Tel: (513) 267-9710

Robert Nathaniel Helsley, PhD

Curriculum Vitae

Email: Robert.Helsley@uky.edu

Education

2007-2011 **Miami University**, Oxford, OH
Bachelor of Science in Zoology
Minor: Molecular Biology
Cumulative GPA: 3.76/4.0, *magna cum laude*

2011-2016 **University of Kentucky**, Lexington, KY
Doctor of Philosophy (Ph.D.) in Nutritional Sciences
University of Kentucky College of Medicine
Cumulative GPA: 3.581

Research Experience

2009-2010 **University of Cincinnati,** Cincinnati, OH
American Society for Pharmacology and Experimental Therapeutics Summer Undergraduate Research Fellow
Mentor: W. Keith Jones, Ph.D.
Project title: Investigation into the Transcriptional and Post-Transcriptional Regulation of Heat Shock Protein 70.3 (Hsp70.3) in Myocardial Late Ischemic Preconditioning

2011-2016 **University of Kentucky,** Lexington, KY
Ph.D., Nutritional Sciences
Mentor: Changcheng Zhou, Ph.D.
Project title: The Role of PXR and IKKβ Signaling in Cardiometabolic Disease

2016-2017 **Cleveland Clinic Foundation,** Cleveland, OH
Postdoctoral Fellow; Department of Cellular and Molecular Medicine
Mentor: J. Mark Brown, Ph.D.
Project title: Targeting the Gut Microbiome for the Treatment of Alcoholic- and Nonalcoholic-Induced Liver Disease

2017-2018 **Medpace,** Cincinnati, OH
Clinical Trial Manager
Managed clinical trials in infectious diseases, cardiovascular disease, and chronic kidney disease.

2018-2019 **University of Cincinnati,** Cincinnati, OH
Clinical Trial Manager; Department of Internal Medicine
Mentors: Dylan Steen, MD and Sarah Couch, PhD, RD
Project title: Supermarket and Web-Based Intervention Targeting Nutrition for Cardiovascular Risk Reduction.

2019-2021 **University of Kentucky,** Lexington, KY
Postdoctoral Fellow; Division of Pediatrics, Department of Gastroenterology, Hepatology, and Nutrition
Mentors: Gregory Graf, PhD, and Samir Softic, MD
Project title: Elucidating Molecular Mechanisms Linking Fructose to Cholesterol Metabolism.

2022-2023 **University of Kentucky,** Lexington, KY
Research-Track Assistant Professor; Department of Pharmacology and Nutritional Sciences
University of Kentucky College of Medicine

2023-present **University of Kentucky,** Lexington, KY

Tenure-Track Assistant Professor; Department of Internal Medicine, Division of Endocrinology, Diabetes, and Metabolism
University of Kentucky College of Medicine

Professional Memberships

2009-present American Society for Pharmacology and Experimental Therapeutics (ASPET)
2013-present American Heart Association (AHA)
2015-present The American Association for the Advancement of Science (AAAS)
2021-present American Association for the Study of Liver Diseases (AASLD)
2024-present American Society for Biochemistry and Molecular Biology (ASBMB)

Teaching Activities

Fall 2013 Teaching Assistant for Integrated Biomedical Sciences 610
11/15/2022 One hour lecture on Nutrition and Cardiovascular Disease for Nutritional Sciences 601
11/10/2023 One hour lecture on Nutrition and Cardiovascular Disease for Nutritional Sciences 601
09/25/2023 Two hour lecture on fatty acid and PPAR signaling in Molecular Biological Applications in Nutrition 606
10/16/2023 Two hour lecture on amino acid sensing in the Molecular Biological Applications in Nutrition 606
11/06/2023 Two hour lecture on xenobiotic metabolism in the Molecular Biological Applications in Nutrition 606
11/07/2023 Two hour lecture on Nutrition and Cardiovascular Disease for Nutritional Sciences 601
11/13/2023 Two hour lecture on manipulation of gene expression in obesity in the Molecular Biological Applications in Nutrition 606

Advising Activities

Summer 2022 Advisor for Undergraduate Research in Diabetes and Obesity (S. Foster)
2022-2023 Co-Advisor for PhD student (M. Zelows)
Summer 2023 Advisor for Undergraduate Research in Diabetes and Obesity (N. Dharanipragada)
Fall 2023 Advisor for Undergraduate Research in Nutritional Sciences 395 (N. Dharanipragada)
Fall 2023 External Advisor for PhD Defense (M. Woodrum)
2023-present Advisor for MD/PhD student (G. Anspach)
2023-present PhD Committee Member (W.H. Lee)
2024-present PhD Committee Member (I. Stephens)
2024-present PhD Committee Member (E. Bates)
2024 Advisor for USTiCR Fellow (N. Dharanipragada)

Fellowships, Awards, and Honors

2009 ASPET Summer Undergraduate Research Fellowship (University of Cincinnati)
2009 1st place in ASPET SURF poster competition
2010 ASPET Summer Undergraduate Research Fellowship (University of Cincinnati)
2010 4th place in Summer Student Poster Competition (University of Cincinnati; 112 Participants)
2010 Undergraduate Presentation Award (Miami University) to EB in Anaheim, CA
2010 ASPET Undergraduate Travel Award to EB Meeting in Anaheim, CA
2011 Undergraduate Presentation Award (Miami University) to EB in Washington, D.C.
2011 ASPET Undergraduate Travel Award to EB Meeting in Washington, D.C.
2012 T32 Cardiovascular Training Fellowship (5T32HL072743-09)
2013 4th place in the ASPET Cardiovascular Pharmacology Division Best Graduate Student Abstract Competition at the Experimental Biology Conference in Boston, MA
2013 ASPET Graduate Student Travel Award to EB National Meeting in Boston, MA
2014 University of Kentucky Graduate School Travel Award to the Arteriosclerosis, Thrombosis and Vascular Biology (ATVB) Conference in Toronto, ON
2014 2nd place at the Ohio Valley Affiliates for Life Sciences Conference in Metabolic Diseases Poster Competition in Cincinnati, OH
2014 4th place in the poster competition at the Barnstable Brown Kentucky Diabetes and Obesity Research Day in Lexington, KY

2014 T32 Nutrition and Oxidative Stress Training Fellowship (5T32DK007778-14)
2014 Finalist in the Obesity Prevention Poster Competition at the SEC Symposium in Atlanta, GA
2015 PhRMA Foundation Predoctoral Fellowship
2015 1st place in the poster competition at the Barnstable Brown Kentucky Diabetes and Obesity Research Day in Lexington, KY
2015 University of Kentucky Graduate School Travel Award to the Metabolic Signaling and Disease: From Cell to Organism Conference at Cold Spring Harbor, NY
2015 1st place in the poster competition at the Saha Cardiovascular Research Day Lexington, KY
2016 ATVB Travel Award for Young Investigators
2016 Department of Pharmacology and Nutritional Sciences Graduate Student of the Year Award
2016 Miami University "18 of the last 9" Nominee
2016 Outstanding Postdoctoral Fellow Poster Presentation "The Stewart Whitman Award"
2017 American Heart Association Postdoctoral Fellowship
2017 Young Investigator Awards Platform Session – ASPET Division for Translational and Clinical Pharmacology
2019 1st place in the poster competition at the Saha Cardiovascular Research Day Lexington, KY
2019 Invited Speaker at Southeast Lipid Research Conference, Cincinnati, OH
2020 Invited Speaker at Miami University Alumni Career Panel
2021 Outstanding Postdoctoral Fellow Poster Presentation "The Stewart Whitman Award"
2021 Invited Speaker at Department of Pharmaceutical Sciences Seminar Series, Lexington, KY
2021 Invited Speaker at Don Fredrickson Lipid Research Conference in 2022, Durham, NC
2022 Impact Kentucky: University of Kentucky Vice President for Research "Researcher of the Month"
2022 Invited Speaker at the Annual CCTS Spring Conference, Lexington, KY
2023 Invited Speaker at the University of Kansas Metabolism, Obesity, and Diabetes Seminar Series, Kansas City, Kansas
2023 Invited Speaker at the Sex Differences Workshop, Cleveland, OH
2023 Runner-Up for the Roger Davis Award, Kern Lipid Conference, Vail, CO
2024 Elected as a 2024 Fellow for the NCI-funded Transdisciplinary Research on Energetics and Cancer Training Workshop Hosted by Yale Cancer Center, Westbrook, CT
2025 Recipient of the 2025 Walter A. Shaw Young Investigator in Lipid Research Award (ASBMB)

Professional/Academic Service

2011-present The Academy for Future Science Faculty, University of Northwestern
2013-2014 Vice President of the Nutritional Sciences Students Association
2013 Teaching Assistant for Integrated Biomedical Sciences 610
2015-2017 ASPET Cardiovascular Division Recruitment Committee
2016-2017 ASPET Cardiovascular Division Competition Committee
2017 ASPET Partnering for Success Peer Mentoring Program at EB 2017
2018-present Biological Sciences Advisory Committee for Miami University, OH
2019-present Clinical Trial Consultant (NCT03895580)
2019-present *Ad-Hoc* Reviewer for Arteriosclerosis, Thrombosis, and Vascular Biology (ATVB)
2020-present *Ad-Hoc* Reviewer for Journal of Hepatology, Adipocyte, Life Science Alliance, Journal of the American Heart Association (JAHA), Biomedicines, and Scientific Reports
2020-present ASPET Division for Translational and Clinical Pharmacology Awards Committee
2020-present International Journal of Molecular Sciences Board of Reviewers
2021-present Editorial Board for Frontiers in Cardiovascular Medicine
2021 Career Development Moderator at the Don Fredrickson Lipid Research Conference
2023 NIH Early Career Reviewer, DBDT Study Section
2024 Junior Associate Editor, Journal of Lipid Research (2024-2025)
2024 Session Moderator, Gordon Research Conference on Lipids and Lipoproteins
2024 Session Moderator, Kern Lipid Research Conference

Research Support

Active Research Support:

K01DK128022-01A1 **PI: Helsley, RN** **01/01/2022-12/31/2026**
National Institutes of Diabetes and Digestive and Kidney Diseases (NIDDK)

Elucidating Molecular Mechanisms Linking Fructose to Cholesterol Metabolism
Goal: This project focuses on understanding the mechanism(s) by which fructose promotes hyperlipidemia.
Role: PI

5P30GM127211-05 **PI: Helsley, RN** **01/01/2023-12/31/2023**
National Institute of General Medical Sciences (NIGMS)
COCVD COBRE Pilot Study: Fatty Acid Oxidation in Sexually Dimorphic Obesity and Associated NAFLD.
Goal: This proposal is focused on determining the impact of ovarian sex hormones and *Cpt1a* tissue specificity on obesity and associated NAFLD.
Role: Pilot Project PI (PI: Cassis)

23CDA1051959 **PI: Helsley, RN** **04/01/2023-03/31/2026**
American Heart Association (AHA)
Identification of Carnitine Palmitoyltransferase 1a (CPT1a) as a Novel Regulator of Lipoprotein Metabolism
Goal: This proposal is focused on determining the impact of hepatic CPT1a as a modulator of peripheral lipoprotein metabolism.
Role: PI

IRG2215234 **PI: Helsley, RN** **06/01/2023-05/31/2024**
American Cancer Society (ACS)
Identification of Mechanisms Controlling Fatty Acid Metabolism in Sexually Dimorphic Obesity-Driven Liver Cancer
Goal: This proposal focuses on understanding the key mechanisms by which CPT1a influences obesity-driven liver cancer.
Role: PI

No ID **PI: Gustafson** **01/01/2024-12/31/2027**
University of Kentucky
Emerging Theme for Research at the University of Kentucky - Food as Health Alliance
Goal: Develop a comprehensive state-wide food as health infrastructure connecting community and clinical partners to reduce food insecurity, healthcare costs, and improve diet-sensitive outcomes.
Role: Co-I

No ID **PI: Helsley, RN** **05/01/2024-04/30/2025**
University of Kentucky – Advancing Research Collaborations in Diabetes and Obesity
The Role of Hepatic Fatty Acid Oxidation in Obesity-mediated Protection in Sepsis
Goal: To determine if CPT1a-mediated fatty acid oxidation is required for the protection observed with obesity in sepsis.
Role: PI

Pending Research Support:

R01DK139147 **PI: Helsley, RN** **04/01/2024-03/31/2029**
National Institutes of Diabetes and Digestive and Kidney Diseases (NIDDK)
Deciphering the Mechanisms by which Long Chain Fatty Acid Oxidation Influences Spatial Microvesicular Steatosis.
Goal: This project focuses on understanding the mechanism(s) by which fatty acid oxidation controls lipid droplet accumulation across the periportal-pericentral axis.
A0 Submission: **Impact Score = 43; 37th percentile. A1 to be submitted in July 2024.**
Role: PI

No ID **PI: Helsley, RN** **01/01/2025-12/31/2025**
American Cancer Society (ACS)
Hormonal Control of Mitochondrial Fatty Acid Oxidation in Diet-induced HCC.
Goal: This project focuses on understanding the mechanism(s) by which fatty acid oxidation controls sexually dimorphic HCC.
Role: PI

Completed Research Support:

CCTS Early Career Pilot Study **PI: Helsley, RN** **12/01/2021-12/01/2022**
University of Kentucky, Center for Clinical and Translational Science (CCTS)
CPT1a: A Novel Regulator of Cholesterol-Driven Liver Injury
Goal: This project focuses on understanding the role of hepatocyte-specific Cpt1a on cholesterol and lipoprotein metabolism.
Role: PI

No ID **PI: Couch, SC** **12/02/2019-12/31/2021**
University of Cincinnati, Division of Cardiology
Supermarket and Web-Based Intervention Targeting Nutrition (SuperWIN) for Cardiovascular Risk Reduction
Goal: This project focuses on understanding the impact of a point-of-purchase dietary intervention delivered in the aisles of Kroger grocery stores on cardiovascular disease risk (NCT03895580).
Role: Consultant

17POST3285000 **PI: Helsley, RN** **01/01/2017-09/05/2017**
American Heart Association
The Role of Hepatocyte ABHD6-Driven Lipid Turnover in Obesity-Associated Insulin Resistance
Goal: This project investigated the molecular mechanism by which hepatocyte-specific ABHD6 influences obesity and accompanying metabolic disorders.
Role: PI

No ID **PI: Helsley, RN** **07/01/2015-07/01/2016**
Pharmaceutical Research and Manufacturers of America (PhRMA) Foundation
A Novel Mechanism for ARV-Drug Associated Dyslipidemia
Goal: This project investigates the role of PXR in mediating antiretroviral (ARV) drug-elicited dyslipidemia and atherosclerosis.
Role: PI

5T32DK007778-14 **PI: Cassis, LA** **05/01/2014-06/01/2015**
National Institutes of Health - NRSA
Investigation of IKKβ in Adipogenesis and Diet-Induced Obesity
Goal: This project investigates the role of IKKβ signaling in diet-induced obesity and metabolic disorders.
Role: Trainee

5T32HL072743-09 **PI: Randall, DC** **07/01/2012-04/01/2014**
National Institutes of Health - NRSA
The Role of the Pregnane X Receptor in Xenobiotic-Induced Hyperlipidemia
Goal: This project investigates the molecular mechanism through which PXR regulates lipid homeostasis.
Role: Trainee

Publications and Presentations

A. Original Peer-Reviewed Manuscripts (*Co-first authors):

1. Tranter, M., **Helsley, R.N.**, Paulding, W., McGuinness, M., Brokamp, C., Haar, L., Ren, X., and Jones, W.K. (2011) Coordinated post-transcriptional regulation of the Hsp70.3 gene by micro-RNA and alternative polyadenylation. *Journal of Biological Chemistry.* 286(34): 29828-37. PMID: 21757701
2. Park, S-H., Sui, Y., Gizard, F., Xu, J., Pilier-Rios, J., **Helsley, R.N.**, Han, S-S., and Zhou, C. (2012) Myeloid-specific IKKβ deficiency decreases atherosclerosis in LDL receptor-deficient mice. *Arteriosclerosis, Thrombosis, and Vascular Biology*. 32(12): 2869-76. PMID: 23023371
3. **Helsley, R.N.*,** Sui, Y.*, Ai, N., Park, S-H., Welsh, W.J., and Zhou, C. (2013) Pregnane x receptor mediates dyslipidemia induced by the HIV protease inhibitor amprenavir in mice. *Molecular Pharmacology.* 83(6):1190-9. PMID: 23519392
4. Sui, Y., Park, S-H., **Helsley, R.N.**, Sunkara, M., Gonzalez, F.J., Morris, A.J., and Zhou, C. (2014) Bisphenol A increases atherosclerosis in pregnane x receptor-humanized ApoE deficient mice. *Journal of the American Heart Association*. 3(2): e000492. PMID: 24755147
5. Sui, Y., Park, S.H., Xu, J., Monette, S., **Helsley, R.N.**, Han, S-S., and Zhou, C. (2014) IKKβ links vascular inflammation to obesity and atherosclerosis. *Journal of Experimental Medicine*. 211(5): 869-886. PMID: 24799533

Highlighted in Rockefeller University Press Releases on 05/06/2014. Highlighted in Science Daily, The Medical News, MedicalXpress, Newswise, Scicasts, and Diagnostic and Interventional Cardiology.

6. Sui, Y.*, **Helsley, R.N.***, Park, S.H., Song, X., Liu, Z., and Zhou, C. (2015) Intestinal PXR links xenobiotic exposure and hypercholesterolemia. *Molecular Endocrinology*. 29(5): 765-776. PMID: 25811240
7. **Helsley, R.N.**, Sui, Y., Park, S-H., Liu, Z., Lee, R.G., Zhu, B., Kern, P.A., and Zhou, C. (2016) Targeting IKKβ in adipocyte lineage cells for treatment of obesity and metabolic dysfunctions. *Stem Cells*. 34(7): 1883-95. PMID: 26991836
8. Park, S-H., Liu, Z., Sui, Y., **Helsley, R.N.**, Zhu, B., Powell, D.K., Kern, P.A., and Zhou, C. (2016) IKKβ is essential for adipocyte survival and adaptive adipose remodeling in obesity. *Diabetes*. 65(6): 1616-29. PMID: 26993069
9. **Helsley, R.N.** and Zhou, C. (2017) Epigenetic impact of endocrine disrupting chemicals on lipid homeostasis and atherosclerosis: a pregnane X receptor-centric view. *Environ Epigenet*. 3(4): 1-15 PMID: 29119010
10. Ferguson, D., Zhang, J., Davis, M.A., **Helsley, R.N**., et al. (2017) The lipid droplet-associated protein perilipin 3 facilitates hepatitis C virus-driven hepatic steatosis. *J Lipid Res.* 58(2): 420-432. PMID: 27941027
11. Schugar, R.C., Shih, D.M., Warrier, M., **Helsley, R.N**., et al. (2017) The TMAO-Producing Enzyme Flavin-Containing Monooxygenase 3 Regulates Obesity and the Beiging of White Adipose Tissue. *Cell Rep.* 19(12): 2451-2461. PMID: 28683320
12. Gromovsky, A.D., Schugar, R.C., Brown, A.L., **Helsley, R.N**., et al (2018) Δ-5 Fatty Acid Desaturase *FADS1* Impacts Metabolic Disease by Balancing Proinflammatory and Proresolving Lipid Mediators. *Arterioscler Thromb Vasc Biol*. 38(1): 218-231. PMID: 29074585
13. Gwag, T., Meng, Z., Sui, Y., **Helsley, R.N.**, Park, S.H., Wang, S., Greenberg, R.N., and Zhou, C. (2019) Non-nucleoside reverse transcriptase inhibitor efavirenz activates PXR to induce hypercholesterolemia and hepatic steatosis. *J Hepatol.* 70(5): 930-940. PMID: 30677459
14. **Helsley, R.N**., Venkateshwari, V., Brown, A.L, et al (2019) Obesity-Linked Suppression of Membrane-Bound O-Acyltransferase 7 (MBOAT7) Drives Non-Alcoholic Fatty Liver Disease. *eLife.* 17;8e49882. PMID: 31621579
15. Anthony, S.R., Guarnieri, A.R., Gozdiff, A., **Helsley, R.N.**, Owens, A.P., and Tranter, M. (2019) Mechanisms Linking Adipose Tissue Inflammation to Cardiac Hypertrophy and Fibrosis. *Clin Sci.* 133(22):2329-2344. PMID: 31777927
16. Brown, A.L., Conrad, K., Allende, D.S., Gromovsky, A.D., Neumann, C., Owens, P.A., Tranter, M., and **Helsley, R.N.** (2019) Choline Supplementation Attenuates High Fat Diet-Induced Hepatocellular Carcinoma (HCC) in Mice. *J Nutr.* 150(4):775-783. PMID: 31851339
17. **Helsley, R.N.** and Softic, S. (2020) Fructose metabolism by the guts cuts liver fat. *J Mol Med*. 98(5):733-734. PMID: 32318746
18. Pathak, P., **Helsley, R.N.**, Brown, A.L., Buffa, J.A., et al. (2020) Small Molecule Inhibition of Gut Microbial Choline Trimethylamine Lyase Activity Alters Host Cholesterol and Bile Acid Metabolism. *Am J Physiol Heart Circ Physiol*. 318(6):H1474-1486 PMID: 32330092
19. Anthony, S.R., Guarnieri, A., Lanzillotta, L., Gozdiff, A., Green, L.C., O'Grady, K., **Helsley, R.N.**, Owens, P.A., and Tranter, M. (2020) HuR Expression in Adipose Tissue Mediates Energy Expenditure and Acute Thermogenesis Independent of UCP1 Expression. *Adipocyte*. 9(1): 335-345 PMID: 32713230
20. **Helsley, R.N.***, Moreau, F.*, Gupta, M.K., Radulescu, A, DeBosch, B., and Softic, S. (2020) Tissue-Specific Fructose Metabolism in Obesity and Diabetes. *Curr Diab Rep*. 20(11):64 PMID: 33057854
21. Damen, M.S.M.A, Stankiewicz, T., Park, S-H., **Helsley, R.N.**, et al. (2021) Non-hematopoietic IL-4Ra expression contributes to fructose-driven obesity and metabolic sequelae. *Int J Obes (Lond)*. Doi: 10.1038/s41366-021-00902-6. PMID: 34302121
22. Park, S.H., **Helsley, R.N.**, et al. (2021) A Luminescence-Based Protocol for Assessing Fructose Metabolism via Quantification of Ketohexokinase Enzymatic Activity in Mouse or Human Hepatocytes. STAR Protoc. Doi: 10.1016/j.xpro.2021.100731. PMCID: PMC8361265
23. Schugar, R.C., Gliniak, C.M., Osborn, L.J., Massey, W., Sangwan, N., Horak, A., Banerjee, R., Orabi, D., **Helsley, R.N.**, et al. (2022) Gut microbe-targeted choline trimethylamine lyase inhibition improves obesity via rewiring of host circadian rhythms. *eLife*. Doi: 10.7554/eLife.63998 PMID: 35072627
24. **Helsley, R.N.***, Miyata, T.*, Kadam, A.*, et al (2022) Gut microbial trimethylamine is elevated in alcohol-associated hepatitis and contributes to ethanol-induced liver injury in mice. *eLife*. Doi: 10.7554/eLife.76554 PMID: 35084335

25. Couch, S.C., **Helsley, R.N.**, et al. (2022) Design and rational for the supermarket and web-based intervention targeting nutrition (SuperWIN) for cardiovascular risk reduction trial. *Am Heart J*. 248:21-34. PMID: 35218725
26. Steen, D., **Helsley, R.N.**, et al. (2022) Efficacy of Supermarket and Web-based Interventions for Improving Dietary Quality: A Randomized, Controlled Trial. *Nat Med.* PMID: 36456831
27. Inci, M.K., Park, S.H., **Helsley, R.N.**, et al. (2022) Fructose Impairs Fat Oxidation: Implications for the Mechanism of Western-Diet Induced NAFLD. *J Nutr Biochem*. PMID: 36403701
28. **Helsley, R.N**., Park, S-H., Vekaria, V., et al. (2023) Ketohexokinase-C Mediates Global Protein Acetylation to Decrease Carnitine Palmitoyltransferase 1a Mediated Fatty Acid Oxidation. *J Hepatol.* PMID: 36822479
29. Benson, T.W., Conrad, K.A., Li, X.S., Wang, Z., **Helsley, R.N.**, et al. (2023) Gut Microbiota-derived Trimethylamine N-oxide Contributes to Abdominal Aortic Aneurysm Through Inflammatory and Apoptotic Mechanisms. *Circulation*. PMCID: PMC10071415
30. Park, S.H., **Helsley, R.N.**, Fadhul, T. et al. (2023) Fructose Induced KHK-C Increases ER Stress and Modules Hepatic Transcriptome to Drive Liver Disease in Diet-Induced and Genetic Models of NAFLD. *Metabolism.* PMID: 37230214
31. Zelows, M.M., Cady, C., Dharanipragada, N., Mead, A.M., Kipp, Z.A., Bates, E.A., Varadharajan, V., Banerjee, R., Park, S-H, Shelman, N.R., Clarke, H.A., Hawkinson, T.R., Medina, T., Sun, R.C., Lydic, T.A., Hinds, T.D., Brown, J.M., Softic, S., Graf, G.A. and **Helsley, R.N**. (2023) Loss of Carnitine Palmitoyltransferase 1a Reduces Docosahexaenoic Acid-Containing Phospholipids and Drives Sexually Dimorphic Liver Disease in Mice. *Mol Metab*. PMCID: PMC10568566
32. Varadharajan, V., Ramachandiran, L., Massey, W.J., Jain, R., Banerjee, R., Horak, A.J., McMullen, M.R., Huang, E., Bellar, A., Lorkowski, S.W., Guilshan, K., **Helsley, R.N.**, et al. (2024) Membrane Bound O-Acyltransferase (Mboat7) Shapes Lysosomal Lipid Homeostasis and Function to Control Alcohol-Associated Liver Injury. *eLife*. PMCID: PMC11034944
33. Bates, E.A., Kipp, Z.A., Lee, W-H., Martinez, G.J., Weaver, L., Becker, K.N., Pauss, S.N., Creeden, J.F., Anspach, G.A., **Helsley, R.N.**, et al. (2024) FOXS1 is Increased in Liver Fibrosis and Regulates TGFβ Responsiveness and Proliferation Pathways in Human Hepatic Stellate Cells. *J Biol Chem*. PMCID: PMC10878791
34. Hohe, R., Banerjee, R., Cao, S., Jung, B.M., Horak, A.J., Massey, W.J., Varadharajan, W., Zajczenko, N., Burrows, A.C., Dutta, S., Goudarzi, M., Carter, A., **Helsley, R.N.**, et al. (2024) The Nonvesicular Sterol Transporter Aster-C Plays a Minor Role in Whole Body Cholesterol Balance. *In Press at Front. Physiol*.

B. Abstracts:

1. **Helsley, R.N**., Tranter, M., Paulding, W., and Jones, W.K. Micro-RNA regulation of Hsp70 protein expression in late ischemic preconditioning. Experimental Biology Conference, 2010. Anaheim, CA
   Recipient of ASPET Undergraduate Student Travel Award
2. **Helsley, R.N**., Tranter, M., Paulding, W., and Jones, W.K. NF-κB and HSF-1 coordinated transcriptional regulation of the Hsp70.3 promoter. Experimental Biology Conference, 2011. Washington, DC.
   Recipient of ASPET Undergraduate Student Travel Award
3. **Helsley, R.N**., Sui, Y., Ai, N., Park, S-H., Welsh, W.J., and Zhou, C. HIV protease inhibitors activate PXR and induce dyslipidemia in mice. Saha Cardiovascular Research Day, 2012. Lexington, KY
4. **Helsley, R.N**., Sui, Y., Ai, N., Park, S-H., Welsh, W.J., and Zhou C. Pregnane x receptor mediates dyslipidemia induced by the HIV protease inhibitor amprenavir in mice. Experimental Biology Conference, 2013. Boston, MA
   Recipient of ASPET Graduate Student Travel Award
5. **Helsley, R.N**., Sui, Y., Ai, N., Park, S-H., Welsh, W.J., and Zhou C. Pregnane x receptor mediates dyslipidemia induced by the HIV protease inhibitor amprenavir in mice. Barnstable Brown Kentucky Diabetes and Obesity Research Day, 2013. Lexington, KY
6. **Helsley, R.N**., Sui, Y., Ai, N., Park, S-H., Welsh, W.J., and Zhou, C. Pregnane x receptor mediates dyslipidemia induced by the HIV protease inhibitor amprenavir in mice. Saha Cardiovascular Research Day, 2013. Lexington, KY.
7. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., and Zhou, C. Pregnane x receptor mediates dyslipidemia induced by the HIV protease inhibitor amprenavir in mice. South East Lipid Research Conference, 2013. Pine Mountain, GA
8. Sui, Y., Park, S-H., **Helsley, R.N**., Sunkara, M., Gonzalez, F.J., Morris, A.J., and Zhou, C. Bisphenol A increases atherosclerosis in pregnane x receptor-humanized ApoE deficient mice. ATVB Conference, 2014. Toronto, ON
   Recipient of the University of Kentucky Graduate School Travel Award

9. **Helsley, R.N**., Sui, Y., Ai, N., Park, S-H., Welsh, W.J., and Zhou, C. Pregnane x receptor mediates dyslipidemia induced by the HIV protease inhibitor amprenavir in mice. 11th Annual Ohio Valley Affiliates for Life Sciences Conference in Metabolic Diseases, 2014. Cincinnati, OH
   Awarded 2nd place in the poster competition
10. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., and Zhou, C. Phthalate substitute plasticizers activate PXR and induce dyslipidemia in mice. Barnstable Brown Kentucky Diabetes and Obesity Research Day, 2014. Lexington, KY
    Awarded 4th place in the poster competition
11. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., and Zhou, C. Phthalate substitute plasticizers activate PXR and induce dyslipidemia in mice. COBRE Annual Review and Competing Renewal Retreat, 2014. Lexington, KY
12. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., and Zhou C. Activation of intestinal PXR by phthalate substitute plasticizers stimulates NPC1L1 expression and induces hyperlipidemia in mice. Saha Cardiovascular Research Day, 2014. Lexington, KY
13. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., and Zhou, C. Activation of intestinal PXR by phthalate substitute plasticizers stimulates NPC1L1 expression and induces hyperlipidemia in mice. South East Lipid Research Conference, 2014. Pine Mountain, GA
14. **Helsley, R.N**., Sui, Y., Liu, Z., Park, S-H., and Zhou, C. Targeted deletion of IKKβ protects mice from obesity and metabolic disorders. SEC symposium on obesity prevention, 2014. Atlanta, GA
    Poster competition finalist
15. **Helsley, R.N**., Sui, Y., Liu, Z., Park, S-H., and Zhou, C. IκB Kinase β signaling in adipose progenitor cells promotes obesity and metabolic disorders. ATVB Conference, 2015. San Francisco, CA
16. **Helsley, R.N**., Sui, Y., Liu, Z., Park, S-H., Zhu, B., Kern, P.A., and Zhou, C. IKKβ signaling in adipose progenitor cells promotes obesity and metabolic disorders. Barnstable Brown Obesity and Diabetes Research Day, 2015. Lexington, KY
    Awarded 1st place in the poster competition
17. **Helsley, R.N**., Sui, Y., Liu, Z., Park, S-H., Zhu, B., Kern, P.A., Lee, R.G., and Zhou, C. IKKβ signaling in adipose progenitor cells promotes obesity and metabolic disorders. Metabolic Signaling and Disease: From Cell to Organism, 2015. Cold Spring Harbor, NY
18. **Helsley, R.N**., Sui, Y., Liu, Z., Park, S-H., Zhu, B., Kern, P.A., Lee, R.G., and Zhou, C. IKKβ signaling in adipose progenitor cells promotes obesity and metabolic disorders. COBRE Retreat, 2015. Lexington, KY
19. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., Lee, R.G., Zhu, B., Kern, P.A., and Zhou, C. Targeting IKKβ in adipose progenitor cells for treatment of obesity and metabolic disorders. Saha Cardiovascular Research Day, 2015. Lexington, KY
    Awarded 1st place in the poster competition
20. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., Lee, R.G., Zhu, B., Kern, P.A., and Zhou, C. Targeting IκB Kinase β in adipocyte lineage cells for treatment of obesity and metabolic dysfunctions. ATVB Conference, 2016. Nashville, TN
    ATVB Travel Award for Young Investigators
21. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., Lee, R.G., Zhu, B., Kern, P.A., and Zhou, C. Targeting IκB Kinase β in adipocyte lineage cells for treatment of obesity and metabolic dysfunctions. Vanderbilt Cardiovascular Symposium, 2016. Nashville, TN
22. **Helsley, R.N**., Marshall, M.M., Schugar, R.C., Ferguson, D., Gromovsky, A.D., Neumann, C., Lee, R.G., Hazen, S.L., Nagy, L.E., and Brown, J.M. The gut microbe-derived, trimethylamine (TMA), contributes to the etiology of ethanol-induced liver disease. Cleveland Clinic Research Day, 2016. Cleveland, OH.
23. **Helsley, R.N**., Marshall, M.M., Schugar, R.C., Ferguson, D., Gromovsky, A.D., Neumann, C., Lee, R.G., Hazen, S.L., Nagy, L.E., and Brown, J.M. The gut microbe-derived, trimethylamine (TMA), contributes to the etiology of ethanol-induced liver disease. Saha Cardiovascular Research Day, 2016. Lexington, KY
    Outstanding Postdoctoral Fellow Poster Presentation "The Stewart Whitman Award"
24. Brown, A.L., Conrad, K., Allende, D.S., Gromovsky, A.D., Neumann, C., Owens, P.A., Tranter, M., and **Helsley, R.N.** Choline Supplementation Attenuates High Fat Diet-Induced Hepatocellular Carcinoma (HCC) in Mice. Case Western Reserve Cancer Symposium, 2019. Cleveland, OH
25. Brown, A.L., Conrad, K., Allende, D.S., Gromovsky, A.D., Neumann, C., Owens, P.A., Tranter, M., and **Helsley, R.N.** Choline Supplementation Attenuates High Fat Diet-Induced Hepatocellular Carcinoma (HCC) in Mice. South East Lipid Research Conference, 2019. Cincinnati, OH
    Trainee wins best presentation award
26. **Helsley, R.N**., Venkateshwari, V., Brown, A.L, et al (2019) Obesity-Linked Suppression of Membrane-Bound O-Acyltransferase 7 (MBOAT7) Drives Non-Alcoholic Fatty Liver Disease. Saha Cardiovascular

Research Day, 2019. Lexington, KY.

Awarded 1st place in the poster competition

27. **Helsley, R.N**., Park, S.H., Meyer, J.G., Schilling, B., Newgard, C.B., Kahn, R., and Softic, S. Dietary Fructose Influences Fatty Acid Metabolism through Transcriptional and Post-Translational Modifications of Mitochondrial Proteins. COBRE Annual Retreat, 2020. Lexington, KY.
28. **Helsley, R.N**., Park, S.H., Meyer, J.G., Schilling, B., Newgard, C.B., Kahn, R., and Softic, S. Dietary Fructose Influences Fatty Acid Metabolism through Transcriptional and Post-Translational Modifications of Mitochondrial Proteins. Digestive Health Center Annual Scientific Retreat, 2020. Cincinnati, OH.
29. **Helsley, R.N**., Park, S.H., Hemendra, V.J., Sullivan, P.G., Meyer, J.G., Schilling, B., Newgard, C.B., Kahn, R., and Softic, S. Dietary Fructose Decreases Fatty Acid Oxidation via Post-Translational Regulation of CPT1a. University of Kentucky College of Medicine Trainee Showcase, 2021. Lexington, KY.
30. **Helsley, R.N**., Park, S.H., Hemendra, V.J., Sullivan, P.G., Meyer, J.G., Schilling, B., Newgard, C.B., Kahn, R., and Softic, S. Dietary Fructose Decreases Fatty Acid Oxidation via Post-Translational Regulation of CPT1a. Saha Cardiovascular Research Day, 2021. Lexington, KY.

Outstanding Postdoctoral Fellow Poster Presentation "The Stewart Whitman Award"

31. Steen, D.L., **Helsley, R.N.**, Bhatt, D.L., King, E., Summer, S.S., Fenchel, M., Saelens, B.E., Eckman, M.H., Lenchitz, B., and Couch, S.C. A Multisite, Randomized Trial of Supermarket and Web-Based Intervention Targeting Nutrition for Cardiovascular Risk Reduction. American College of Cardiology Meeting, 2022. Washington, D.C.
32. **Helsley, R.N**., Zelows, M.M., Kaur, R., Williams, K., Softic, S., and Graf, G. CPT1a Modulates Lipoprotein and Hepatic Lipid Metabolism in a Sex-Specific Manner. CCTS Research Day, 2022. Lexington, KY.
33. Zelows, M.M., Kaur, R., Williams, K., Graf, G., and **Helsley, R.N**. CPT1a Modulates Lipoprotein Metabolism. Vascular Discoveries, 2022. Seattle, WA.
34. Zelows, M.M., Kaur, R., Williams, K., Softic, S., Graf, G., and **Helsley, R.N** Carnitine Palmitoyltransferase 1a Serves as a Gatekeeper of Sexually Dimorphic NAFLD. Frederickson Lipid Research Conference, 2022. Durham, NC.
35. Zelows, M.M., Kaur, R., Williams, K., Graf, G. and **Helsley, R.N**. Carnitine Palmitoyltransferase 1a Modulates Lipoprotein Metabolism. Saha Cardiovascular Research Day, 2022. Lexington, KY.

Trainee Wins Outstanding Poster Presentation "The Deneys Van der Westhuyzen Award"

36. Zelows, M.M., Kaur, R., Williams, K., Softic, S., Graf, G., and **Helsley, R.N**. Carnitine Palmitoyltransferase 1a Modules Sexually Dimorphic NAFLD in Mice. Barnstable Brown Obesity and Diabetes Research Day, 2022. Lexington, KY

Trainee Wins 2nd Place at Poster Competition

37. Zelows, M.M., Kaur, R., Williams, K., Softic, S., Graf, G., and **Helsley, R.N**. Carnitine Palmitoyltransferase 1a Modules Sexually Dimorphic NAFLD in Mice. Kentucky Chapter of the American Physiological Society, 2022. Lexington, KY

Trainee Wins 2nd Place at Poster Competition

38. Gonzalez, L., Steen, D., **Helsley, R.N**., Summers, S., and Couch, S.C. The Impact of a Supermarket-based Dietary Intervention on Ultra-Processed Food Consumption Among Adults at Cardiovascular Disease Risk. Food and Nutrition Conference and Expo, 2023. Denver, CO.
39. Bokenkotter, A., **Helsley, R.N**., Summers, S., Steen, D., and Couch, S.C. The Association Between Dietary Quality Indicators from Supermarket Food Purchases and Multiple Days of Dietary Recall. Food and Nutrition Conference and Expo, 2023. Denver, CO.

C. Podium Presentations:

1. **Helsley, R.N**., Sui, Y., Ai, N., Park, S-H., Welsh, W.J., and Zhou, C. HIV protease inhibitors activate PXR and induce dyslipidemia in mice. Saha Cardiovascular Research Day, 2012. Lexington, KY
2. **Helsley, R.N**., Sui, Y., Ai, N., Park, S-H., Welsh, W.J., and Zhou, C. The role of the pregnane x receptor in xenobiotic-induced dyslipidemia. Graduate Center for Nutritional Sciences Seminar Series, University of Kentucky College of Medicine, 2013. Lexington, KY
3. **Helsley, R.N**., Sui, Y., Ai, N., Park, S-H., Welsh, W.J., and Zhou, C. Pregnane x receptor mediates dyslipidemia induced by the HIV protease inhibitor amprenavir in mice. Experimental Biology Conference, 2013. Boston, MA

Awarded 4th place in the ASPET Cardiovascular Pharmacology Best Abstract Competition

4. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., and Zhou, C. PXR links xenobiotic exposure to dyslipidemia and atherosclerosis. Saha Cardiovascular Research Day, 2013. Lexington, KY
5. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., and Zhou, C. The role of the pregnane x receptor in xenobiotic-induced dyslipidemia. Department of Pharmacology and Nutritional Sciences Seminar Series, University of

Kentucky College of Medicine, 2014. Lexington, KY

6. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., and Zhou C. IKKβ signaling in adipose progenitor cells promotes obesity and metabolic disorders. Department of Pharmacology and Nutritional Sciences Seminar Series, University of Kentucky College of Medicine, 2015. Lexington, KY
7. **Helsley, R.N**., Sui, Y., Liu, Z., Park, S-H., Zhu, B., Kern, P.A., and Zhou, C. IKKβ signaling in adipose progenitor cells promotes obesity and metabolic disorders. Barnstable Brown Obesity and Diabetes Research Day, 2015. Lexington, KY
8. **Helsley, R.N**., Sui, Y., Park, S-H., Liu, Z., Zhu, B., Kern, P.A., Lee, R.G., and Zhou, C. Targeting IKKβ in adipose progenitor cells for treatment of obesity and metabolic disorders. Saha Cardiovascular Research Day, 2015. Lexington, KY
9. **Helsley, R.N**., Marshall, M.M., Schugar, R.C., Ferguson, D., Gromovsky, A.D., Neumann, C., Lee, R.G., Hazen, S.L., Nagy, L.E., and Brown, J.M. The gut microbe-derived, trimethylamine (TMA) contributes to the etiology of ethanol-induced liver disease. P50 Seminar Series, 2016. Cleveland, OH.
10. **Helsley, R.N**., Marshall, M.M., Schugar, R.C., Ferguson, D., Gromovsky, A.D., Neumann, C., Lee, R.G., Hazen, S.L., Nagy, L.E., and Brown, J.M. Drugging the gut microbiome for the treatment of alcohol-induced liver injury. Young Investigator Awards Platform Session – ASPET Division for Translational and Clinical Pharmacology, 2017. Chicago, IL.
11. **Helsley, R.N**., Gromovsky, A.D., Schugar, R.C., Kabbany, M.N., et al. Obesity-Linked Suppression of Membrane-Bound O-Acyltransferase 7 (MBOAT7) Drives Non-Alcoholic Fatty Liver Disease. Heart, Lung, and Vascular Institute (HLVI) Cardiology Seminar Series, 2017. Cincinnati, OH.
12. **Helsley, R.N**., Venkateshwari, V., Brown, A.L, et al. Obesity-Linked Suppression of Membrane-Bound O-Acyltransferase 7 (MBOAT7) Drives Non-Alcoholic Fatty Liver Disease. South East Lipid Research Conference, 2019. Cincinnati, OH.
13. **Helsley, R.N**. Identification of Molecular Mechanisms Contributing to Liver Disease. Heart, Lung, and Vascular Institute (HLVI) Cardiology Seminar Series, 2019. Cincinnati, OH
14. **Helsley, R.N**. Identification of Molecular Mechanisms Contributing to Liver Disease. University of Kentucky Department of Pharmacology and Nutritional Sciences Seminar Series, 2019. Lexington, KY.
15. **Helsley, R.N**. Identification of Carnitine Palmitoyltransferase 1a (CPT1a) as a Novel Regulator of NAFLD and Associated Hyperlipidemia. University of Kentucky Department of Pharmaceutical Sciences Seminar Series, 2021. Lexington, KY.
16. **Helsley, R.N**. Identification of Mechanisms Linking Fatty Acid Metabolism to NAFLD and Hyperlipidemia. University of Kentucky Department of Pharmacology and Nutritional Sciences Seminar Series, 2021. Lexington, KY.
17. **Helsley, R.N**. Carnitine Palmitoyltransferase 1a Modulates Lipoprotein and Hepatic Lipid Metabolism in a Sex-Specific Manner. CCTS Scholars Presentation, 2022. Lexington, KY.
18. **Helsley, R.N**. Carnitine Palmitoyltransferase 1a Serves as a Gatekeeper of Sexually Dimorphic NAFLD. Frederickson Lipid Research Conference, 2022. Durham, NC.
19. **Helsley, R.N**. Fatty Acid Oxidation in Cardiometabolic Disease. University of Kansas Diabetes Center, 2023. Kansas City, MO.
20. **Helsley, R.N**. Loss of Carnitine Palmitoyltransferase 1a Reduces Polyunsaturated Fatty Acid Levels and Drives Microvesicular Steatosis in Livers of Female Mice. Frederickson Lipid Research Conference, 2023. Nashville, TN.
21. **Helsley, R.N**. Fatty Acid Metabolism in Sexually Dimorphic Obesity-Driven Liver Cancer. Case Western Comprehensive Cancer Center. 2023. Cleveland, OH.
22. **Helsley, R.N**. Fatty Acid Metabolism in Sexually Dimorphic Obesity-Driven Liver Cancer. Yale School of Public Health (TREC Workshop). 2024. Westbrook, CT
23. Anspach, G.A.*, Lisembee, C., and **Helsley, R.N.** Gene Expression and Fatty Acid Profiling of Metabolically-driven Human Hepatocellular Carcinoma. Kern Lipid Conference. Snowmass, CO. **G. Anspach awarded an early stage investigator award.*
24. Dharanipragada, N.*, Anspach, G.A., Lisembee, C., and **Helsley, R.N.** Deletion of Carnitine Palmitoyltransferase 1a from Adipocytes Leads to Insulin Resistance in Female Mice. Kentucky Physiological Society (KPS) Meeting. Lexington, KY. **N. Dharanipragada awarded best undergraduate presentation (oral).*
25. **Helsley, R.N**. Defining a Role for Fatty Acid Oxidation in Obesity-associated Liver Disease. Seminar at Ohio State University, Department of Molecular Medicine & Therapeutics. 2024. Columbus, OH.
26. Dharanipragada, N.*, Anspach, G.A., Lisembee, C., and **Helsley, R.N.** Deletion of Carnitine Palmitoyltransferase 1a from Adipocytes Leads to Insulin Resistance in Female Mice. Saha Cardiovascular Research Center Meeting. Lexington, KY. **N. Dharanipragada selected for an oral presentation.*