

CURRICULUM VITAE

March 25, 2021

SHUZHAO LI

ACADEMIC APPOINTMENTS

01/2020 - Present: Associate Professor, The Jackson Laboratory for Genomic Medicine, Farmington, CT

PROFESSIONAL EXPERIENCE

2020 - present: Associate Professor, The Jackson Laboratory for Genomic Medicine Farmington, CT

2014 – 2019: Assistant Professor of Medicine, Division of Pulmonary, Allergy, Critical Care and Sleep Medicine, Department of Medicine, Emory University, School of Medicine, Atlanta, GA

2014 – 2019: Associate Director, Clinical Biomarkers Laboratory, Department of Medicine, Emory University, Atlanta, GA

EDUCATIONAL BACKGROUND

2009 – 2013 Postdoctoral fellow, Emory Vaccine Center, Atlanta, GA
2007 – 2009 Ph.D., University of Southern Mississippi, Hattiesburg, MS
2001 – 2006 M.Sc., Montana State University, Bozeman, MT
1994 – 1998 B.A., Sichuan University, Chengdu, China

PRINT AND ORAL SCHOLARSHIP

PUBLICATIONS: Peer Reviewed Journal Articles

*Indicates corresponding Author

1. Liu Q, Walker D, Uppal K, Liu Z, Ma C, Tran V, **Li Shuzhao**, Jones DP, Yu T. (2020) Addressing the batch effect issue for LC/MS metabolomics data in data preprocessing. *Sci Rep.* 10(1):13856. PMID: PMC7431853
2. Goll JB, **Li Shuzhao**, Edwards JL, Bosinger SE, Jensen TL, Wang Y, Hooper WF, Gelber CE, Sanders KL, Anderson EJ, Roupael N, Natrajan MS, Johnson RA, Sanz P, Hoft D, Mulligan MJ. (2020) Transcriptomic and Metabolic Responses to a Live-Attenuated Francisella tularensis Vaccine. *Vaccines (Basel).* 8(3). pii: E412. PMID: PMC7563297
3. Palermo, A., Huan, T., Rinehart, D., Rinschen, M.M., **Li Shuzhao**, O'Donnell, V.B., Fahy, E., Xue, J., Subramaniam, S., Benton, H.P. and Siuzdak, G. (2020). Cloud-based archived metabolomics data: A resource for in-source fragmentation/annotation, meta-analysis and systems biology. *Analytical Science Advances*, 1(1), pp.70-80.

4. Pang Z, Chong J, **Li Shuzhao**, Xia J. (2020) MetaboAnalystR 3.0: Toward an Optimized Workflow for Global Metabolomics. *Metabolites*. 10(5). pii: E186. PMID: 32392884, PMCID: PMC7281575
5. Collins JM, Siddiqi A, Jones DP, Liu K, Kempker RR, Nizam A, Shah NS, Ismail N, Ouma SG, Tukvadze N, **Li Shuzhao**, Day CL, Rengarajan J, Brust JC, Gandhi NR, Ernst JD, Blumberg HM, Ziegler TR. (2020) Tryptophan catabolism reflects disease activity in human tuberculosis. *JCI Insight*. 5(10). pii: 137131. PMCID: PMC7259525
6. Ferranti EP, Frediani JK, Mitchell R, Fernandes J, **Li Shuzhao**, Jones DP, Corwin E, Dunlop AL. (2020) Early Pregnancy Serum Metabolite Profiles Associated with Hypertensive Disorders of Pregnancy in African American Women: A Pilot Study. *J Pregnancy*. doi:10.1155/2020/1515321. PMCID: PMC7049834
7. Corwin E, Dunlop AL, Fernandes J, **Li Shuzhao**, Pearce B, Jones DP (2020). Metabolites and Metabolic Pathways Associated with Glucocorticoid Resistance in Pregnant African-American Women. *Comprehensive Psychoneuroendocrinology*. <https://doi.org/10.1016/j.cpnec.2020.100001>
8. Hu X, **Li Shuzhao**, Cirrilo P, Krigbaum N, Tran V, Ishikawa T, La Merrill A, Jones DP, Cohn B. (2020) Metabolome Wide Association Study of serum DDT and DDE in Pregnancy and Early Postpartum. *Reproductive Toxicology*. <https://doi.org/10.1016/j.reprotox.2019.05.059>. PMID: 31102720
9. Hu X, **Li Shuzhao**, Cirillo PM, Krigbaum NY, Tran V, Jones DP, Cohn BA. (2020) Metabolome Wide Association Study of Serum Poly and Perfluoroalkyl Substances (PFASs) in Pregnancy and Early Postpartum. *Reprod Toxicol*. 92:120-128. PMID:31923462
10. **Li Shuzhao***, Cirillo P, Hu X, Tran V, Krigbaum N, Yu S, Jones DP, Cohn B*. (2020) Understanding mixed environmental exposures using metabolomics via a hierarchical community network model in a cohort of California women in 1960's. *Reprod Toxicol*. 92:57-65. PMCID: PMC6949431
11. Ge Y, Gong M, Zadeh M, Li J, Abbott JR, Li W, Morel L, Sonon R, Supekar NT, Azadi P, Wang Y, Jones DP, **Li Shuzhao**, Mohamadzadeh M. (2020) Regulating colonic dendritic cells by commensal glycosylated large surface layer protein A to sustain gut homeostasis against pathogenic inflammation. *Mucosal Immunol*. Jan; 13(1):34-46. Epub 2019 Oct 16. PMCID: PMC6917853
12. Hagan T, Cortese M, Roupheal N, Boudreau C, Linde C, Maddur MS, Das J, Wang H, Guthmiller J, Zheng NY, Huang M, Uphadhyay AA, Gardinassi L, Petitdemange C, McCullough MP, Johnson SJ, Gill K, Cervasi B, Zou J, Bretin A, Hahn M, Gewirtz AT, Bosinger, SE, Wilson, PC, **Li Shuzhao**, Alter, Khurana, S, Golding, H, Pulendran, B. (2019) Antibiotics-Driven Gut Microbiome Perturbation Alters Immunity to Vaccines in Humans. *Cell*. 178(6):1313-1328.e13. PMCID: PMC6750738
13. Khadka M, Todor A, Maner-Smith KM, Colucci JK, Tran V, Gaul DA, Anderson EJ, Natrajan MS, Roupheal N, Mulligan MJ, McDonald CE, Suthar M, **Li Shuzhao**, Ortlund EA. The Effect of Anticoagulants, Temperature, and Time on the Human Plasma Metabolome and Lipidome

- from Healthy Donors as Determined by Liquid Chromatography-Mass Spectrometry. *Biomolecules*. (2019); 9(5). pii: E200. PMID: PMC6571950
14. Cordy RJ, Patrapuvich R, Lili LN, Cabrera-Mora M, Chien JT, Tharp GK, Khadka M, Meyer EV, Lapp SA, Joyner CJ, Garcia A, Banton S, Tran V, Luvira V, Rungin S, Saeseu T, Rachaphaew N, Pakala SB, DeBarry JD; MaHPIC Consortium, Kissinger JC, Ortlund EA, Bosinger, SE, Barnwell, JW, Jones, DP, Uppal, Karan, **Li Shuzhao**, Sattabongkot, J, Moreno, A. (2019) Distinct amino acid and lipid perturbations characterize acute versus chronic malaria. *JCI Insight*. 4(9). pii: 125156. PMID: PMC6538326
 15. Fischer, T, Frederick AB, Tran V, **Li Shuzhao**, Jones DP, Fridovich-Keil JL. (2019) Metabolic perturbations in classic galactosemia beyond the Leloir pathway: Insights from an untargeted metabolomic study. *J Inherit Metab Dis*. 42(2):254-263. PMID: PMC6414239
 16. Ge Y, Gong M, Colliou N, Zadeh M, Li J, Jones DP, **Li Shuzhao**, Mohamadzadeh M. (2019) Neonatal intestinal immune regulation by the commensal bacterium, *P. UF1*. *Mucosal Immunol*. 12(2):434-444. Epub 2019 Jan 15. PMID: PMC6375783
 17. Chong J, Soufan O, Li C, Caraus I, **Li Shuzhao**, Bourque G, Wishart DS, Xia J. (2018) MetaboAnalyst 4.0: towards more transparent and integrative metabolomics analysis. *Nucleic Acids Res*. 46(W1):W486-W494. PMID: PMC6030889
 18. Gardinassi LG, Arévalo-Herrera M, Herrera S, Cordy RJ, Tran V, Smith MR, Johnson MS, Chacko B, Liu KH, Darley-Usmar VM, Go YM; MaHPIC Consortium., Jones DP, Galinski MR, **Li Shuzhao***. (2018) Integrative metabolomics and transcriptomics signatures of clinical tolerance to *Plasmodium vivax* reveal activation of innate cell immunity and T cell signaling. *Redox Biol*. 17:158-170. Epub 2018 Apr 11. PMID: PMC6007173
 19. Sato SE, **Li Shuzhao**, Long Q. (2018) Integrative analysis of transcriptomic and metabolomic data via sparse canonical correlation analysis with incorporation of biological information. *Biometrics*. Mar;74(1):300-312. doi: 10.1111/biom.12715. Epub 2017 May 8. PMID: PMC5677597
 20. Colliou N, Ge Y, Sahay B, Gong M, Zadeh M, Owen JL, Neu J, Farmerie WG, Alonzo F 3rd, Liu K, Jones DP, **Li Shuzhao**, Mohamadzadeh M. (2017) Commensal *Propionibacterium* strain UF1 mitigates intestinal inflammation via Th17 cell regulation. *J Clinical Investigation*. 127(11):3970-3986. Epub 2017 Sep 25. PMID: PMC5663347
 21. Gardinassi LG, Cordy RJ, Lacerda MVG, Salinas JL, Monteiro WM, Melo GC, Siqueira AM, Val FF, Tran V, Jones DP, Galinski MR, **Li Shuzhao***. (2017) Metabolome-wide association study of peripheral parasitemia in *Plasmodium vivax* malaria. *Int J Med Microbiol*. 307(8):533-541. Epub 2017 Sep 6. PMID: PMC5698147
 22. Sinclair C, Bommakanti G, Gardinassi L, Loebbermann J, Johnson MJ, Hakimpour P, Hagan T, Benitez L, Todor A, Machiah D, Oriss T, Ray A, Bosinger S, Ravindran R, **Li Shuzhao**, Pulendran B. (2017) mTOR regulates metabolic adaptation of APCs in the lung and controls the outcome of allergic inflammation. *Science*. 357(6355):1014-1021. Epub 2017 Aug 10. PMID: PMC5746055
 23. Fischer ST, Lili LN, **Li Shuzhao**, Tran VT, Stewart KB, Schwartz CE, Jones DP, Sherman SL, Fridovich-Keil JL. (2017) Low-level maternal exposure to nicotine associates with significant

- metabolic perturbations in second-trimester amniotic fluid. *Environ Int.* 107:227-234. Epub 2017 Jul 30. PMID: PMC5569895
24. Myers OD, Sumner SJ, **Li Shuzhao**, Barnes S, Du X. (2017) One Step Forward for Reducing False Positive and False Negative Compound Identifications from Mass Spectrometry Metabolomics Data: New Algorithms for Constructing Extracted Ion Chromatograms and Detecting Chromatographic Peaks. *Anal Chem.* 89(17):8696-8703. Epub 2017 Aug 17. PMID: 28752754
 25. Myers OD, Sumner SJ, **Li Shuzhao**, Barnes S, Du X. (2017) Detailed Investigation and Comparison of the XCMS and MZmine 2 Chromatogram Construction and Chromatographic Peak Detection Methods for reprocessing Mass Spectrometry Metabolomics Data. *Anal Chem.* 89(17):8689-8695. Epub 2017 Aug 17. PMID: 28752757
 26. Gardinassi L, Xia J, Safo S, **Li Shuzhao***. (2017) Bioinformatics tools for the interpretation of metabolomics data. *Current Pharmacology Reports*, 3(6), 374-383.
 27. **Li Shuzhao**, Sullivan NL, Roupheal N, Yu T, Banton S, Maddur MS, McCausland M, Chiu C, Canniff J, Dubey S, Liu K, Tran V, Hagan T, Duraisingham S, Wieland A, Mehta AK, Whitaker JA, Subramaniam S, Jones DP, Sette A, Vora K, Weinberg A, et al. (2017) Metabolic Phenotypes of Response to Vaccination in Humans. *Cell.* 169(5):862-877.e17. doi: 10.1016/j.cell.2017.04.026. Epub 2017 May 11. PMID: PMC5711477 (Companion commentary “Orthogonal Data Integration to Define Immunometabolic Phenotypes”, *Cell Systems* 4(6): 576)
 28. Alvarez JA, Chong EY, Walker DI, Chandler JD, Michalski ES, Grossmann RE, Uppal K, **Li Shuzhao**, Frediani JK, Tirouvanziam R, Tran VT, Tangpricha V, Jones DP, Ziegler TR. (2017) Plasma metabolomics in adults with cystic fibrosis during a pulmonary exacerbation: A pilot randomized study of high-dose vitamin D(3) administration. *Metabolism.* 2017 May;70:31-41. Epub 2017 Feb 11. Erratum in: *Metabolism.* 2017 Sep;74:41-42. PMID: PMC5407388
 29. Barnes S, Benton HP, Casazza K, Cooper SJ, Cui X, Du X, Engler J, Kabarowski JH, **Li Shuzhao**, Pathmasiri W, Prasain JK, Renfrow MB, Tiwari HK. (2016) Training in metabolomics research. II. Processing and statistical analysis of metabolomics data, metabolite identification, pathway analysis, applications of metabolomics and its future. *J Mass Spectrom.* 51(8):535-548. PMID: PMC5584587
 30. Barnes S, Benton HP, Casazza K, Cooper SJ, Cui X, Du X, Engler J, Kabarowski JH, **Li Shuzhao**, Pathmasiri W, Prasain JK, Renfrow MB, Tiwari HK. (2016) Training in metabolomics research. I. Designing the experiment, collecting and extracting samples and generating metabolomics data. *J Mass Spectrom.* 2016 Jul;51(7):461-75. PMID: PMC4964969
 31. Uppal K, Walker DI, Liu K, **Li Shuzhao**, Go YM, Jones DP. (2016) Computational Metabolomics: A Framework for the Million Metabolome. *Chem Res Toxicol.* 29(12):1956-1975. Epub 2016 Oct 12. Review. PMID: PMC5376098
 32. Chandler JD, Wongtrakool C, Banton SA, **Li Shuzhao**, Orr ML, Barr DB, Neujahr DC, Sutliff RL, Go YM, Jones DP. (2016) Low-dose oral cadmium increases airway reactivity and lung

- neuronal gene expression in mice. *Physiological Rep.* 4(13). pii: e12821. Doi: 10.14814/phy2.12821. PMID: PMC4945833
33. Ravindran R, Loebbermann J, Nakaya HI, Khan N, Ma H, Gama L, Machiah DK, Lawson B, Hakimpour P, Wang YC, **Li Shuzhao**, Sharma P, Kaufman RJ, Martinez J, Pulendran B. (2016) The amino acid sensor GCN2 controls gut inflammation by inhibiting inflammasome activation. *Nature.* 531(7595):523-527. Epub 2016 Mar 16. PMID: PMC4854628
 34. Jin R, Banton S, Tran VT, Konomi JV, **Li Shuzhao**, Jones DP, Vos MB. (2016) Amino Acid Metabolism is Altered in Adolescents with Nonalcoholic Fatty Liver Disease-An Untargeted, High Resolution Metabolomics Study. *J Pediatr.* 172:14-19. e5. Epub 2016 Feb 5. PMID: PMC5321134 (I directed data analysis in this study)
 35. Cribbs SK, Uppal K, **Li Shuzhao**, Jones DP, Huang L, Tipton L, Fitch A, Greenblatt RM, Kingsley L, Guidot DM, Ghedin E, Morris A. (2016) Correlation of the lung microbiota with metabolic profiles in bronchoalveolar lavage fluid in HIV infection. *Microbiome.* 2016 Jan 20;4:3. PMID: PMC4721204
 36. **Li Shuzhao***, Todor A and Luo R. (2016). Blood transcriptomics and metabolomics for personalized medicine. *Computational and Structural Biotechnology Journal.* 14:1-7. PMID: 26702339. Review. PMID: PMC4669660
 37. **Li Shuzhao**, Dunlop AL, Jones DP, Corwin EJ. (2016) High-Resolution Metabolomics: Review of the Field and Implications for Nursing Science and the Study of Preterm Birth. *Biol Res Nurs.* 18(1):12-22. Epub 2015 Jul 16. PMID: PMC4684995
 38. Xu X, Araki K, **Li Shuzhao**, Han JH, Ye L, Tan WG, Konieczny BT, Bruinsma MW, Martinez J, Pearce EL, Green DR, Jones DP, Virgin HW, Ahmed R. (2014) Autophagy is essential for effector CD8(+) T cell survival and memory formation. *Nat Immunol.* 15(12):1152-61. Epub 2014 Nov 2. PMID: PMC4232981
 39. Boube I., Lotz J. M., Pozhitkov A. E., **Li Shuzhao.**, Griffitt, R. J. (2014). Identification of Genes Involved in Taura Syndrome Virus Resistance in *Litopenaeus Vannamei*. *Journal of Aquatic Animal Health*, 26(3), 137-143.
 40. Hoffman JM, Soltow QA, **Li Shuzhao**, Sidik A, Jones DP, Promislow DE. (2014) Effects of age, sex, and genotype on high sensitivity metabolomic profiles in the fruit fly, *Drosophila melanogaster*. *Aging Cell.* 13(4):596-604. doi: 10.1111/accel. 1225. Epub 2014 Mar 18. PMID: PMC4116462
 41. **Li, Shuzhao**, Roupheal N, Duraisingham S, Romero-Steiner S, Presnell S, Davis C, Schmidt DS, Johnson SE, Milton A, Rajam G, Kasturi S, Carlone GM, Quinn C, Chaussabel D, Palucka AK, Mulligan MJ, Ahmed R, Stephens DS, Nakaya HI, Pulendran B. (2014) Molecular signatures of antibody responses derived from a systems biology study of five human vaccines. *Nat Immunol.* 15(2):195-204. Epub 2013 Dec 15. PMID: PMC3946932 (Commentary “Strength in numbers: comparing vaccine signatures the modular way”, *Nature Immunology* 15, 139–141)

42. Ravindran R, Khan N, Nakaya HI, **Li Shuzhao**, Loebbermann J, Maddur MS, Park Y, Jones DP, Chappert P, Davoust J, Weiss DS, Virgin HW, Ron D, Pulendran B. (2014) Vaccine activation of the nutrient sensor GCN2 in dendritic cells enhances antigen presentation. *Science*. 343(6168):313-317. Epub 2013 Dec 5. PMID: PMC4048998
43. **Li Shuzhao***, Park Y, Duraisingam S, Strobel FH, Khan N, Soltow QA, Jones DP, Pulendran B. (2013) Predicting network activity from high throughput metabolomics. *PLoS Comput Biol*. 9(7):e1003123. Epub 2013 Jul 4. PMID: PMC3701697
44. **Li Shuzhao**, Nakaya HI, Kazmin DA, Oh JZ, Pulendran B. (2013) Systems biological approaches to measure and understand vaccine immunity in humans. *Semin Immunol*. 25(3):209-18. Epub 2013 Jun 21. Review. PMID: PMC3797847
45. Yu T, Park Y, **Li Shuzhao**, Jones DP. (2013) Hybrid feature detection and information accumulation using high-resolution LC-MS metabolomics data. *J Proteome Res*. 12(3):1419-27. Epub 2013 Feb 12. PMID: PMC3624888
46. Nakaya, HI, **Li Shuzhao**, Pulendran, B. (2012) Systems vaccinology: learning to compute the behavior of vaccine induced immunity. *Wiley Interdiscip Rev Syst Biol Med*. 4(2): 193-205. PMID: PMC3288517
47. Roede JR, Park Y, **Li Shuzhao**, Strobel FH, Jones DP. (2012). Detailed mitochondrial phenotyping by high resolution metabolomics. *PLoS One*. 7(3):e33020. PMID: PMC3295783
48. Wilkinson P, Filali-Mouhim A, **Li Shuzhao**, Ahlers J, Schatzle J, Pulendran B, Sekaly RP, Cameron MJ. An open-ended plea for the development of a global database of HIV vaccine responses. *Curr Opin HIV AIDS*. 2012 Jan;7(1):10-6. PMID: 22156846; PMID: PMC3253342.
49. Nakaya HI, Wrammert J, Lee EK, Racioppi L, Marie-Kunze S, Haining WN, Means AR, Kasturi SP, Khan N, Li GM, McCausland M, Kanchan V, Kokko KE, **Li Shuzhao**, Elbein R, Mehta AK, Aderem A, Subbarao K, Ahmed R, Pulendran B. (2011). Systems biology of vaccination for seasonal influenza in humans. *Nature Immunology*. 12(8):786-95. PMID: PMC3140559
50. Pulendran B, **Li Shuzhao**, Nakaya HI. (2010) Systems vaccinology. *Immunity*. 33(4):516-29. PMID: PMC3001343
51. **Li Shuzhao***, Pozhitkov A, Ryan RA, Manning CS, Brown-Peterson N, Brouwer M. (2010). Constructing a fish metabolic network model. *Genome Biology*. 11(11):R115. PMID: PMC3156954
52. **Li Shuzhao***, Pozhitkov A, Brouwer M. (2010). Linking probe thermodynamics to microarray quantification. *Physical Biology*. 7(4):048001
53. Cornish EJ, Hassan SM, Martin JD, **Li Shuzhao**, Merzdorf CS. (2009). A microarray screen for direct targets of Zic1 identifies an aquaporin gene, aqp-3b, expressed in the neural folds. *Developmental Dynamics*. 238(5):1179-94
54. **Li Shuzhao***, Pozhitkov, A, Brouwer, M. (2008) A competitive hybridization model predicts

probe signal intensity on high density DNA microarrays. *Nucleic Acids Research* 36(20): 6585-6591

55. **Li Shuzhao**, Shin Y, Cho KW, Merzdorf CS. (2006). The Xfeb gene is directly upregulated by Zic1 during early neural development. *Developmental Dynamics*. 235:2817-27.

BOOK CHAPTERS:

Karnovsky A and **Li Shuzhao***. (2020) Pathway analysis for targeted and untargeted metabolomics. In *Computational Methods and Data Analysis for Metabolomics* (pp. 387-400, series of *Methods in Molecular Biology*). Humana, New York, NY.

Pittard WS, Villaveces C and **Li Shuzhao***. (2020) A bioinformatics primer to data science, with examples for metabolomics. In *Computational Methods and Data Analysis for Metabolomics* (pp. 245-263). Humana, New York, NY.

Pittard WS, and **Li Shuzhao***. (2020) The essential toolbox of data science: Python, R, Git and Docker. In *Computational Methods and Data Analysis for Metabolomics* (pp. 265-311). Humana, New York, NY.

Zhou, G., **Li Shuzhao**. and Xia, J., 2020. (2020) Network-Based Approaches for Multi-omics Integration. In *Computational Methods and Data Analysis for Metabolomics* (pp. 469-487). Humana, New York, NY.

Li Shuzhao*. (2015) Pathway and network analysis for high-throughput metabolomics. In “Data processing methods in metabolomics”. Rudaz S (Ed.). Future Science Group, London, UK. doi: 10.4155/9781910420287. eISBN: 978-1-910420-28-7.

BOOKS:

Li, Shuzhao. (Ed.). (2020) *Computational Methods and Data Analysis for Metabolomics (Methods in Molecular Biology)*. Springer, ISBN-13: 978-1071602386. ISBN-10: 1071602381

Oral Presentations (last five years)

Peer reviewed submissions

- 2019 Metabolomics Association of North America, 1st Annual Conference. Atlanta, GA
2018 The 26th Annual International Conference on Intelligent Systems for Molecular Biology, Chicago, IL
2016 24th Annual International Conference on Intelligent Systems for Molecular Biology, Orlando, FL.

Invited presentations – At professional conferences

- 2020 28th annual International Conference on Intelligent Systems for Molecular Biology (ISMB), special session on Systems Immunology, July 13, 2020. Montreal/Virtual.
2020 28th annual International Conference on Intelligent Systems for Molecular Biology (ISMB), COSI track Computational Mass Spectrometry, July 16, 2020. Montreal/Virtual. (Session chair)

- 2020 Common Fund Metabolomics Consortium, National Institute of Health, Rockville, MD
- 2019 Atlanta Athens Mass Spectrometry Discussion Group Symposium. Atlanta, GA.
- 2019 Common Fund Metabolomics Consortium, National Institute of Health, Rockville, MD. (Joint presentation with Jeff Xia and Gary Siuzdak)
- 2018 The 6th Annual Workshop on Metabolomics, University of Alabama, Birmingham, AL (NIH sponsored international workshop)
- 2018 The 2018 ISES-ISEE joint annual meeting. Ottawa, Canada
- 2018 Common Fund Metabolomics Consortium, National Institute of Health, Rockville, MD
- 2018 Children's Health Exposure Analysis Resource Network, New York, NY
- 2017 Human Immunology Project Consortium, National Institute of Health, Potomac, MD
- 2017 The 5th Annual Workshop on Metabolomics, University of Alabama, Birmingham, AL (NIH sponsored international workshop)
- 2017 The 3rd Symposium of Metabolism in Infectious Diseases. Fort Collins, CO
- 2017 NIAID Systems Biology Program Meeting, Chicago, IL
- 2016 The 4th Annual Research Retreat, Center for Inflammation and Mucosal Immunology, University of Florida, Gainesville, FL
- 2016 NIAID Systems Biology Centers, New York, NY
- 2016 The 65th ASTMH Meeting, Atlanta, GA (Deputy symposium chair)
- 2016 The 4th Annual Workshop on Metabolomics, University of Alabama, Birmingham, AL (NIH sponsored international workshop)
- 2016 Emory Exposome Summer Course, Atlanta, GA (NIH sponsored international workshop)
- 2016 The 40th SIAM Southeastern Atlantic Section Conference, Athens, GA
- 2016 California Breast Cancer Research Program, Berkeley, CA
- 2016 National Institute of Health, Rockville, MD.

Invited presentations – At another college or university or scholarly institution

- 2019 Metabolomics and data analysis, week-long workshop taught at ESPOL, Guayaquil, Ecuador.
- 2017 Chinese Academy of Science, Shanghai, China
- 2016 Mummichog, Metabolomics and Data integration, University of Florida, Gainesville, FL
- 2016 Small molecules and big data for precision medicine and precision immunology, Kansas State University, Manhattan, KS
- 2016 MRC² Metabolomics Workshop, University of Michigan, Ann Arbor, MI
- 2016 Multi-omics modeling for systems medicine, Tulane University, New Orleans, LA

Invited presentations – Institutional

- 2020 Institute for Systems Genomics, University of Connecticut, CT
- 2020 Metabolomics for precision medicine and precision immunology, The Jackson Laboratory Faculty Retreat, Farmington, CT
- 2020 The Jackson Laboratory Computational Community Retreat, Farmington, CT
- 2019 The Tuberculosis Research Units Meeting, Emory University, Atlanta, GA
- 2019 Emory-QIMR Omics Research Symposium. Emory University, Atlanta, GA
- 2019 Winship Cancer Center, Emory University, Atlanta, GA
- 2019 Nutritional metabolomics course, March 25, 2019. Emory University, Atlanta, GA
- 2017 Center for Clinical and Molecular Nutrition, Emory University School of Medicine, Atlanta, GA
- 2017 Emory University School of Nursing, Center for Children's Health, the Environment, the Microbiome, and Metabolomics (C-CHEM2), Emory University, Atlanta, GA

- 2016 Division of Digestive Diseases, visiting professorship, Emory University School of Medicine, Atlanta, GA
- 2016 Rollins School of Public Health, Emory University, Atlanta, GA
- 2016 Pulmonary Division Research Seminar, Emory University, Atlanta, GA
- 2016 Multi-omics modeling for systems medicine Pulmonary Division Research Seminar, Emory University, Atlanta, GA
- 2016 Multi-omics analysis for Systems Medicine, DOM Research Resource 101, Emory University, Atlanta, GA

Poster presentations (peer reviewed in past five years)

- 2019 Sherman SL, Fischer T, Mateja A, Jones DP, **Li Shuzhao**, Wang Y, Tran V, Stewart K, Schwartz CE, Fridovich-Keil JL. Metabolomic patterns associated with fetal trisomy 21 based second-trimester maternal serum and amniotic fluid. The Gatlinburg Conference on Research and Theory in Intellectual and Developmental Disabilities. San Antonio, TX
- 2019 **Li Shuzhao**, Pittard S, Siddiaq A. Multi-omics integration via Hierarchical Community Networks. Common Fund Metabolomics Consortium, National Institute of Health, Rockville, MD
- 2018 Morris CR, Ma C, **Li Shuzhao**, Jones DP, Brown LA, Machado RF, Kato GJ, Zhang Y, Nouraie SM, Gladwin MT. Biomarker Discovery: Novel Insights into Red Blood Cell Metabolomics in Patients with Sickle Cell Disease at Risk for Early Mortality. 12th Annual Symposium of Foundation for Sickle Cell Disease Research. (Blood 130:Suppl 1, 4772)
- 2018 Gardinassi L, Arévalo-Herrera M, Herrera S, Cordy RJ, Tran V, Smith MR, Johnson MS, Chako B, Darley-Usmar VM, Liu K, Go Y, Jones DP, Galinski M, Li S. Integrative metabolomics and transcriptomics signatures of clinical tolerance to *Plasmodium vivax* malaria highlight a role for platelets. June 6, 2018. Minas Gerais, Brazil
- 2018 Wang Y, Gardinassi L, Xiong L and **Li Shuzhao**. Multiscale, multifactorial networks to integrate metabolomics with high-dimensional immunology. The 14th Annual Conference of the Metabolomics Society. Seattle, WA
- 2018 Xiong L and **Li Shuzhao**. Contextualizing metabolomics for personalized medicine using mummichog. The 26th Annual International Conference on Intelligent Systems for Molecular Biology. Chicago, IL
- 2018 **Li Shuzhao**, Xiong L, Gardinassi L, Wang Y. Multi-omics, multiscale networks of human immune responses to vaccination and infection. The 26th Annual International Conference on Intelligent Systems for Molecular Biology. Chicago, IL
- 2017 **Li Shuzhao**, Jones DP, Pulendran B. Blood metabolomics and transcriptomics define metabolic axes of human immune response to herpes zoster vaccine. American Society of Mass Spectrometry meeting, Indianapolis, IN
- 2017 Gardinassi L, Arévalo-Herrera M, Herrera S, Cordy RJ, Tran V, Jones DP, Galinski M, **Li Shuzhao**. Molecular signatures of clinical tolerance to *Plasmodium vivax* revealed by integrative metabolomics and transcriptomics. The 6th International Conference on *Plasmodium*

- vivax* Research, Manaus, AM, Brazil
- 2017 Gardinassi L, Cordy RJ, Arévalo-Herrera M, Herrera S, Tran V, Jones DP, Galinski M, **Li Shuzhao**. Multi-omics modeling of different clinical manifestation of *Plasmodium vivax* infection. 6th Annual Southeastern Immunology Symposium. Nashville, TN
- 2017 Li S. Industrialization of big data immunology through modular computing. The 5th Annual Immunogenomics Conference. Huntsville, AL
- 2017 Li S. Ten lessons learned from big data immunology and relevance to cancers. Cold Spring Harbor Asia "Tumor Immunology & Immunotherapy". Suzhou, China
- 2016 Shuzhao Li, Karan Uppal, ViLinh Tran, Andrei Todor, Dean Jones, Annette Esper. High-resolution metabolomics analysis of sepsis. Keystone Symposium on Systems Immunology: From Molecular Networks to Human Biology. Big Sky, MT, USA.
- 2016 Bantan S, Todor A, Luo R, Jones DP, Li S. Computational development for omics integration. New Strategies and Challenges in Lung Proteomics and Metabolomics Workshop. National Jewish Health, Denver CO. (winner 2nd place prize)
- 2016 Sophia Banton, Piera Cirrilo, Douglas Walker, ViLinh Tran, William Hu, Dean P. Jones, Barbara Cohn, Shuzhao Li. Metabolome-wide Association of PCB compounds in humans. California Breast Cancer Research Program Research Symposium, San Francisco, CA.
- 2016 Joshua Chandler, Andrei Todor, James Wise, Dean P. Jones, Joe Griffitt, Shuzhao Li. Distinct metabolomic axes in Gulf coast minnows after Deepwater Horizon oil spill. The 55th Annual Meeting of the Society of Toxicology, New Orleans, LA
- 2016 Sophia Banton, Piera Cirrilo, Douglas Walker, ViLinh Tran, William Hu, Dean P. Jones, Barbara Cohn, Shuzhao Li. Metabolome-wide Association of PCB compounds in humans. The 55th Annual Meeting of the Society of Toxicology, New Orleans, LA
- 2016 K Perry-Walker, DI Walker, JA Alvarez, JE Han, JL Jones, L Hao, S Li, ... Impact of vitamin D status and high-dose vitamin D3 administration on the plasma metabolome in critically ill adults. Federation of American Societies for Experimental Biology meeting. (The FASEB Journal 30 (1 Supplement), 271.3-271.3)
- 2016 Uppal K, Tran V, Jones D, Li S, Esper A. High-Resolution Metabolomics Reveals Distinct Pathways In Septic Patients That Developed Acute Respiratory Distress Syndrome. American Thoracic Society International Conference. San Francisco, CA (Am J Respir Crit Care Med 193;2016:A4407)
- 2016 Loukia N. Lili, Michele La Merrill, Sophia A. Banton, Tomoko Ishikawa, Piera Cirrilo, Nickilou Krigbaum, Lauren Zimmermann, ViLinh Tran, Dean P. Jones, Barbara Cohn, Shuzhao Li. Metabolome wide association of DDT exposure in humans and mice. 24th Annual International Conference on Intelligent Systems for Molecular Biology, Orlando, FL.
- 2016 Andrei Todor, Sophia Banton, Luiz Gardinassi, Shuzhao Li. Reanalysis of Snyderome with mummichog and blood transcription modules. 24th Annual International Conference on Intelligent Systems for Molecular Biology, Orlando, FL.

- 2016 Sophia Banton, Bali Pulendran, Shuzhao Li. Multiscale, multifactorial response network of immunization in humans. 24th Annual International Conference on Intelligent Systems for Molecular Biology, Orlando, FL.
- 2016 Gardinassi L, Arévalo-Herrera M, Herrera S, Cordy RJ, Tran V, Jones DP, Galinski M, Li S. Molecular signatures of clinical tolerance to *Plasmodium vivax* revealed by integrative metabolomics and transcriptomics. The 65th ASTMH Meeting, Atlanta, GA
- 2016 Banton S, Luo R, Joice R, Moreno A, Galinski M, Jones DP, Li S. Pathway group LASSO integration of metabolomics and transcriptomics to characterize malaria infection in Rhesus macaques. The 65th ASTMH Meeting, Atlanta, GA

Poster presentations (invited in past five years)

- 2020 Pang et al. OptiLCMS: an R package for efficient and optimized LC-MS spectra processing. Common Fund Metabolomics Consortium, National Institutes of Health, Rockville, MD

GRANTS

Current Research Support

R01 AI149746 (Li)

NIH/NIAID

ImmunoMetabolomics of Zoster vaccines

Role: Principal Investigator

Funding period: 12/01/2019 – 11/30/2024

Total estimated directs: \$1,212,575

To test the metabolite predictors of immune responses, we have acquired samples from a large Zostavax® study, and propose to perform advanced, high-coverage metabolomics analysis. Predictive models of immune responses will be developed on one cohort and tested on the other. These data will also be compared to a newer and more efficacious zoster vaccine (Shingrix®).

U01 CA235493 (Li/Xia/Siuzdak)

NIH/NCI

Mummichog 3, aligning mass spectrometry data to biological networks

Role: Lead Principal Investigator

Funding period: 09/06/2018 - 08/31/2022

Total estimated directs: \$1,258,115

The mummichog software was initially published in 2013, as a computational approach to match patterns in metabolomics data to known biochemical networks, without the requirement of upfront metabolite identification. This approach enables rapid generation of biological hypothesis from untargeted data, and is gaining considerable popularity. This proposal aims to meet the increasing demand by adding rich user interface to mummichog, and supporting more data types (LC-MS, LC-MS/MS, IMS/MS and GC-MS). Furthermore, this work will make a conceptual leap to establish a framework of network alignment as a vehicle to interpret metabolomics data by integrating multiple layers of information. Mummichog 3 will be available as reusable open source software, and via XCMS Online and MetaboAnalyst.

U2C ES030163 (Jones/Li/Miller/Morgan)

NIH/NIEHS

Mega-scale Identification tools for xenobiotic metabolism

Role: co- Principal Investigator

Funding period: 09/01/2018 - 08/30/2022

Annual estimated directs to Li Lab: \$60,861 (subaward under execution)

The present proposal is to develop powerful new chemical identification tools that can be scaled to identify hundreds of thousands of foreign chemical metabolites in the human body. We have assembled an exposome research team of analytical scientists with expertise in mass spectrometry, xenobiotic metabolism, computational chemistry and robotic methods, to develop and test new chemical identification tools to identify hundreds of thousands of foreign chemical metabolites.

U19 AI090023-07 (Pulendran)

NIH/NIAID

HIPC: System Biological Analyses of Innate and Adaptive Responses to Vaccination

Role: Co- Investigator

Funding period: 07/01/2016 – 6/30/2023

Annual estimated directs: \$69,622 to Li Lab (subaward under execution)

The purpose of this study is to capitalize on recent advances in immune profiling technologies to measure the diversity and commonalities of human immune responses under a variety of conditions using high-throughput systems biology approaches coupled with detailed clinical phenotyping in well-characterized human cohorts. The long-term goal is to develop molecular signatures that define immune response categories/fingerprints/profiles that correlate with the outcome of infection or vaccination.

R01 GM124061 (Kang, Yu)

NIGMS

Bayesian Network Biomarker Selection in Metabolomics Data

Role: Co- Investigator

Funding period: 09/01/2017 – 08/31/2021

Total estimated directs: \$62,654

Developing Bayesian hierarchical models for network marker selection that incorporates matching uncertainties, a regression framework for integrative analysis of multipartite omics networks, and a novel modeling strategy to address the unique challenge of missing values in the metabolic network.

Completed Research Support

UH2 AI132345

NIH/NIAID

Direct Cost: *Multiscale, multifactorial immune networks as a web service*

Role: Principal Investigator

Funding Period: 06/24/2017 – 05/31/2019

P50 ES026071

NIH/NIESH

Center for Children's Health, the Environment, the Microbiome, and Metabolomics (C-CHEM2)

Role: Co-Investigator, co-lead of Project 3

Funding Period: 09/30/2015 – 06/30/2019

83615301

EPA

Center for Children's Health, the Environment, the Microbiome, and Metabolomics

Role: Co-Investigator, co-lead of Project 3

Funding Period: 09/01/2015 – 08/31/2019

P30 ES019776

NIH/NIEHS

HERCULES: Health and Exposome Research Center at Emory

Role: co-Director the IHSFC Core (relinquished due to institutional change)

Funding Period: 05/21/2017-03/31/2022

U2C ES026560

NIH/NIEHS

National Exposure Assessment Laboratory at Emory

Role: Co-Investigator

Funding Period: 09/30/2015 – 08/31/2019

HHSN272201300018I

NIH/NIAID

Vaccine and Treatment Evaluation Units (VTEU), Task Order Request-TASK AREA A. D

Role: Co-Investigator (relinquished due to institutional change)

Funding Period: 09/16/2015 – 09/15/2023

R01 DK107900

NIH/NIDDK

Mechanism, Modification, and Intervention in a Pre-Clinical Model of Galactosemia

Role: Co-Investigator

Funding Period: 12/01/2015 – 11/30/2019

R01 AI121252

NIH/NIAID

Understanding the Survival of Human Bone Marrow Long-lived Plasma Cells

Role: Co-Investigator (relinquished due to institutional change)

Funding Period: 01/01/2016 – 12/31/2020

UFDSP00011230

NIH/University of Florida Sub

Bacterial surface layer-specific immune protection against gut microbial infection

Role: Co- Investigator

Funding Period: 04/01/16 – 3/31/2020

HHSN272201200031C

NIH/NIAID

Systems Biology of Malaria as a Model for Host-Pathogen Interactions

Role: Co-Investigator

Funding Period: 09/30/2012 – 09/29/2017

UG3OD023318

NIH

The Impact of the Intrauterine and Early Childhood Environments on Neurocognitive

Role on Project: Co-Investigator

Funding Period: 09/21/16 – 08/31/2017

21UB-8002

California Breast Cancer Research Program
Chemical Safety During Breast Cancer Susceptible Windows
Role: Co-Investigator
Funding Period: 03/01/2015-02/28/2018

R21HD089056

NIH/CHOA Sub
Anti-LPS antibody for Pediatric Nonalcoholic Fatty Liver Disease
Role on Project: Key Personnel
Funding Period: 09/01/2016 – 8/31/2018

W911NF-16-C-0008

DOD/Defense Advanced Research Projects Agency (DARPA)
Immune Resilience in host-pathogen interactions
Role: Co - Investigator
Funding Period: 03/09/2016-03/08/2019

AWARDS AND HONORS:

2005 Montana State University Research Enhancement Travel Award
2004 Gary K. Lynch Memorial Award, Montana State University
2001- 2004 National Science Foundation IGERT Fellowship

Peer Review Activities:

Grants:

National and International:

Israel Science Foundation, 2015
Ad hoc Reviewer, NIH study section ZES1 LAT-D (R1), 2020
Ad hoc Reviewer, NIH study section ZDK1 GRB-T (M2), 2021

Institutional

Ad-hoc reviewer for ACTSI KL2 Career development program, 2016
Ad-hoc reviewer for Emory University WHSC Synergy Award, 2017
Ad-hoc reviewer for Emory University HERCULES pilot grants, 2019

Manuscripts (partial list):

Analytical Chemistry,
Metabolomics,
Current Metabolomics,
Metabolites,
Journal of Proteome Research,

Bioinformatics,
IEEE Transactions on Biomedical Engineering,
Computer Methods and Programs in Biomedicine,
BMC Genomics,

Genome Medicine,
Journal of Clinical Medicine,
Reproductive Health,
Aging, Investigative Ophthalmology & Visual Science,
The American Journal of Medical Sciences,
Journal of Occupational and Environmental Medicine,
Current Pharmacology Reports,
Science Translational Medicine,
Nature Medicine,

Nature Communications,
Current Opinions in Biotechnology,
PLoS One,
Scientific Reports,

Mediators of Inflammation,
Vaccine,
Oncoimmunology,
Nature Immunology,
Science Immunology

Editorships and Editorial Boards:

Editorial board: *Frontiers in Molecular Diagnostics*

Editor for Springer Nature book “*Computational Methods and Data Analysis for Metabolomics*” Part of the series of “*Methods in Molecular Biology*”, aimed as the first major book on computational metabolomics. 2020.
ISBN-13: 978-1071602386. ISBN-10: 1071602381

Society Memberships:

International Society for Computational Biology
Metabolomics Society
Metabolomics Association of North America
American Association of Immunologists
American Society for Mass Spectrometry

GitHub profile:

<https://github.com/shuzhao-li>

Google Scholar profile:

h-index 29, i10-index 42 (March 25, 2021)

<https://scholar.google.com/citations?user=INBq0asAAAAJ&hl=en>