

Curriculum Vitae

ZHENYUAN SONG, PHD

**Professor of Nutrition
Department of Kinesiology and Nutrition
University of Illinois at Chicago**

CONTACT INFORMATION

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EDUCATION BACKGROUND

<u>PhD</u>	2000	University of Arkansas Fayetteville, Arkansas USA
<u>MS</u>	1994	Shenyang Agricultural University Shenyang, Liaoning P. R. China.
<u>BS</u>	1991	Shenyang Agricultural University Shenyang, Liaoning P. R. China.

PROFESSIONAL EXPERIENCE

2020-	Full Professor Department of Kinesiology and Nutrition School of Applied Health Sciences University of Illinois at Chicago Chicago, IL
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2014-2020 **Associate Professor (Tenured)**
Department of Kinesiology and Nutrition
School of Applied Health Sciences
University of Illinois at Chicago
Chicago, IL

2008-2014 **Assistant Professor (Tenure-Track)**
Department of Kinesiology and Nutrition
University of Illinois at Chicago
Chicago, IL

2010-2020 **Adjunct Associate Professor**
Department of Pathology
School of Medicine
University of Illinois at Chicago
Chicago, IL

2005-2008 **Assistant Professor (Research Track)**
Division of Gastroenterology and Hepatology
Department of Internal Medicine
School of Medicine
University of Louisville
Louisville, KY

2002-2005 **Research Associate**
Division of Gastroenterology and Hepatology
Department of Internal Medicine
School of Medicine
University of Louisville
Louisville, KY

2001-2002 **Postdoctoral Fellow**
Division of Gastroenterology and Hepatology
Department of Internal Medicine
School of Medicine
University of Louisville
Louisville, KY

2000-2001 **Postdoctoral Fellow**
Division of Hepatology
Graduate Program of Human Nutrition
School of Medicine
University of Kentucky
Lexington, KY

1994-1997 **Research Scientist**
Biotechnology Laboratory, Research and Development Institute

RESEARCH

Honors and Awards

- 2007 Travel Award: NIH-NIAAA-International Symposium on Alcoholic Liver and Pancreatic Diseases and Cirrhosis October: 17-18, Kobe, Japan.
- 2006 Travel Award: NIH-NIAAA-International Symposium on Alcoholic Liver and Pancreatic Diseases and Cirrhosis May: 18-19, Los Angeles, California
- 2005 Young Investigator Award: NIH-NIAAA-7th international symposium of cytokines and Chemokines, Montreal, Canada.
- 2005 NIH Career Developing Award.

Research Supports

Active

NIH-NIAAA

1R01AA029079-01

The Role and Mechanisms of Hepatic Nicotinamide N-Methyltransferase in the Pathogenesis of Alcoholic Liver Disease

Role: PI

2022-2027

NIH-NIAAA

R01 1R01AA026603-01A1

Central nervous system-adipose tissue axis in the pathogenesis of alcoholic liver disease

Role: PI

2018-2023

NIH-NIDDK

R01 DK119783

Alternate day fasting combined with exercise for the treatment of NAFLD

Role: Co-I (PI: Dr. Varady, Dept. of Kinesiology and Nutrition, UIC)

2019-2023

NIH-NIDDK

R01 DK131038

PPARgamma regulated mechanisms in hepatocytes that promote NAFLD

Role: Co-I (PI: Dr Cordoba-Chacon, Jose, Department of Medicine, UIC)

02/2022-01/2027

Finished

NIH-NIAAA

R21 R21AA025363

The pathological role of nicotinamide N-methyltransferase in alcoholic liver disease

Role: PI

2017-2020

CCTS0512-05

UIC CCTS

Use of the fast-food diet mouse to model the pathophysiology of NASH.

Role: Co-PI

2012-2017

VA Merit review grant

BX001090

Role of Membrane Modifications in the Bioactivities of Conjugated Linoleic Acids

Role: Collaborator (PI: Papasani V. Subbaiah)

2013-2017

NIH-NIDDK

K01 AA015344-01A1

Mechanisms of Sensitization to TNF hepatotoxicity in ALD

Role: PI

2005-2010

NIH-NIAAA

R01 RAA017442A

Homocysteine, Adiponectin, and Alcoholic Liver Disease

Role: PI

2009-2014

Grant-in-Aid

University of Louisville, School of Medicine

Mechanism of TNF Induced Apoptosis in Hepatocytes

Role: PI.

10/10/04-10/10/05

NIH-NIDDK

R01 DK083328A

Acute pancreatitis and obesity

Role: Co-I (PI: Giamila Fantuzzi)

2010-2015

NIH-NIAAA

R01

Tumor necrosis factor- α and alcoholic liver disease

Role: Co-I (PI: Craig J. McClain)

2001-2011

NIH-NIAAA

R01 AA015970-01

S-Adenosylhomocysteine and S-Adenosylmethionine in Alcoholic Liver Disease

Role: Co-I (PI: Craig J. McClain)

2005-2010

Peer-reviewed original research publications

1. Song Q, Hwang CL, Li Y, Wang J, Park J, Lee SM, Sun Z, Sun J, Xia Y, Nieto N, Cordoba-Chacon J, Jiang Y, Dou X, Song Z. Gut-derived ammonia contributes to alcohol-related fatty liver development via facilitating ethanol metabolism and provoking ATF4-dependent de novo lipogenesis activation. **Metabolism** doi:10.1016/j.metabol.2024.
2. Qinchao Ding, Rui Guo, Liuyi Hao, Qing Song, Ai Fu, Shanglei Lai, Tiantian Xu, Hui Zhuge, Kaixin Chang, Yanli Chen, Haibin Wei, Daxi Ren, Zhaoli Sun, Zhenyuan Song, Xiaobing Dou, Songtao Li. Hepatic TRPC3 loss contributes to chronic alcohol consumption-induced hepatic steatosis and liver injury in mice. **Life Metabolism** <https://doi.org/10.1093/lifemeta/load050>. 2024.
3. Yuan Y, Shi Z, Xiong S, Hu R, Song Q, Song Z, Ong SG, Jiang Y. Differential roles of insulin receptor in adipocyte progenitor cells in mice. **Mol Cell Endocrinol**. doi: 10.1016/j.mce.2023.
4. Wu R, Park J, Qian Y, Shi Z, Hu R, Yuan Y, Xiong S, Wang Z, Yan G, Ong SG, Song Q, Song Z, Mahmoud AM, Xu P, He C, Arpke RW, Kyba M, Shu G, Jiang Q, Jiang Y. Genetically prolonged beige fat in male mice confers long-lasting metabolic health. **Nat Commun**. doi: 10.1038/s41467-023-38471-z. 2023.
5. Qing Song¹, Jun Wang¹, Alexandra Griffiths, Samuel Man Lee, Iredia D Iyamu, Rong Huang, Jose Cordoba-Chacon, Zhenyuan Song. Nicotinamide N-methyltransferase (NNMT) upregulation contributes to palmitate-elicited peroxisome proliferator-activated receptor (PPAR) γ transactivation in hepatocytes. **AJP-Cell Physiology** 325: C29-C41, 2023.
6. Alexandra Griffiths, Jun Wang, Qing Song, Samuel Man Lee, Jose Cordoba-Chacon, Zhenyuan Song. ATF4-mediated CD36 Upregulation Contributes to Palmitate-induced Lipotoxicity in Hepatocytes. **AJP-GI and Liver Physiology** 324: G341-G353, 2023.
7. Song, Qing, Chen, Yingli, Ding, Qinchao, Griffiths, Alexandra, Liu, Lifeng, Park, Jooman, Liew, Chong Wee, Nieto, Natalia, Li, Songtao, Dou, Xiaobing, Jiang, Yuwei, Song, Zhenyuan¹. mTORC1 inhibition uncouples lipolysis and thermogenesis in white adipose tissue to contribute to alcoholic liver disease. February 2023. **Hepatology Communications** 7(3):e0059 DOI:10.1097/HC9.0000000000000059
8. Ezpeleta M, Gabel K, Cienfuegos S, Kalam F, Lin S, Pavlou V, Song Z, Haus JM, Koppe S, Alexandria SJ, Tussing-Humphreys L, Varady KA. Effect of alternate day fasting combined with aerobic exercise on non-alcoholic fatty liver disease: A randomized controlled trial. **Cell Metabolism** 35:56-70. e3. doi: 10.1016/j.cmet.2022.12.001, 2023.
9. Li S, Song Z, Yao P, Qin J. Editorial: Alcohol Consumption and Liver Diseases: From Pathology to Phytotherapy. **Front Pharmacol**. 16; 13:848334. doi:10.3389/fphar.2022.848334. 2022.
10. Alexandra Griffiths, Jun Wang, Qing Song, Iredia D Iyamu, Lifeng Liu, Jooman Park, Yuwei Jiang, Rong Huang, Zhenyuan Song. Nicotinamide N-methyltransferase upregulation via the mTORC1-ATF4 pathway activation contributes to palmitate-induced lipotoxicity in hepatocytes. 321:C585-C595. *Am J Physiol Cell Physiol* 2021.

11. Fu A, Li J, Ding Q, Guo R, Pi A, Yang W, Chen Y, Dou X, Song Z, Li S. Upregulation of 4-Hydroxynonenal Contributes to the Negative Effect of n-6 Polyunsaturated Fatty Acid on Alcohol-Induced Liver Injury and Hepatic Steatosis. **J Agric Food Chem.** 70:6418-6428, 2022.
12. Liuyi Hao, Wei Zhong, Wei Guo, Haibo Dong, Wenliang Zhang, Xinguo Sun, Tianjiao Li, Alexandra Griffiths, Ali Reza Ahmadi, Zhaoli Sun, **Zhenyuan Song**, Zhanxiang Zhou. ATF4 activation promotes hepatic mitochondrial dysfunction by repressing NRF1-TFAM signaling in alcoholic steatohepatitis. **Gut** 70:1933-1945, 2021.
13. Yingli Chen, Alexandra Griffiths, Jun Wang, Tingting Zhang, Qing Song, **Zhenyuan Song**. Inositol requiring enzyme 1 alpha (IRE1 α) connects palmitate-induced mTOR activation and lipotoxicity in hepatocytes. **AJP-Cell Physiology** 319:C1130-C1140, 2020.
14. Jun Wang, Yingli Chen, Qing Song, Alexandra Griffiths, **Zhenyuan Song**. mTORC1-IRE1 α pathway activation contributes to palmitate-elicited triglyceride secretion and cell death in hepatocytes. **Experimental Biology and Medicine** 245: 1268-1279, 2020.
15. Qing Song, Yingli Chen, Jun Wang, Liuyi Hao, Chuyi Huang, Alexandra Griffiths, Zhaoli Sun, Zhanxiang Zhou, **Zhenyuan Song**. ER stress-mediated liver NNMT upregulation via the PERK-ATF4 pathway activation contributes to alcoholic fatty liver development. **Journal of Hepatology** 73: 783-793, 2020.
16. Chen Shen, Wang Ma, Lei Ding, Songtao, Li, Xiaobing Dou, **Zhenyuan Song**. The TLR4-IRE1 α Pathway Activation Contributes to Palmitate-Elicited Lipotoxicity in Hepatocytes. **Journal of Cellular and Molecular Medicine** 22:3572-3581, 2018.
17. Xiaobing Dou, Songtao Li, Linfeng Hu, Lei Ding, Yue Ma, Wang Ma, Hui Chai, **Zhenyuan Song**. Glutathione Disulfide Sensitizes Hepatocytes to TNF Cytotoxicity via IKK S-glutathionylation: A Potential Mechanism for Non-alcoholic Fatty Liver Disease. **Experimental and Molecular Medicine** 50: 7 DOI 10.1038/s12276-017-0013-x, 2018.
18. Huang S, Zhang B, Chen Y, Liu H, Liu Y, Li X, Bao Z, **Song Z**, Wang Z. Poly(ADP-Ribose) Polymerase Inhibitor PJ34 Attenuated Hepatic Triglyceride Accumulation in Alcoholic Fatty Liver Disease in Mice. **J Pharmacol Exp Ther** 364:452-461, 2018.
19. Li S, Dou X, Ning H, Song Q, Wei W, Zhang X, Shen C, Li J, Sun C, **Song Z**. Sirtuin 3 acts as a negative regulator of autophagy dictating hepatocyte susceptibility to lipotoxicity. **Hepatology** 66:936-952, 2017.
20. Shen C, Dou X, Ma Y, Ma W, Li S, **Song Z**. Nicotinamide protects hepatocytes against palmitate-induced lipotoxicity via SIRT1-dependent autophagy induction. **Nutrition Research** 40:40-47, 2017.
21. Ding L, Wo L, Du Z, Tang L, **Song Z**, Dou X. Danshen protects against early-stage alcoholic liver disease in mice via inducing PPAR α activation and subsequent 4-HNE degradation. **PLoS One** 12:e0186357. doi: 10.1371/journal.pone.0186357, 2017.
22. Li J, Dou X, Li S, Zhang X, Zeng Y, **Song Z**. Nicotinamide ameliorates palmitate-induced ER stress in hepatocytes via cAMP/PKA/CREB pathway-dependent Sirt1 upregulation. **Biochim Biophys Acta** 1853:2929-36, 2015.
23. Xiaobing Dou, Yongliang Xia, Jing Chen, Ying Qian, Songtao Li, Ximei Zhang, **Zhenyuan Song**. Rectification of impaired adipose tissue methylation status and lipolytic response contributes to hepatoprotective effect of betaine supplementation in a mouse model of alcoholic liver disease. **The British Journal of Pharmacology** 171:4073-86, 2014.
24. Sun S, **Song Z**, Cotler SJ, Cho M. Biomechanics and functionality of hepatocytes in liver cirrhosis. **J Biomech.** 47: 2005-2010, 2014.

25. Zhigang Wang, Xiaobing Dou, Songtao Li, Ximei Zhang, Chen Shen, **Zhenyuan Song**. Nrf2 activation-induced hepatic VLDL receptor overexpression in response to oxidative stress contributes to alcoholic liver disease in mice. **Hepatology**. 59:1381-92, 2014.
26. Songtao Li, Jiaxin Li, Chen Shen, Ximei Zhang, **Zhenyuan Song**. Tert-butylhydroquinone (tBHQ) protects hepatocytes against lipotoxicity via inducing autophagy independently of Nrf2 activation. **BBA-Molecular and cell biology of lipids**. 1841:22-33, 2014
27. Ximei Zhang, Zhigang Wang, Dongfang Gu, Songtao Li, Chen Shen, **Zhenyuan Song**. Increased 4-hydroxynonenal Formation Contributes to Obesity-related Lipolytic Activation in Adipocytes. **PLoS One** 8: e70663. doi: 10.1371/journal.pone.0070663, 2013.
28. Zhong W, Zhao Y, Sun X, **Song Z**, McClain CJ, Zhou Z. Dietary zinc deficiency exaggerates ethanol-induced liver injury in mice: involvement of intrahepatic and extrahepatic factors. **PLoS One**. 2013 Oct 14;8(10): e76522. doi: 10.1371/journal.pone.0076522. eCollection 2013.
29. Dongfang Gu, Zhigang Wang, Xiaobing Dou, Lyndsey Vu, Tong Yao, **Zhenyuan Song**. Inhibition of ERK1/2 Pathway Suppresses Adiponectin Secretion via Accelerating Protein Degradation by Ubiquitin-Proteasome System: Relevance to Obesity-related Adiponectin Decline. **Metabolism: Clinical and Experimental**, 62:1137-48, 2013.
30. Dou X, Shen C, Wang Z, Li S, Zhang X, **Song Z**. Protection of nicotinic acid against oxidative stress-induced cell death in hepatocytes contributes to its beneficial effect on alcohol-induced liver injury in mice. **J Nutr Biochem**. 24: 1520-1528, 2013.
31. Xiaobing Dou, Songtao Li, Zhigang Wang, Dongfang Gu, Chen Shen, Tong Yao, **Zhenyuan Song**. Inhibition of NF- κ B activation by 4-hydroxynonenal contributes to liver injury in a mouse model of alcoholic liver disease. **American Journal of pathology**. 181: 1702-1710, 2012.
32. Zhigang Wang, Xiaobing Dou, Dongfang Gu, Chen Shen, Tong Yao, Van Nguyen, Carol Braunschweig, **Zhenyuan Song**. 4-Hydroxynonenal Differentially Regulates Adiponectin Gene Expression and Secretion via Activating PPAR- γ and Accelerating Ubiquitin-Proteasome Degradation. **Molecular and Cellular Endocrinology**. 349: 222-231, 2012.
33. Zhigang Wang, Xiaobing Dou, Tong Yao, **Zhenyuan Song**. Homocysteine Inhibits Adipogenesis in 3T3-L1 Preadipocytes. **Experimental Biology and Medicine**. 236: 1379-1388, 2011.
34. Dou X, Wang Z, Yao T, **Song Z**. Cysteine aggravates palmitate induced cell death in hepatocytes. **Life Sci**. 89: 879-885, 2011.
35. Wang Z, Pini M, Yao T, Zhou Z, Sun C, Fantuzzi G, **Song Z**. Homocysteine suppresses lipolysis in adipocytes by activating the AMPK pathway. **Am J Physiol Endocrinol Metab**. 301: E703-12, 2011.
36. Watson WH, **Song Z**, Kirpich IA, Deaciuc IV, Chen T, McClain CJ. Ethanol exposure modulates hepatic S-adenosylmethionine and S-adenosylhomocysteine levels in the isolated perfused rat liver through changes in the redox state of the NADH/NAD (+) system. **Biochim Biophys Acta**. 1812:613-8, 2011.
37. Zhao Y, Zhong W, Sun X, **Song Z**, Clemens DL, Kang YJ, McClain CJ, Zhou Z. Zinc deprivation mediates alcohol-induced hepatocyte IL-8 analog expression in rodents via an epigenetic mechanism. **Am J Pathol**. 179:693-702, 2011.
38. Wang Z, Yao T, **Song Z**. Chronic alcohol consumption disrupted cholesterol homeostasis in rats: down-regulation of low-density lipoprotein receptor and enhancement of cholesterol biosynthesis pathway in the liver. **Alcohol Clin Exp Res**. 34:471-8, 2010.
39. Wang Z, Yao T, Pini M, Zhou Z, Fantuzzi G, **Song Z**. Betaine improved adipose tissue function in mice fed a high-fat diet: a mechanism for hepatoprotective effect of betaine in nonalcoholic fatty liver disease. **Am J Physiol Gastrointest Liver Physiol**. 298: G634-42, 2010.
40. Wang Z, Yao T, **Song Z**. Extracellular signal-regulated kinases 1/2 suppression aggravates transforming growth factor- β 1 hepatotoxicity: a potential mechanism for liver injury in

- methionine-choline deficient-diet-fed mice. **Exp Biol Med (Maywood)**. 35: 1347-55, 2010.
41. Wang Z, Yao T, **Song Z**. Involvement and mechanism of DGAT2 upregulation in the pathogenesis of alcoholic fatty liver disease. **J Lipid Res**. 51: 3158-65, 2010.
 42. Kang X, Zhong W, Liu J, **Song Z**, McClain CJ, Kang YJ, Zhou Z. Zinc supplementation reverses alcohol-induced steatosis in mice through reactivating hepatocyte nuclear factor-4alpha and peroxisome proliferator-activated receptor-alpha. **Hepatology** 50:1241-50, 2009.
 43. Song M, **Song Z**, Barve S, Zhang J, Chen T, Liu M, Arteel GE, Brewer GJ, McClain CJ. Tetrathiomolybdate protects against bile duct ligation-induced cholestatic liver injury and fibrosis. **J Pharmacol Exp Ther**. 325:409-16, 2008.
 44. Xinqin Kang, **Zhenyuan Song**, Craig J. McClain, Y. James Kang, Zhanxiang Zhou. Zinc supplementation enhances hepatic regeneration by preserving hepatocyte nuclear factor-4 in mice subjected to a long-term ethanol administration. **American Journal of Pathology** 172:916-25, 2008.
 45. Zhanxiang Zhou, Jie Liu, **Zhenyuan Song**, Craig J. McClain, Y. James Kang. Inhibition by zinc supplementation of hepatic apoptosis in mice subjected to long term ethanol exposure. **Exp Biol Med (Maywood)** 233:540-8, 2008.
 46. **Zhenyuan Song***, Zhanxiang Zhou, Ion Deaciuc, Theresa Chen, and Craig J. McClain. Homocysteine-induced Inhibitory Effects on Adiponectin Production in Alcoholic Liver Disease. **Hepatology** 47:867-79, 2008.
- *Denotes corresponding author
47. Ion V. Deaciuc, **Zhenyuan Song**, Xuejun Peng and Craig J. McClain. Genome-wide transcriptome expression in the liver of a mouse model of high carbohydrate diet-induced liver steatosis and its significance for the disease. **Hepatology International** DOI10.1007/s12072-9025-2.
 48. **Song Z***, Song M, Lee DY, Liu Y, Deaciuc IV, McClain CJ. Silymarin prevents palmitate-induced lipotoxicity in HepG2 cells: involvement of maintenance of Akt kinase activation. **Basic Clin Pharmacol Toxicol**.101:262-268, 2007.
- *Denotes corresponding author
49. **Song Z***, Deaciuc I, Zhou Z, Song M, Chen T, Hill D, McClain CJ. Involvement of AMP-activated Protein Kinase in Beneficial Effects of Betaine on High-Sucrose Diet-Induced Hepatic Steatosis. **Am J Physiol Gastrointest Liver Physiol**. 293: G894 -902, 2007.
- *Denotes corresponding author
50. **Zhenyuan Song***, Zhanxiang Zhou, Ming Song, Silvia Uriarte, Theresa Chen, Ion Deaciuc, Craig J. McClain. Alcohol-induced S-adenosylhomocysteine accumulation in the liver sensitizes to TNF hepatotoxicity: Possible involvement of mitochondrial S-adenosylmethionine transport. **Biochemical Pharmacology** 74:521-531, 2007.
- *Denotes corresponding author
51. Zhou Z, Kang X, Jiang Y, **Song Z**, Feng W, McClain CJ, Kang YJ. Preservation of hepatocyte nuclear factor-4alpha is associated with zinc protection against TNF-alpha hepatotoxicity in mice. **Exp Biol Med (Maywood)**. 232:622-8, 2007.
 52. De Villiers WJ, **Song Z**, Nasser MS, Deaciuc IV, McClain CJ. 4-Hydroxynonenal-induced apoptosis in rat hepatic stellate cells: Mechanistic approach. **J Gastroenterol Hepatol**. 22:414-422, 2007.
 53. Gobejishvili L, Barve S, Joshi-Barve S, Uriarte S, **Song Z**, McClain CJ. Chronic ethanol mediated decrease in cAMP primes macrophages to enhanced LPS-inducible NF- κ B activity and TNF expression: relevance to alcoholic liver disease. **Am J Physiol Gastrointest Liver Physiol**. 291:G681-688, 2006.
 54. **Zhenyuan Song***, Ion Deaciuc, Ming Song, David Y-W Lee, Yanze Liu, Xiaosheng Ji, Craig J.

McClain. Silymarin Protects Against Acute Ethanol Induced Hepatotoxicity in Mice. **Alcoholism: Clinical and Experimental Research** 30:407-413, 2006.

*Denotes corresponding author

55. Wang J, Song Y, Elsherif L, **Song Z**, Sun X, Sarri JT, Prabhu SD, Cai L. Cardiac metallothionein induction plays the major role in the prevention of diabetic cardiomyopathy by Zinc supplementation. **Circulation** 113: 544-554, 2006.
56. Deaciuc IV, **Song Z**, McClain CJ. Lessons from large-scale gene profiling of the liver in alcoholic liver disease. **Hepato Res.** 31:187-192, 2005.
57. McClain C, Barve S, Joshi-Barve S, **Song Z**, Deaciuc I, Chen T, Hill D. Dysregulated cytokine metabolism, altered hepatic methionine metabolism and proteasome dysfunction in alcoholic liver disease. **Alcohol Clin Exp Res** 29:180S-188S, 2005.
58. Zhou Z, Wang L, **Song Z**, Saari JT, McClain CJ, Kang YJ. Zinc supplementation prevents alcoholic liver injury in mice through attenuation of oxidative stress. **Am J Pathol.** 166:1681-1690, 2005.
59. **Zhenyuan Song**, Silvia Uriarte, Theresa Chen, Shirish Barve, Daniell Hill, and Craig J. McClain: S-adenosylmethionine (S-AdoMet) Modulates Interleukin-10 and Interleukin-6, But Not TNF, Production Via the Adenosine (A₂) Receptor in LPS-stimulated Monocytes. **Biochim Biophys Acta.** 1743:205-213. 2005.
60. Silvia M. Uriarte, Swati Joshi-Barve, **Zhenyuan Song**, H Boddulluri, Venkatakrishna Rao Jala, Craig McClain, and Shirish Barve. Inhibition of Akt kinase induces Caspase-8 activity, FasL expression and enhances FasL Dependent Cell Death in Juktat T Lymphocytes. **Cell Death Differ.** 2005 12:233-242, 2005.
61. **Song Z**, Zhou Z, Uriarte S, Wang L, Kang YJ, Chen T, Barve S, McClain CJ. S-adenosylhomocysteine sensitizes to TNF- α hepatotoxicity in mice and liver cells: a possible etiological factor in alcoholic liver disease. **Hepatology** 2004; 40:989-997.
62. **Song, Z.**, Barve, B., Chen, T., Nelson, W., Uriarte, S., Hill, D., and McClain, C. J.: S-Adenosylmethionine Modulates Endotoxin Stimulated Interleukin-6 Production in Monocytes. **Cytokine** 2004; 28:214-223.
63. Lambert, J. C., Zhou, Z., Wang, L., **Song, Z.**, McClain, C. J., and Kang, Y. J.: Preservation of Intestinal Structural Integrity by Zinc Is Independent of Metallothionein in Alcohol-intoxicated Mice. **Am J Pathol** 2004; 164:1959-1966.
64. Zhou, Z., Wang, L., **Song, Z.**, Saari, J., McClain, C. J., and Kang, Y. J.: Abrogation of nuclear factor- κ B activation is involved in zinc inhibition of lipopolysaccharide-induced tumor necrosis factor- α production and liver injury. **Am J Pathol** 2004; 164:1547-1556.
65. **Song, Z.**, McClain, C. J., and Chen, T.: S-adenosylmethionine (S-AdoMet) Protects against Acetaminophen- Induced Hepatotoxicity in mice. **Pharmacology** 2004; 71:199-208.
66. Song, Y., **Song, Z.**, Zhang, L., McClain, C. J., Kang, Y. J., and Cai L.: Diabetes Enhances LPS-induced Cardiac Toxicity in Mouse model. **Cardiovascular Toxicology** 2003; 363-372.
67. Zhou, Z., Wang, L., **Song, Z.**, McClain, C. J., and Kang, Y. J.: A critical involvement of oxidative stress in acute alcohol-induced hepatic TNF- α production. **Am J Pathol** 2003; 163:1137-46.
68. **Song, Z.**, Zhou, Z., Chen, T., Hill, D., Kang, J., Barve, B., and McClain, C. J.: S-adenosylmethionine (S-AdoMet) protects against acute alcohol induced hepatotoxicity in mice. **The Journal of Nutritional Biochemistry** 2003; 14: 51-597.
69. **Song, Z.**, Barve, B., Chen, T., Nelson, W., Uriarte, S., Hill, D., and McClain, C. J.: S-adenosylmethionine Modulates Endotoxin Stimulated Interleukin-10 Production in Monocytes. **Am J Physiol Gastrointest Liver Physiol** 2004; 284: G949-55.
70. Lambert, J. C., Zhou, Z., Wang, L., **Song, Z.**, McClain, C. J., and Kang, Y. J.: Prevention of

alterations in intestinal permeability is involved in zinc inhibition of acute ethanol-induced liver damage in mice. **J Pharmacol Exp Ther** 2003; 305:880-886.

71. McClain, C. J., Hill, D. B., **Song, Z.**, Deaciuc, I., and Barve, S.: Monocyte activation in alcoholic liver disease. **Alcohol** 2002; 27: 53-61.

Book chapters and peer-reviewed review articles

Book chapter:

- Zhanxiang Zhou, Zhenyuan Song, Danielle Pigneri, Marion McClain, Charles L. Mendenhall, and Craig J. McClain. Long-term Management of Alcoholic Liver Disease by Taylor & Francis Group, LLC, 2009.

Review articles:

- Wang ZG, Dou XB, Zhou ZX, **Song ZY**. Adipose tissue-liver axis in alcoholic liver disease. **World J Gastrointest Pathophysiol.** 7:17-26, 2016.
- Zhenyuan Song. Adipose Tissue Dysfunction and Alcoholic Liver Disease. *Journal of Liver Research, Disorders & Therapy.* <http://medcraveonline.com/JLRDT/JLRDT-01-00001.pdf> 2015.
- Cave M, Deaciuc I, Mendez C, **Song Z**, Joshi-Barve S, Barve S, McClain C. Nonalcoholic fatty liver disease: predisposing factors and the role of nutrition. *J Nutr Biochem.* 18:184-195, 2007.
- Barve S, Joshi-Barve S, **Song Z**, Hill D, Hote P, Deaciuc I, McClain C. Interactions of cytokines, S-adenosylmethionine, and S-adenosylhomocysteine in alcohol-induced liver disease and immune suppression. *J Gastroenterol Hepatol.* 21: 13: S38-42, 2006.
- **Song, Z.**, Barve, SS., Barve, S., and McClain C. J.: Advances in alcoholic liver disease. *Curr Gastroenterol Rep* 2004; 6: 71-76.
- McClain CJ, **Song Z**, Barve SS, Hill DB, Deaciuc I. Recent advances in alcoholic liver disease. IV. Dysregulated cytokine metabolism in alcoholic liver disease. *Am J Physiol Gastrointest Liver Physiol* 2004; 287: G497-502.
- McClain CJ, Mokshagundam SP, Barve SS, **Song Z**, Hill DB, Chen T, Deaciuc I. Mechanisms of non-alcoholic steatohepatitis. *Alcohol* 34:67-79, 2004.
- McClain, C. J., Hill, D. B., **Song, Z.**, Chawla, R., Watson, W. H., Chen, T., and Barve, S.: S-Adenosylmethionine, cytokines, and alcoholic liver disease. *Alcohol* 2002; 27: 185-192.

Posters and Presentations (to list a few)

- mTORC1 inhibition uncouples lipolysis and thermogenesis in white adipose tissue to contribute to alcoholic liver disease. American Association for Study of Liver Diseases (AASLD) Annual Meeting, Washing DC, 2022.
- ER stress-mediated liver NNMT upregulation via the PERK-ATF4 pathway activation contributes to alcoholic fatty liver development. American Association for Study of Liver Diseases (AASLD) Annual Meeting, Boston, MA, 2019.
- The TLR4-IRE1alpha pathway activation contributes to palmitate-elicited lipotoxicity in hepatocytes. American Association for Study of Liver Diseases (AASLD) Annual Meeting, Washington, DC, 2017.
- SIRT3 Acts as a Negative Regulator of Autophagy Dictating Hepatocyte Susceptibility to Lipotoxicity. American Association for Study of Liver Diseases (AASLD) Annual Meeting, Boston, MA, 2016.
- Nicotinamide ameliorates palmitate-induced ER stress in hepatocytes via cAMP/PKA/CREB pathway-dependent Sirt1 upregulation. American Association for Study of Liver Diseases

- (AASLD) Annual Meeting, Boston, MA, 2014.
- Nrf2 activation-induced hepatic VLDL receptor overexpression in response to oxidative stress contributes to alcoholic liver disease in mice. American Association for Study of Liver Diseases (AASLD) Annual Meeting, Washington DC, November 2013.
 - Tert-butylhydroquinone (tBHQ) protects hepatocytes against lipotoxicity via inducing autophagy independently of Nrf2 activation. To be presented in American Association for Study of Liver Diseases (AASLD) Annual Meeting, Washington DC, November 2013.
 - Inhibition of NF- κ B activation by 4-hydroxynonenal contributes to liver injury in a mouse model of alcoholic liver disease. American Association for Study of Liver Diseases (AASLD) Annual Meeting, Boston, 2012.
 - Increased 4-hydroxynonenon Formation Contributes to Obesity-related Lipolytic Activation in Adipocytes. American Association for Study of Liver Diseases (AASLD) Annual Meeting, Boston, 2012.
 - Nicotinic Acid Protects Hepatocytes from H₂O₂-induced Cell death through Preventing GSH Depletion and NF- κ B Inhibition. American Association for Study of Liver Diseases (AASLD) Annual Meeting, Boston, 2012.
 - 4-HNE Suppresses Adiponectin Production via Accelerating Its Proteasome Degradation. Society for Free Radical Biology and Medicine (SFRBM) Annual Meeting. Atlanta, GA. 2011.
 - Homocysteine Inhibits Adipogenesis in 3T3-L1 Preadipocytes. Research Society for Alcoholism (RSA) Annual Meeting. Atlanta, GA, 2011.
 - Homocysteine Suppresses Lipolysis via Activating the AMPK Pathway. Research Society for Alcoholism (RSA) Annual Meeting. Atlanta, GA, 2011.
 - Betaine Improved Adipose Tissue Function in Mice Fed High-Fat Diet: A Mechanism for Hepatoprotective Effect of Betaine in Non-alcoholic Fatty Liver Disease. Experimental Biology annual meeting Anaheim, CA. 2010.
 - ERK1/2 Suppression Links Abnormal Methionine Metabolism and Hepatic Fat Accumulation in Alcoholic Liver Disease via Up-regulating DGAT2. Experimental Biology annual meeting Anaheim, CA. 2010.
 - Involvement of AMP-activated Protein Kinase in Beneficial Effects of Betaine on High-Carbohydrate Diet-Induced Hepatic Steatosis. DDW, Washing DC, 2007.
 - S-adenosylmethionine (AdoMet) modulates endotoxin stimulated interleukin-10 production in monocytes. AASLD, Boston, MA, 2006.
 - Accumulation of Intracellular SAH Sensitizes to TNF Hepatotoxicity: Possible Involvement of Mitochondrial S_AM_e Transporter. AASLD, San Francisco, CA. 2005
 - Silymarin protects against acute ethanol-induced hepatotoxicity in mice. Research Society of Alcoholism annual meeting, Washington DC, 2005.
 - S-adenosylmethionine (S_AM_e) Modulates Interleukin-10 and Interleukin-6, But Not TNF, Production via the Adenosine (A₂) Receptor in LPS-stimulated Monocytes. Digestive Disease Week (DDW), New Orleans, LA. 2004.
 - S-adenosylhomocysteine Sensitizes to Tumor Necrosis Factor Hepatotoxicity: A Possible Etiologic Factor in Alcoholic Liver Disease. Digestive Disease Week (DDW), New Orleans, LA. 2004.
 - Diabetes enhances LPS-stimulated cardiac toxicity in mouse model. Diabetes & Metabolism, Vol. 29 4S323, 2003. 18th International Diabetes Federation Congress. Paris, France. 2003.
 - S-adenosylmethionine (S_AM_e) Protects against Acetaminophen- Induced Hepatotoxicity in mice. Digestive Disease Week (DDW), Orlando, FL. 2003.

- S-adenosylmethionine Modulates Endotoxin Stimulated Interleukin-10 Production in Monocytes. FASEB Experimental Biology. San Diego, CA. 2003.
- S-adenosylmethionine (SAME) protects against acute alcohol induced hepatotoxicity in mice. The Society of Toxicology (SOT) Annual Meeting, Salt Lake City. UT. 2002.
- Hepatic and Extra-Hepatic Stimulation of Glutathione Release into Plasma by Norepinephrine in vivo. The Oxygen Society Annual Meeting. New Orleans, LA. 2000.

TEACHING

Courses

- HN308 - Nutrition Science I: Macronutrients Metabolism - Credit hours: 3
- HN510 - Physiological Aspects of Macronutrients Metabolism - Credit hours: 3
- HN594 - Cell Metabolism and Molecular Nutrition - Credit hours: 3
- HN440 - the Research Process - Credit hours: 3 (co-instructor)
- KN523 - Exercise biology in health and disease- Guest lecture on liver injury and regeneration

Mentored/advised students

PhD student

- Chen Shen (2011 - 2017)
- Alex Griffiths (2018 - 2022)
- Yanhui Li (2023-)

MS students (to name a few)

- Erica Weinandy: 2009 - 2011
- Meghan Rafferty: 2010 - 2012
- Perter Stack: 2010 - present
- Hsing-hua Hsu: 2010 - 2012
- Stephanie Coogan: 2011 - 2012
- Cassie Kerr: 2012 - 2014
- Allison Pigatto: 2012 - 2014
- Xiaoxing Ma: 2013 - 2015
- Danmeng Liu: 2013 - 2015
- Chuyi Huang: 2016 - 2018
- Fernanda Gabriel: 2017 – 2019
- Jill Weisman: 2021- present

Postdoctoral research fellows

- Zhigang Wang 8/15/2009 - 9/1/2011
- Xiaobing Dou 4/15/2010 - 4/7/2012
- Dongfang Gu 6/1/2011 - 7/1/2012
- Qing Song 10/1/2020 - present

Visiting scholars/students

- | | | |
|---------------|---------------------|-----------------------|
| • Qing Song | 8/1/2018 -10/1/2020 | Research Collaborator |
| • Yingli Chen | 11/1/2018 - present | Visiting Scholar |
| • Jun Wang | 2/15/2019 - present | Visiting Scholar |
| • Songtao Li | 2/1/2012 - 2/1/2013 | Visiting Scholar |
| • Ximei Zhang | 2/1/2012 - 2/1/2014 | Visiting Scholar |
| • Jiaxin Li | 8/7/2012 - 8/7/2013 | Visiting Student |

- Hepatology
- Journal of Hepatology
- Molecular Biology of the Cell
- American Journal of Pathology
- American Journal of Physiology
- Journal of Nutrition
- Journal of Nutritional Biochemistry
- Molecular and Cellular Endocrinology
- Journal of Endocrinology
- Alcoholism: Clinical and Experimental Research
- Biochemical Pharmacology
- Molecular Pharmacology
- BBA
- Journal of Cellular Physiology
- Mediators of Inflammation
- Obesity
- FEBS Letters;
- Apoptosis
- Cytokine
- Biologics: Targets & Therapies
- Inflammation Research

Grant Reviewer

2011 American Association for the Advancement of Science (Ad-hoc).

2018 European Research Council (ERC) (Ad-hoc).

2021 NIH-NIDDK ZDK1 GRB G(M4) 1: Mechanistic Studies of the Interaction between SARS-CoV-2/COVID-19 and Diseases and Organ Systems of Interest to NIDDK (R01 Clinical Trial Optional).