known as Twitter):
https://twitter.com/SDDRC
Direct all questions to sddrc@health.ucsd.edu

If you have used the Center services, please remember to cite the SDDRC in your publications, "This work was supported by the San Diego Digestive Diseases Research Center (P30 DK120515)."

Highlights from SDDRC Symposium

MASLD Research Center

The MASLD Research Center would like to introduce our community to Visiting Scholars Maral Amangurbanova, MD, Federica Tavaglione, MD, PhD, and Minkyu Kang MD who are currently engaged in research projects in collaboration with Dr. Rohit Loomba and his research team.

Dr. Maral Amangurbanova obtained her medical degree from Yildirim Beyazit University in Turkiye. Before joining the MASLD Research Center team, she specialized as a pulmonologist at Erciyes University and conducted research on the effects of omega-3 fatty acids on cognitive function and visceral fat in patients with cardiovascular disease at Beth Israel Deaconess Medical Center. Dr. Amangurbanova's current work focuses on the application of kinetic biomarkers using stable isotope mass spectrometry techniques and other non-invasive methods to monitor disease progression and assess therapeutic interventions for MASLD and advanced liver fibrosis. She is also interested in the genetic foundations of fatty liver disease and was drawn to the MASLD Research Center, because of Dr. Loomba's dedication to finding a cure for liver diseases, reflected in the establishment of a clinical research center that uniquely bridges basic research with clinical application, closely involving patients in the process. During her free time, Dr. Amangurbanova enjoys skateboarding along the stunning shores of San Diego, volunteering to inform her community about health and diseases in her native language, and thrifting.

Dr. Federica Tavaglione is postdoctoral researcher and endocrinologist from Campus Bio-Medico University of Rome, Italy. Her principal area of research focuses on the risk stratification and non-invasive assessment of MASLD. Her past work includes the development of the Fibrotic NASH Index (FNI), a blood-based biomarker that identifies fibrotic NASH by combining AST, HDL, and HbA1c. Developed in collaboration with the University of Gothenburg, Sweden, FNI recently exhibited a strong performance in the prediction of fibrosis resolution after bariatric surgery. Dr. Tavaglione joined Dr. Loomba's MASLD Research Center team to pursue cutting-edge MASLD research and will be developing novel, non-invasive blood-based biomarkers for the classification of steatotic liver disease subcategories. In her spare time, Dr. Tavaglione enjoys travelling, exploring nature and the wide outdoors, and is an avid connossieur of pizza.

Dr. Minkyu Kang is an Assistant Professor of Internal Medicine at Yeungnam University in Daegu, South Korea who has been specializing in hepatology for about 4 years. Prior to hepatology, he trained in upper and lower GI diagnostic and therapeutic endoscopy and abdominal ultrasound and served as a military doctor for 3 years. His past research includes studies of CT-based assessments of body composition including skeletal muscle mass, visceral and subcutaneous adipose tissue, and myosteatosis (fatty change in muscle) in patients with chronic liver diseases, especially NAFLD and HCC. Dr. Kang came to Dr. Loomba's MASLD Research Center for the opportunity to pursue studies of noninvasive assessments of MASLD using advanced magnetic resonance imaging technologies. He is currently studying non-invasive tests for the identification and prognosis of at-risk MASH and is preparing to write a review article on this topic. During his time as a Visiting Scholar, Dr. Kang plans to gain experience in conducting MR-based research to enable the widespread implementation of these technologies at his home institution. He hopes by developing a strong research base and expertise in MR-based phenotyping assessments, he will be able to support wider international collaboration and to conduct the cost-effectiveness analyses necessary to support wider clinical implementation of MR-based liver assessments in South Korea. He would also like to pursue future work using MR to study dynamic changes in body composition and MASLD and other clinical outcomes and identify non-invasive biomarkers for MASLD risk stratification and assessment. Outside of his clinical work and research, Dr. Kang enjoys golf, tennis, and long-distance running and hopes to run a full marathon this fall. He and his family are enjoying the San Diego weather and look forward to visiting the U.S. East Coast this summer.

Esophageal Diseases Clinical Translational Research Program

The Esophageal Diseases Clinical Translational Research Program, led by PI Rena Yadlapati, aims to discover novel phenotype guided care paradigms for esophageal diseases. The program is supported by NIH, extramural and institutional awards.

Specifically, the program is focused on informing therapeutic domains, identifying mechanistic phenotypes, and developing non-invasive risk stratification tools for gastroesophageal reflux disease, laryngopharyngeal reflux (LPR) and achalasia

The Clinical Translational Research Program encompasses:

- Clinical trials
- Outcomes research
- Clinical practice guideline & consensus development
- Esophageal registry
- Foregut biorepository

Contact: Madeline Greytak
mgreytak@ucsd.edu

Examples of Current Active Studies:

- Sham controlled randomized trial of the reflux band for laryngopharyngeal reflux
- Efficacy of a laryngeal recalibration therapy program for laryngeal symptoms
- Salivary biomarkers for non-invasive diagnostics of GERD conditions
- Risk factors for post-POEM GERD
- Patient reported outcome instruments for esophageal conditions
- Risk prediction modeling for laryngopharyngeal reflux
- Development of the modern classification of LPR
- Phenotypes of achalasia

GEODE
Gastro-Esophageal
Oncogenesis, Dysmotility, and Evolution

The translational research program **GEODE: G**astro-**E**sophageal **O**ncogenesis, **D**ysmotility and **E**volution aims to advance our understanding of the complex mechanisms driving the development and progression of gastroesophageal (pre)neoplasia and motility disorders, and better define the roles of host genetic, non-genetic, and microbial factors. To accomplish this objective, GEODE leverages innovative predictive modeling techniques, biospecimens obtained from the IRB approved Foregut Biorepository, and clinical trial and epidemiologic methods.

Current actively funded areas of inquiry include characterizing genomic alterations in the continuum between H. pylori gastritis, gastric intestinal metaplasia and gastric cancer, as well as assessing immunologic drivers of esophageal adenocarcinoma in Barrett's esophagus.

GEODE (Gastro-Esophageal Oncogenesis, Dysmotility, & Evolution) Research Program Website

Agilent Center of Excellence (ACoE) in Cellular Intelligence:

Coming soon April, 2024

- XFPro Seahorse system****: We can now **detect discrete changes in cellular bioenergetics** (all mitochondrial readouts) in real-time which provides a clear window into the critical functions driving cell signaling, proliferation, activation, toxicity, and biosynthesis.
- xCELLigence RTCA eSight system****- Your cells constantly undergo changes in cell state (division, detachment, adhesion, migration); this instrument can help you keep your hand on the pulse of all of this and more and assess their health by combining **Imaging (morphology) & Impedance (adhesion)**. This enables **comprehensive insight into cell health, behavior, and function** (*e.g., strength of adhesion, changes in morphology, proliferation, and cytolysis*) and cell biology processes using live, simultaneous, and real time biosensor impedance-based and image-based measurements.
- 1290 Infinity II Bio LC System**:** The new 6495D triple quadrupole LC/MS system is an ultrahigh- performance system built for research and testing labs investigating large batches of samples. Equipped with the latest, innovative iFunnel technology, this LC/MS/MS achieves ppq-level detection limits for the most challenging analytes in heavy matrix, for example in omics, food, and environmental analysis, while providing high precision at sub-millisecond dwell times. **You can now accomplish 3 powerful goals**: **(i)** Population Analysis of the Plasma Lipidome; **(ii)** End-to-End Targeted Metabolomics; **(iii)** Quantitative Proteomics Using Standard- or Nanoflow HPLC.
- BioTek Cytation 10**** [Cytation C10 Confocal Imaging Reader - Confocal & Widefield Microscopy with Multimode Plate Reading]. BioTek Cytation C10 confocal imaging reader **combines automated confocal and widefield microscopy with conventional multimode microplate reading.** The patented confocal design gives exquisite resolution and optical sectioning capabilities for many sample types. A Hamamatsu scientific CMOS camera, Olympus objectives, and laser-based illumination deliver high- quality images.Cytation C10 also includes widefield fluorescence, brightfield and phase contrast optics. The variable bandwidth monochromator-based multimode plate reading is based on the proven design of the Agilent BioTek Synergy products. Environmental controls, 3D viewer, and Gen5 software enable high-quality results for many applications. The system delivers affordable confocal capabilities to every laboratory.
- NovoCyte Panteon Flow Cytometer: The NovoCyte Penteon flow cytometer provides an expanded set of capabilities that accommodate today's high-end and increasingly sophisticated multi-color flow cytometry assays. **You now have the flexibility to choose from up to 30 fluorescence channels utilizing up to 5 lasers with up to 30 independent detectors**. The NovoSampler Q can be integrated into different laboratory automation platforms and efficiently processes both FACS tubes (using a 40- tube rack) and 24-, 48-, 96-, and 384-well plates. The intuitive and industry leading NovoExpress software has been further advanced, providing an exceptional user experience in data acquisition, analysis and reporting.
- Dako Autostainer Link 48**,** With a streamlined profile and smaller footprint, Autostainer Link 48 allows you to **standardize and improve throughput in the processing and staining of histopathology slides** while minimizing the impact to valuable laboratory bench space.

****Studies that maximize the use of these cell-analyses platforms will have an opportunity to compete for biannual pre- and postdoctoral fellowships (~50-75 K/fellowship). The RFAs will be announced widely throughout the campus.

- **Cancer Immunotherapy Program**: *[Separately from the above]*

IVIS SpectrumCT In Vivo Imaging System; **Cat# 128201**. The IVIS® SpectrumCT preclinical in vivo imaging system expands upon the versatility of the IVIS Spectrum by offering **2D and 3D imaging capabilities but includes integrated low-dose microCT ideal for longitudinal studies**. The system provides researchers with greater insights into complex biological systems by enabling simultaneous molecular and anatomical non-invasive imaging in animal models. The system can be used for imaging cells, tissues, organoids, animals (has an adjacent Rodent Anesthesia System).

Research in the Inflammatory Bowel Diseases Center

Comparative Effectiveness Research: Treatment options for IBD have expanded remarkably over the last 5 years, with five different classes of medications now available. However, there is considerable paucity of head-to-head randomized controlled trials to inform comparative efficacy and safety, and lack of validated predictive biomarkers to inform treatment selection and positioning. Dr. Singh and Dr. Syal's research focuses on comparative effectiveness and safety of different therapies and management strategies for patients with inflammatory bowel diseases. For these studies, they use a variety of data sources including administrative claims databases, national registries, California-wide multi-institutional electronic health record-based registries, secondary analysis of clinical trials, and sophisticated statistical methods such as network meta-analysis, propensity score methods, marginal structural models, etc. Dr. Singh is also the PI of a large $6.4 million grant from Patient Centered Outcomes Research Institute (PCORI) to conduct a multi-center pragmatic randomized clinical trial (QUOTIENT) comparing the effectiveness and safety of two treatment strategies in patients with IBD who are in symptomatic remission but have ongoing significant bowel inflammation.

Health Disparities Research: With global and regional immigration patterns, and accompanying lifestyle changes, the burden of IBD in the Hispanic population in the United States is at an inflection point and will be enormous in the coming decades. However, little is known about the drivers of IBD outcomes in Hispanic patients. To fill this knowledge gap, one key focus of Dr. Singh's research program is on understanding and informing evidence-based management of IBD in the Hispanic population using large-scale epidemiologic studies and novel comparative effectiveness research methodology using real world data. To study this, he is funded through an NIDDK R01 grant to understand determinants of healthcare utilization and treatment outcomes in Hispanic patients with IBD, specifically focusing on biological, structural and social determinants of health.

Digital Health Technology: To mitigate disparities, Dr. Singh is leveraging digital health solutions. As part of a Centers for Disease Control and Prevention (CDC) U01 grant (MPI: Kappelman, Singh, Bewtra), he is conducting a large-scale pragmatic randomized controlled trial to develop, optimize, and evaluate a scalable digital health intervention, focusing on self-management, remote monitoring and improved healthcare access, to improve outcomes in adults and children with IBD.

UCSD IBD Biorepository: The UCSD Inflammatory Bowel Disease Biorepository led by Dr. Brigid Boland follows patients with IBD prospectively over time, collecting biospecimens from DNA, serum, stool to intestinal biopsies. The IBD Biorepository has recruited over 800 patients and has followed patients since 2014, collecting thousands of samples since that time. The biobank is designed to enable innovative research to understand the pathophysiology of IBD, advance our understanding of disease subtypes, predict response to therapies, and develop novel biomarkers to improve the care and lives of patients with IBD. Studies using bio specimens from the biobank have contributed to publications in Nature, Nature Biotechnology, Science Immunology, and more.

Across all of these domains, the IBD Center has been highly productive. Investigators in the IBD Center have published over 50 articles in the last year in high impact journals including *Nature, Gastroenterology and Lancet Gastroenterology and Hepatology*.

DDW2024
Digestive Disease Week®

Activities

Basic Science Emerging Topic Conference: The Intestinal Microbiome as an Approach to Liver Wellness

Date: Saturday, May 18, 8:00 am - Sunday, May 19, 11:30 am (EDT)
Location: Walter E Washington Convention Center
Continuing Education Credits: Continuing Medical Education (CME): 10.50
AMA PRA Category 1 Credits ABIM MOC points: 10.50 MOC points

Key takeaways for attendees:

- Cutting-edge research on bacteriophages, mycobiome, and microbiome
- Comprehensive understanding of the intestinal microbiome's impact on the liver
- A comprehensive exploration of Alcohol-Associated Liver Disease (AALD)
- Advances in Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)
- Promising frontiers in liver disease treatment and diagnosis
- Translational insights into microbiome-based therapies
- Diversity, equity, and inclusion (DEI) approach
- Meaningful dialogue and idea exchange to foster collaborations and take home new perspectives
- Emerging research on microbiome interactions with the enteric nervous system and immune system
- Insights into the role of Inflammatory Bowel Disease (IBS)
- Interactive "Meet the Speakers" sessions

Program Chairs

Cristina Llorente, PhD, MSs

Suthat Liangpunsakul, MD, MPH, AGAF, FAASLD

Click Here for Program Agenda

Upcoming Events

Other Events

- IBD City Wide Quarterly Conference
  June 3, 2024
- New Fellows Orientation
  July 2024

Gastroenterology & Hepatology News is distributed by the Division of Gastroenterology and Hepatology.
If you have any questions/comments or wish to be removed from this list, please contact giadmin@health.ucsd.edu