

## KRISS LAB

I conduct translational research to understand the mechanisms of hepatic immunity and how perturbations in both innate and adaptive immunity impact clinical outcomes in patients with chronic liver disease or liver transplant recipients. My current work is utilizing the human clinical model of living donor liver transplantation to perform extensive sampling of the gut-liver axis to perform multi-omics research to understand the functional consequences of gut dysbiosis. This work involves characterization of the gut microbiome (16S rRNA sequencing), portal metabolomics (using targeted GC-MS and LC-MS), and analysis of hepatic innate immune function (targeted tissue transcriptional analysis and ex vivo cellular assays) to fulfill two primary aims: 1) to define the relationship between gut dysbiosis, derangements in portal metabolome, and hepatic innate immune function in patients with end-stage liver disease, and 2) to determine how the degree of dysbiosis at the time of transplant and its rate of recovery post-transplant impact clinical outcomes (e.g., early allograft dysfunction). This work requires a multidisciplinary team of clinicians and investigators. I work closely with our transplant surgeons (Drs. Pomfret, Pomposelli, and Nydam) with ongoing collaboration with Catherine Lozupone, PhD (GALIIP Microbiome Core Director), Matthew Burchill, PhD and Beth Tamburini, PhD, and our GC-MS and LC-MS metabolomics core facilities (Sally Stabler, MD, and Jelena Klawitter, PhD, iC42 lab, respectively). The ultimate goal of this work is to develop novel, microbial-based interventions to improve clinical outcomes in patients with chronic liver disease and in those who undergo liver transplantation.

## RELATED PUBLICATIONS

1. Kriss M, Verna EC, Rosen HR, Lozupone CA. [Functional Microbiomics in Liver Transplantation: Identifying Novel Targets for Improving Allograft Outcomes.](#) *Transplantation*. 2018 Nov 30;. doi: 10.1097/TP.0000000000002568. [Epub ahead of print] PubMed PMID: 30507741.
2. Kriss M, Hazleton KZ, Nusbacher NM, Martin CG, Lozupone CA. [Low diversity gut microbiota dysbiosis: drivers, functional implications and recovery.](#) *Curr Opin Microbiol*. 2018 Aug;44:34-40. doi: 10.1016/j.mib.2018.07.003. Epub 2018 Jul 20. Review. PubMed PMID: 30036705.
3. Golden-Mason L, McMahan RH, Kriss MS, Kilgore AL, Cheng L, Dran RJ, Wieland A, Rosen HR. [Early and late changes in natural killer cells in response to ledipasvir/sofosbuvir treatment.](#) *Hepatol Commun*. 2018 Apr;2(4):364-375. doi: 10.1002/hep4.1166. eCollection 2018 Apr. PubMed PMID: 29619416; PubMed Central PMCID: PMC5880201.
4. Kriss M, Burchill M. [HCV and nonhepatic malignancy: Is pre-emptive direct-acting antiviral therapy indicated prior to treatment?](#) *Hepatology*. 2018 Jan;67(1):4-6. doi: 10.1002/hep.29414. Epub 2017 Nov 24. PubMed PMID: 28768054.

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5. Burchill MA, Roby JA, Crochet N, Wind-Rotolo M, Stone AE, Edwards MG, Dran RJ, Kriss MS, Gale M Jr, Rosen HR. [Rapid reversal of innate immune dysregulation in blood of patients and livers of humanized mice with HCV following DAA therapy.](#) PLoS One. 2017;12(10):e0186213. doi: 10.1371/journal.pone.0186213. eCollection 2017. PubMed PMID: 29040318; PubMed Central PMCID: PMC5645093.
6. Kriss M, Wachs M, Attwell A. [An Unusual Cause of Right Upper Quadrant Pain in a Patient With Prior Liver Transplantation for Primary Sclerosing Cholangitis.](#) Gastroenterology. 2016 Mar;150(3):e7-9. doi: 10.1053/j.gastro.2015.07.044. Epub 2016 Jan 29. PubMed PMID: 26827800.
7. Kriss M, Kaplan J, Fennimore B. [A rare cause of postprandial abdominal pain and nausea.](#) Gastroenterology. 2015 Nov;149(6):e11-2. doi: 10.1053/j.gastro.2015.03.002. Epub 2015 Oct 2. PubMed PMID: 26433105.
8. Kriss M, Yen R, Fukami N, Bambha K, Wani S. [Duodenal perforation secondary to migrated biliary stent in a liver transplant patient: successful endoscopic closure with an over-the-scope clip.](#) Gastrointest Endosc. 2015 May;81(5):1258-9. doi: 10.1016/j.gie.2014.08.003. Epub 2014 Oct 5. PubMed PMID: 25293828.
9. Giugliano S, Kriss M, Golden-Mason L, Dobrinskikh E, Stone AE, Soto-Gutierrez A, Mitchell A, Khetani SR, Yamane D, Stoddard M, Li H, Shaw GM, Edwards MG, Lemon SM, Gale M Jr, Shah VH, Rosen HR. [Hepatitis C virus infection induces autocrine interferon signaling by human liver endothelial cells and release of exosomes, which inhibits viral replication.](#) Gastroenterology. 2015 Feb;148(2):392-402.e13. doi: 10.1053/j.gastro.2014.10.040. Epub 2014 Nov 4. PubMed PMID: 25447848; PubMed Central PMCID: PMC4765499.
10. Simons Y, Caprio T, Furiasse N, Kriss M, Williams MV, O'Leary KJ. [The impact of facecards on patients' knowledge, satisfaction, trust, and agreement with hospital physicians: a pilot study.](#) J Hosp Med. 2014 Mar;9(3):137-41. doi: 10.1002/jhm.2100. Epub 2013 Nov 8. PubMed PMID: 24214797.
11. Didwania A, Kriss M, Cohen ER, McGaghie WC, Wayne DB. [Internal medicine postgraduate training and assessment of patient handoff skills.](#) J Grad Med Educ. 2013 Sep;5(3):394-8. doi: 10.4300/JGME-D-12-00203.1. PubMed PMID: 24404301; PubMed Central PMCID: PMC3771167.
12. Semler MW, Stover DG, Copland AP, Hong G, Johnson MJ, Kriss MS, Otepka H, Wang L, Christman BW, Rice TW. [Flash mob research: a single-day, multicenter, resident-directed study of respiratory rate.](#) Chest. 2013 Jun;143(6):1740-1744. doi: 10.1378/chest.12-1837. PubMed PMID: 23197319; PubMed Central PMCID: PMC3747725.
13. Kriss M, Sotil EU, Abecassis M, Welti M, Levitsky J. [Mycophenolate mofetil monotherapy in liver transplant recipients.](#) Clin Transplant. 2011 Nov-Dec;25(6):E639-

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46. doi: 10.1111/j.1399-0012.2011.01512.x. Epub 2011 Oct 18. PubMed PMID: 22007615.

14. Henkel AS, Kavesh MH, Kriss MS, Dewey AM, Rinella ME, Green RM. [Hepatic overexpression of abcb11 promotes hypercholesterolemia and obesity in mice.](#) Gastroenterology. 2011 Oct;141(4):1404-11, 1411.e1-2. doi: 10.1053/j.gastro.2011.06.062. Epub 2011 Jul 2. PubMed PMID: 21726512; PubMed Central PMCID: PMC3186850.
15. Kriss M, Feliciano J, Fryer J, Mehta J, Levitsky J. [Haploidentical hematopoietic stem cell transplantation for graft-versus-host disease after liver transplantation.](#) Blood. 2011 Sep 22;118(12):3448-9. doi: 10.1182/blood-2011-05-353714. PubMed PMID: 21940833.
16. Kindle L, Rothe L, Kriss M, Osdoby P, Collin-Osdoby P. [Human microvascular endothelial cell activation by IL-1 and TNF-alpha stimulates the adhesion and transendothelial migration of circulating human CD14+ monocytes that develop with RANKL into functional osteoclasts.](#) J Bone Miner Res. 2006 Feb;21(2):193-206. doi: 10.1359/JBMR.051027. Epub 2005 Nov 7. PubMed PMID: 16418775.