

# YUANYUAN LI

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## Yuanyuan Li (Yuan Li)

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**Languages:** English, Mandarin, and Cantonese

## Education

Ph.D., Biochemistry, City University of Hong Kong, Kowloon, Hong Kong, 2014. The University Grant Committee (UGC) of Hong Kong fully funded Ph.D. program.  
M. Phil/Master, Pharmacognosy, Joint, Division of Pharmacy, Tongji Hospital, Huazhong University of Science and Technology (Wuhan), and Chengdu University of Traditional Chinese Medicine (Chengdu), China, 2006.  
B.Sc., Pharmaceutical Science, Chengdu University of Traditional Chinese Medicine, Chengdu, China, 2003.

## Personal Statement

Metabolic disorders are associated with the etiology of chronic diseases, such as obesity, diabetes, drug addiction, and cardiovascular dysfunctions, as well as with complications of pregnancy, and the onset of frailty and sarcopenia, etc. My research interest has focused on developing and applying cutting-edge methodologies to detect the metabolic readout of diseases, to identify biomarkers, and to inform novel interventions.

I am currently key personnel and the identified successor/alternate PI for two large scale U-level research centers funded by the National Institutes of Health (NIH). My research within these centers has included developing and applying high resolution mass spectrometry for the untargeted analysis of the metabolomic/exposome, and using computational approaches for the analysis and interpretation of clinical and multi-omics data. Within these NIH funded centers, and as the director of the mass spectrometry element of the Metabolomics and Exposome Laboratory (MEL) at UNC's Nutrition Research Institute, I have worked in a wide range of disease and therapeutic areas, including life-stage exposures and health outcomes, cell signaling transitions in response to stimulation, maternal and child health, liver and kidney disease, substance abuse, and cancer.

My early career training included immersion in traditional Chinese herbal medicine (TCM) and natural product chemistry. Before moving to the US, I conducted research for the Hong Kong Chinese Materia Medica Standards (HKCMMS) project, funded by the Hong Kong Department of Health. The HKCCMS provided evidence basis for ensuring the safety and efficacy of TCM herbs.

## Professional Experience

### 2017 to date: Nutrition Research Institute (NRI), the University of North Carolina at Chapel Hill.

2020-present: Assistant Professor

Director of Untargeted Analysis, Metabolomics and Exposome Lab

2019-2020: Research Associate/Lab Manager

2017-2019: Postdoctoral Associate\_(Advisor: Dr. Susan Sumner)

- Key personnel and director of the Untargeted Resource Element for Metabolomics and Clinical Assay Center (MCAC) which in the NIH Common Fund Nutrition for Precision Health Study (*PI of the MCAC, Dr. Susan Sumner*)
- Key personnel and director of the high-resolution mass spectrometry platform for the NIEHS-funded Human Health Exposure Analysis Resource (HHEAR) Laboratory (*MPIs, Drs. Susan Sumner, Timothy Fennell, and Xiuxia Du*).
- Co-investigator in the NIEHS-funded Children's Health Exposure Analysis Resource (CHEAR) Hub, which also supports the Environmental Child Health Outcome Consortium (ECHO) projects (*PI, Dr. Timothy Fennell*).
- Collaborator on several NIH R-level grants in areas of pregnancy complications (*PI, Dr. Emily Harville*), cardiovascular disease (*MPI, Drs. Penny Gordon-Larson, Kari North, Christy Avery, and Susan Sumner*), arsenic and diabetes research (*Dr. Mirek Styblo*), and on a glucose signaling transition and regulation in yeast project (*Dr. Henrik G. Dohlman*).
- Collaborator for the NIH Common Fund Eastern Regional Comprehensive Metabolomics Resource Core (ERCMRC) (*PI, Dr. Susan Sumner*). My research focused on diabetes and metabolic syndromes
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### 2015 to 2017. RTI International, Research Triangle Park, NC.

Postdoctoral Chemist, NIH\_ERMCRC (Advisor: Dr. Susan Sumner)

- Obtained training in untargeted and targeted Metabolomics, lipidomics, and cytokine array assay.
- Used animal study and *Omics* approach to compare *Lycii Cortex* (an herb used for diabetes treatment in TCM) and kukoamine B (the major phytochemical constituent of LyC) with metformin and rosiglitazone in their efficacy and working mechanisms for type 2 diabetes intervention. Findings are published in *Frontiers in Pharmacology*.
- Supported studies using Metabolomics/lipidomics.

### 2010 to 2015. City University of Hong Kong, Kowloon, Hong Kong.

2013 to 2015-Senior Research Associate/Project coordinator and manager, the HKCMMS project for CityU\_(Advisor: Dr. Hon Yeung Cheung).

- Lead projects to conduct quality standardization research for 12 TCM herbs. Major efforts included sourcing plants, making type specimens, sample collection for herbs, morphological characterization, phytochemical profiling, quality control marker selection, analytical method development, and intra/inter-laboratory validation for fingerprint profile and quantitative analysis. I also represented the team to present progress reports at scientific committee meetings.

2010 to 2014- Ph.D. student, Department of Biomedical Sciences (Advisor: Dr. Hon Yeung Cheung).

- Studied bioactive constituents of LyC and its biological functions in managing type 2 diabetes based on the *db/db* diabetic mouse model. I used an LC-MS untargeted approach to profile phytochemical composition in LyC and revealed kukoamine B and its derivatives are the major constituents of LyC. Then, I used the *db/db* mouse model to evaluate the efficacy of LyC and kukoamine B in regulating fasting blood glucose and bodyweight and compared the efficacy with the most commonly used anti-diabetic medications, rosiglitazone and metformin. Biospecimens from the animal study were collected and shipped to the US for Metabolomics analysis.

## **2006 to 2010. Hubei University of Technology, Wuhan, China.**

Scientific Officer/Lab manager, Key Laboratory of Fermentation Engineering (Ministry of Education), School of Biological Engineering.

- Served as analytical chemistry lead to support projects that used fermentation strategy to produce economically valuable edible- and medicinal- fungi mycelia, such as *Ganoderma* and *Truffle*, as potential alternative resources from nature. My efforts included a) analyzing nutritional constituents and fragrant substances from the fermented mycelia via LC-MS and gas chromatography-mass spectrometry (GC-MS), b) comparing fermented mycelia with the nature produced fungi regarding nutrient composition and flavor, and therefore providing guidance to adjust fermentation strategy to best simulate the nutrients and flavor from nature; c) conducting purification and characterization for novel structures produced by fermentation.

## **2003 to 2006. Division of Pharmacy, Tongji Hospital, Huazhong University of Sciences and Technology, Wuhan, China.**

Graduate Student in Division of Pharmacy

- Used bioactivity-guided fractionation and screening approach to study bioactive compounds from *Isatidis folium* (Da Qing Ye) and *Isatidis radix* (Ban Lan Gen) for the anti-inflammatory effects. Worked with pharmaceutical companies in China to develop quality standards and procedures for pharmaceutical products made by herbal formula.

## **Selected continued Education**

HAVEN (Helping Advocates for Ending Violence Now) training, 2021

Preventing Harassment and Discrimination training, 2021

Safe Zone Training, 2021

UNC faculty mentor training, 2021

Measuring Racial Equity: A Groundwater Approach, 2020

Implicit Bias Training, 2019

## **Honors and Awards**

Inaugural NRI Employee Excellence Awards-Research Excellence, 2022

Early Career Travel Award from Metabolomics society, 2018

Highly Published Author Award from RTI International, 2016

Early Career Award from RTI International, 2016

Tuition fee scholarship from Chow Ching School of Graduate Studies, City University of Hong Kong, 2013.

Travel grant from 12<sup>th</sup> Consortium for Globalization of Chinese Medicine meeting, Graz, Austria, 2013.

Ph.D. studentship from University Grant Committee, Hong Kong Government, 2010 to 2013.

## Selected Committees and Professional Organizations

Invited member of the MANA 2022 Scientific Organizing Committee (SOC), 2022

Diversity, Equity, and Inclusion Committee – Department of Nutrition, 2021

Elected Vice Chair, Member of Early Career Council, Metabolomics Association of North America, 2019 to date

Metabolomics Association of North America, 2019 to date.

Metabolomics Society, 2014 to date.

The American Society for Mass Spectrometry, 2018

Consortium for Globalization of Chinese Medicine, 2013 to date.

## Referee Activity

2016- to date: Reviewer for peer-review journals, including Journal of Agriculture & Food Chemistry, Food Research International, Anti-Cancer Agents in Medicinal Chemistry, PLOS Neglected Tropical Diseases, Food Chemistry, and Journal of Pharmaceutical and Biomedical Analysis, Environment International.

2021 Reviewer for Diabetes Fonds Fellowship application for the Dutch Diabetes Research Foundation.

## Commitment to Diversity, Equity, and Inclusion

I declare my commitment to Diversity, Equity, and Inclusion (DEI). In the past year, I participated in several DEI trainings, including 1) Nutrition Distinguished Alumni Award lecture, My journey as a Health Disparities Researcher, (February 4th, 1 hour); 2) Safe Zone Training (April 27th 2021, 4 hours); and 3) UNC faculty mentor training (May 21st, 2 hours, May 28th, 2 hours, and June 4th, 2 hours). These trainings allow me to realize the importance of DEI for building a peaceful and healthy society. Diversity makes life better. I believe “respect the differences amongst people” is a basic but effective way to practice DEI in daily work and life. The differences that need to be respected includes color, race, gender, background, religion, opinions, beliefs, arguments, and political views, etc. Respect means that we are comfortable with accepting and tolerating the differences and also means we need to have the ability to put ourselves in someone else’s shoes with empathy and sympathy for the people around us.

I will use DEI as a standard to regulate my behavior to be a person with more patience, tolerance, respect, and appreciation for others. As a faculty member, I will share my philosophy with colleagues and students with the goal of creating a more harmonious and inclusive society. In the meantime, I will speak up and have zero-tolerance for disrespectful behavior.

## Publications (Peer-review Journals)

§ Co-First Authorship, \*Students, \*\* corresponding author

- 1) Li, Y-Y. \*\*, Rushing, B. R. §, Schroder M. H., Sumner, S. J., and Kay, C. D., (2021) Exploring the Contribution of (Poly)phenols to the Dietary Exposome using High Resolution Mass Spectrometry Untargeted Metabolomics. *Molecular Nutrition and Food Research*, Accepted
- 2) Li, S., Li, Y-Y., Rushing, B. R., Harris, S. E., McRitchie, S. L., Dominguez1, D., Sumner, S. J., and Dohlman, H. G., (2021) Multi-omics analysis of multiple glucose-sensing receptor systems in yeast. *Biomolecules*. Accepted
- 3) Li, S., Li, Y-Y., Rushing, B. R., McRitchie, S. L., Jones, J. C., Sumner, S. J., and Dohlman, H. G., (2021) Multi-omics analysis of glucose-mediated signaling by 2 a moonlighting Gb protein Asc1/RACK1. *PLOS Genetics*, 2; 17(7):e1009640. doi: 10.1371/journal.pgen.1009640. PMID: 34214075.

- 4) Rushing BR, McRitchie S, Arbeeva L, Nelson AE, Azcarate-Peril MA, **Li, Y-Y.**, Qian Y\*, Pathmasiri W, Sumner SCJ, Loeser RF. Fecal Metabolomics Reveals Products of Dysregulated Proteolysis and Altered Microbial Metabolism in Obesity-Related Osteoarthritis. *Osteoarthritis Cartilage*. 2021 Oct 27:S1063-4584(21)00937-7. doi: 10.1016/j.joca.2021.10.006. PMID: 34718137.
- 5) Harville, E.W.<sup>§</sup>, **Li, Y-Y.**<sup>§</sup>, Pan, K.\*<sup>§</sup>, McRitchie, S., Pathmasiri W.W., Sumner, S. (2021) Untargeted analysis of first trimester serum to reveal biomarkers of pregnancy complications: a case-control discovery phase study. *Scientific Report*, 11, 3468 doi.org/10.1038/s41598-021-82804-1. PMID: 33568690
- 6) Ghanbari, R.<sup>§</sup>, **Li, Y-Y.**<sup>§</sup>, Pathmasiri, W., McRitchie, S., Poustchi, H., Shayanrad, A., Roshandel, G., Etemadi, A., Pollock, J. D., Malekzadeh, R., Sumner, S. J. (2021) Metabolomics reveals biomarkers of opioid use disorder. *Translational Psychiatry*, 11, 103 doi.org/10.1038/s41398-021-01228-7. PMID: 33542199.
- 7) **Li, Y-Y.**<sup>§</sup>, Ghanbari, R.<sup>§</sup>, Pathmasiri, W., McRitchie, S., Poustchi, H., Shayanrad, A., Roshandel, G., Etemadi, A., Pollock, J. D., Malekzadeh, R., Sumner, S. J. (2020). Untargeted metabolomics: biochemical perturbations in Golestan Cohort Study opium users inform intervention strategies. *Frontiers in nutrition* 7, 308-322. PMID: 33415121
- 8) **Li, Y-Y.**, Douillet, C., Huang, M.\*<sup>§</sup>, Beck, R.\*<sup>§</sup>, Sumner, S. J., Styblo, M. (2020) Exposure to inorganic arsenic and its methylated metabolites alters metabolomics profiles in INS-1 832/13 and isolated pancreatic islets. *Archives of Toxicology*, 94(6), 1955. PMID: 32277266.
- 9) **Li, Y-Y.**, Stewart A. D., McRitchie S. L., Pathmasiri W. W., Ye X-M., Cheung H-Y., Sumner, S. J. A. (2019). A metabolomics approach to investigate kukoamine B - a potent natural product with anti-diabetic properties. *Frontiers in Pharmacology*, 22 January, Vol 9, 1-16.
- 10) Wang, H., **Li, Y-Y.**, Huang, Y., Zhao, C.\*<sup>§</sup>, & Cheung, H-Y. (2018). Chemical Profiling of *Lobelia chinensis* with High-Performance Liquid Chromatography/Quadrupole Time-of-Flight Mass Spectrometry (HPLC/Q-TOF MS) Reveals Absence of Lobeline in the Herb. *Molecules*, 23(12), 3258.
- 11) Zhang X-S., Li, J., Krautkramer, K., Badri, M., Battaglia, T., Ng, S., Sibley, R. A., Koh, H., **Li, Y-Y.**, Borbet, T. C., Pathmasiri, W., Jindal, S., Shields-Cutler, R., Hillmann, B., Al-Ghalith, G. A., Ruiz, V. E., Livanos, A., Wout, A., Nagalingam, N., Rogers, A. B., Sumner, S. J., Knights, D., Denu, J. M., Li, H., Ruggles, K. V., Bonneau, R., Williamson, A. R., Rauch, M., Blaser, M. J. (2018). Antibiotic-induced acceleration of Type 1 diabetes alters intestinal innate pathway maturation. *eLife*. 7: e37816.
- 12) Fu, F., Zhang, W., **Li, Y-Y.**, Wang, L. (2017). Establishment of a gene expression atlas of macrosclereid cell in *Medicago truncatula* based on Microarray analysis. *Scientific Report*. 7(1): 2580. doi: 10.1038/s41598-017-02827-5
- 13) **Li, Y-Y.**, Di, R.\*<sup>§</sup>, Hsu, W. L.\*<sup>§</sup>, Huang, Y. Q., & Cheung, H. Y. (2017). Quality control of *Lycium chinense* and *Lycium barbarum* cortex (Digupi) by HPLC using kukoamines as markers. *Chinese Medicine*, 12(1), 4
- 14) **Li, Y-Y.**, Wang, H., Zhao, C.\*<sup>§</sup>, Huang, Y-Q., Tang, X., & Cheung, H-Y. (2015). Identification and characterization of kukoamine metabolites by multiple ion monitoring triggered enhanced product ion scan method with a triple-quadrupole linear ion trap mass spectrometer. *Journal of Agricultural and Food Chemistry*, 63(50), 10785–10790.
- 15) **Li, Y-Y.**<sup>§</sup>, Hu, S-Q.<sup>§</sup>, Huang Y-Q., Han, Y., & Cheung, H-Y. (2015). Preventing H<sub>2</sub>O<sub>2</sub>-induced toxicity in primary cerebellar granule neurons via activating the PI3-K/Akt/GSK3β pathway by kukoamine from *Lycii* cortex. *Journal of Functional Foods*, 17, 709–721.

- 16) **Li, Y-Y.**, Di, R.\*, Hsu, W-L.\*, Huang, Y-Q., Sun, H., Cheung, H-Y. (2015). Sensitivity improvement of kukoamine determination by complexation with dihydrogen phosphate anions in capillary zone electrophoresis. *Electrophoresis*, 36, 1801–1807.
- 17) **Li, Y-Y.**, Di, R.\*, Baibado, T. J., Cheng, Y-S., Huang Y-Q., Sun H., & Cheung, H-Y. (2014). Identification of kukoamines as markers for quality assessment of Lycii cortex. *Food Research International*, 55, 373–380.
- 18) **Li, Y-Y.**, Zhan, Q-F., Cheung, N-K.\*, & Cheung, H-Y. (2013). Simultaneous determination of flavonoid analogs in *Scutellariae barbatae herba* by  $\beta$ -cyclodextrin and acetonitrile modified capillary zone electrophoresis. *Talanta*, 105, 393–402.
- 19) **Li, Y-Y.**, Liu, P.\*, Tang, Y.\*, Wan, D-J., Tang, Y-L., Liang Xin-Hua, et al. (2013). Novel cerebrosides isolated from the fermentation mycelia of *Tuber indicum*. *Helvetica Chimica Acta*, 96, 702–709.
- 20) **Li, Y-Y.**, Wang, G.\*, & Tang, Y-J. (2012). Volatile organic compounds from *Tuber melanosporum* fermentation system. *Food Chemistry*, 135(4), 2628–2637.
- 21) Tang, Y-J., Wang, G.\*, **Li, Y-Y.**, Li, H-M., Tang, Y.\*, & Liu, P\*. (2012). Quantitative determination for the major volatile organic compounds of *Tuber melanosporum* fermentation system by distillation-solid-phase extraction- gas chromatography. *Food Analytical Methods*, 5(4), 651–658.
- 22) Liu, P.\*, **Li, Y-Y.**, Li, H-M., Wan, D-J., & Tang, Y-J. (2011). Determination of the nucleosides and nucleobases in Tuber samples by dispersive solid-phase extraction combined with liquid chromatography-mass spectrometry. *Analytical Chimica Acta*, 687, 159–167.
- 23) Tang, Y.\*, **Li, Y-Y.**, Li, H-M., Wan, D-J., & Tang, Y-J. (2011). Comparison of lipid content and fatty acid composition between Tuber fermentation mycelia and natural fruiting bodies. *Journal of Agricultural and Food Chemistry*, 59, 4736–4742.
- 24) Tang, Y-J., Wang, G.\*, **Li, Y-Y.**, & Zhong, J-J. (2009). Fermentation condition outweighed truffle species in affecting volatile organic compounds analyzed by chromatographic fingerprint system. *Analytica Chimica Acta*, 647, 40–45.
- 25) Li, Y.\*, **Li, Y-Y.**, Mi Z-Y., Li, D-S., & Tang, Y-J. (2009). Novel biotransformation process of podophyllotoxin to produce podophyllinic acid and picropodophyllotoxin by *Pseudomonas aeruginosa* CCTCC AB93066, Part II: Process optimization. *Bioresource Technology*, 100, 2271–2277.
- 26) **Li, Y-Y.**, Mi, Z-Y., Tang, Y.\*, Wang, G.\*, Li, D-S., & Tang, Y-J. (2009). Lanostanoids isolated from *Ganoderma lucidum* mycelium cultured by submerged fermentation. *Helvetica Chimica Acta*, 92, 1586–1593.
- 27) **Li, Y-Y.**<sup>§</sup>, Wang, G.\*<sup>§</sup>, Li, D-S., & Tang, Y-J. (2008). Determination of 5 $\alpha$ -androst-16-en-3 $\alpha$ -ol in truffle fermentation broth by solid-phase extraction coupled with gas chromatography-flame ionization detector/electron impact mass spectrometry. *Journal of Chromatography B*, 870, 209–215.

## Manuscripts under review or in preparation

<sup>§</sup>Co-First Authorship

- 1) Lynch, D. H., Spangler, H. B., Franz, J. R., Krupenevich, R. L., Kim, H., Nissman, D., Zhang, J., **Li Y-Y.**, Sumner, S. (2022) Multimodal Diagnostic Approaches to Advance Precision Medicine in Sarcopenia and Frailty. *Nutrients*, Manuscript submitted and under review.
- 2) Taibl, K. R., Barr, D. B., **Li, Y-Y.**, Kannan, K., Erick, S. M., Ryan, P. B., Schroder, M., Sumner, S., Fennell, T., Chang, C-J., Tan, Y., Marsit, C., Jones, D. P., Dunlop, A. L., Liang, D. (2022) Newborn Dried Blood Spot Metabolome Mediates Association of Serum Per- and

Polyfluoroalkyl Substance Levels with Reduced Length of Gestation among African Americans, 2016-2020, Manuscript in preparation.

- 3) **Li, Y.-Y.**<sup>§</sup>, Madduri, S. S.<sup>§\*</sup>, Rezeli, E. T., Santos, C., Freeman, H., McRitchie, S. L., Pathmasiri, W., Sumner, S. J., Hursting, S. D., Stewart, D. A. Mammary tumor progression inflammation and metabolic impacts from high carbohydrate-plus-high fat versus high protein diets. *Scientific Report*, In preparation.
- 4) Pan, K.<sup>§\*</sup>, **Li, Y.-Y.**<sup>§</sup>, McRitchie, S., Pathmasiri W.W., Sumner, S. (2021) Untargeted analysis of first trimester serum implicates metabolic perturbations associated with BMI as a factor in pregnancy hypertensive disorders: a discovery study. In preparation.

## Presentation

Pathmasiri W., Rushing, B., **Li, Y.-Y.** Harmonizing Untargeted Data across LCMS platforms. HHEAR December 2021 Virtual Steering Committee Meeting, December 9<sup>th</sup>, 2021. Webinar.

**Li, Y. Y.** Rushing, B. High Quality Workflow for Untargeted analysis. August 31<sup>th</sup> 2021, Webinar, Invited Speaker.

**Li, Y. Y.** WomiX Image of Success Seminar Series Presents. Women in Metabolomics Core, April 23<sup>th</sup>, 2021, online event, Invited Speaker.

**Li, Y. Y.**, Rushing, B., Xiuxia Du, Timothy Fennell, Kay, C., and Sumner, S.J. (2021) The Dietary Exposome and Nutritional Intervention. in *Metabolomics 2021 Online*, June 22 - 24, 2021.

Smirnov, A., **Li, Y. Y.**, Rushing, B., Liao, E., Hall, J., McRitchie, S., Sumner, S., and Du, X. (2021) ADAP-BIG: A Platform-Independent and Scalable Software Tool for Preprocessing Large-Scale Mass Spectrometry-based Metabolomics and Exposomics Data. in *Metabolomics Online 2021*. June 22 - 24, 2021.

Kay, C., Smirnov, A., **Li, Y. Y.**, Rusing, B., Yang, Z., Conway, C., Yang, J., Sumner, S., and Du, X. (2021) MetaboFood-KDB: A Cloud Knowledgebase for Searching Metabolomics and Exposomics Data for Nutritionally Relevant Compounds. in *Metabolomics Online 2021*. June 22 - 24.

McRitchie, S., Du, X., Kay, C., **Li, Y. Y.**, Pathmasiri, W., Rushing, B., Smirnov, A., Sumner, S., and Fennell, T. (2021) Exposome Research Informs Precision Medicine and Precision Nutrition in *Metabolomics 2021 Online*, June 22 - 24, 2021.

Rushing, B. R., McRitchie, S., Liubov, A., Nelson, A., Azcarate-Peril, M. A., **Li, Y.-Y.**; Qian, Y., Pathmasiri, W., Sumner, S., Loeser, R. (2021) The Internal Exposome Reveals Mechanisms of Increased Intestinal Permeability in Osteoarthritis (Poster). in *Metabolomics 2021 Online*, June 22 - 24, 2021.

**Yuan-Yuan Li**, Reza Ghanbari, Wimal Pathmasiri, Blake Rushing, Susan McRitchie, Hossein Poustchi, Amaneh Shayanard, Gholamerza Roshandel, Arash Etemadi, Jonathan Pollock, Reza Malekzadeh, and Susan Sumner (2021) (Presenter: Sumner): Exposome Research Informs the Development of a Nutrient Cocktail to Mitigate Against Addiction in *Metabolomics 2021 Online*, June 22 – 24.

Rushing, B., McRitchie, S., Liubov, A., Nelson, A., Azcarate-Peril, M., **Li, Y.-Y.**, Qian, Y., Pathmasiri, W., Sumner, S., and Loeser, R. (2021) Fecal Metabolomics Reveals Products of Dysregulated Proteolysis and Altered Microbial Metabolism in Obesity-Related Osteoarthritis. in University of North Carolina-Chapel Hill's Interdisciplinary Nutrition Sciences Symposium (Poster). Chapel Hill.

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Rushing, B. R., McRitchie, S., Liubov, A., Nelson, A., Azcarate-Peril, M. A., Li, Y-Y., Qian, Y., Sumner, S., Loeser, R. (2021) Oral presentation: Untargeted Fecal Metabolomics to Investigate the Role of the Microbiome and Nutrients in Osteoarthritis at the American Society of Nutrition in American Society for Nutrition Annual Meeting. Virtual.

Li, Y-Y., Ghanbari R., Pathmasiri W., McRitchie S., Poustchi H., Shayanrad A., Roshandel G., Etemadi A., Pollock J. D., Malekzadeh R., Sumner S. Untargeted metabolomics reveals biological markers for opioid use disorder diagnosis and intervention strategies, Society of Biological Psychiatry 2021 Virtual Meeting (April 29<sup>th</sup>-May 1, 2021), poster presentation.

Li, Y-Y., Douillet, C., Huang, M., Beck, R., Sumner, S. J., Styblo, M. Exposure to inorganic arsenic and its methylated metabolites alters metabolic profiles in INS-1 832/13 insulinoma cells and isolated pancreatic islets. 2nd Annual MANA conference hosted by the University of Michigan (September 14-16, 2020), Virtual meeting (Accepted as poster).

Pathmasiri, W., Li, Y-Y., Harville, E. W., Pan K., McRitchie, S. L., Sumner S. J. Untargeted Metabolomics Analysis of First-trimester Serum to Discover Biomarkers and Mechanism of Pregnancy Complications: A Case-Control Study (September 14-16, 2020), Virtual meeting (Accepted as poster).

Lee, S. E., Li, Y-Y., Sumner, S., McRitchie, S., Wu, L., Labrique, A., Christian, P., West Jr, K., and Schulze, K., Plasma Untargeted Metabolomic Profile Associated with Vitamin A Status in Pregnant Women in Rural Bangladesh. Current Developments in Nutrition, 2020. 4(Supplement\_2): p. 118-118. (American Society for Nutrition Annual Meeting)

Li, Y-Y., Stewart, D. A., Pathmasiri, W., McRitchie, S., Hon-Yeung Cheung, Sumner, S.J. A Metabolomics Approach to Investigate Lycii Cortex and Kukomine B- Potent Natural Products with Anti-diabetic Properties. 1st annual MANA conference at the Georgia Institute of Technology, (November 15-17, 2019), Atlanta, GA. (Accepted as poster).

Li, Y-Y., Stewart D. A, Pathmasiri W, McRitchie S L, Cheung H, Sumner SJ. A Metabolomics Approach to Investigate Lycii Cortex and Kukomine B- Potent Natural Products with Anti-diabetic Properties, Interdisciplinary Nutrition Sciences Symposium, July 24-25, 2019, Chapel Hill, NC.

Sumner S, Ghanbari R, Pathmasiri W, Li, Y-Y., McRitchie S, Etemadi A, Abnet C, Pollock J, Malekzadeh R. Untargeted Metabolomics of Urine from Opium Users and Non-Users: A Golestan Cohort Study. Metabolomics 2019, June 23-27, 2019, The Hague, the Netherlands.

Pan K, Li, Y-Y., Pathmasiri W, McRitchie S, Sumner S, Harville EW. Untargeted metabolomics of 1st trimester blood for biomarkers and causal mechanisms of hypertensive disorders of pregnancy. Society for Pediatric and perinatal Epidemiological Research, 32nd Annual Meeting, June 17-18, 2019, Minneapolis, MN.

Ghanbari R, Pathmasiri W, McRitchie S, Stewart D, Li, Y-Y., Maleki H, Etemadi A, Abnet C, Pollock J, Malekzadeh R, Sumner S. Metabolomics Analysis of Opiate Abusers from Golestan Cohort Study (GCS). Experimental Biology, April 7-9, 2019, Orlando, FL.

Li Y-Y., Traditional Medicine, from Grandma's Observations to Evidence-based Science. Appetite for life. (2019, Jan, 13<sup>th</sup>), Kannapolis, NC. (Invited speaker)

Li Y-Y., Sumner S, Snyder R, Fennell T. Untargeted analysis of endogenous and environmentally relevant compounds in human plasma and urine. Poster at CHEAR Grantee Meeting, May 10-11, 2018, Rockville, MD

Li Y-Y., Stewart, D. A., Pathmasiri, W., McRitchie, S., Urbina E.M., Mayer-Davis E.J, Dabelea D. Sumner, S.J. The impact of obesity on metabolotype of type 1 and type 2 diabetes in youth.



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- 14th Annual Conference of the Metabolomics Society, (2018, June 26-28), Seattle, Washington, USA. (Accepted as oral presentation from abstract submission).
- Smirnov, A., **Li, Y-Y.**, Pathmasiri, W., Sumner, S., Du, X. (2018, June 26-28). A workflow for detecting unknown compounds from untargeted GC/MS and LC/MS metabolomics data and an online library of unknowns detected in plasma and urine. Poster presented at 14th Annual Conference of the Metabolomics Society, Seattle, Washington, USA.
- Li, Y-Y.**, Stewart D, Pathmasiri W, McRitchie S, Urbina E, Mayer-Davis E, Dabelea D, and Sumner S. The impact of obesity on metabolite profile of type 1 and type 2 diabetes in youth. Poster at Defining Precision Nutrition, May 1-2, 2018, Kannapolis, NC.
- Li Y-Y.** Understanding of working mechanism of traditional Chinese Medicine, a system pharmacology approach. NIH Metabolomics Program Data Presentation Webinar Series, (2017, April 6<sup>th</sup>). (Invited speaker).
- Li Y-Y.**, Stewart, D. A., Pathmasiri, W., McRitchie, S., Hon-Yeung Cheung, Sumner, S.J. Kukoamine B is a potent antidiabetic dietary natural product: A system pharmacology approach. The 51st Annual Southeastern Regional Lipid Conference. (2016, November 9-11). Cashier, North Carolina, USA. (Accepted as oral presentation from abstract submission).
- Stewart D, **Li Y-Y.**, Pathmasiri W, Acuff Z, McRitchie S, Sumner S. Expansion of STS capability in cytokine array platform development: application in natural products research, January 18, 2017. Poster presented at RTI International's Internal Research & Development Annual Innovation Showcase, Research Triangle Park, NC.
- Pathmasiri W, **Li Y-Y.**, Stewart D, McRitchie S, Sumner S. Establishment of a Platform to Evaluate Interactions Between Natural Products and Pharmaceutical Drugs, January 18, 2017. Poster presented at RTI International's Internal Research & Development Annual Innovation Showcase, Research Triangle Park, NC.
- Li Y-Y.**, Di, R., Baibado, T. J., & Cheng, H-Y. (2013, August 27–29). Simultaneous determination of sixteen compounds in Lycii cortex with LC-MS/MS. Poster presented at 12<sup>th</sup> Meeting of the Consortium for Globalization of Chinese Medicine, Graz, Austria.
- Li Y-Y.**, Di, R., Huang, Y-Q., & Cheng, H-Y. (2014, June 23–26). Screening of kukoamine allies in Lycii Cortex using precursor scan combined multiple ion monitoring-dependent MS/MS acquisition method on QTRAP MS. Poster presented at the 10<sup>th</sup> Annual International Conference of the Metabolomics Society, Tsuruoka, Japan.

## Patents

- Cheung, H-Y., **Li, Y. Y.**, & Di, R. (2015). Process for isolating kukoamine. U.S. Patent number US 9012687 B2. Filed April 24, 2014; issued April 21, 2015.
- Tang, Y-J., & **Li, Y. Y.** (2014). Preparation, purification, and content detection methods for cerebroside. Chinese Patent CN102382866 B. Filed August 30, 2010; issued March 5, 2014.
- Tang, Y-J., & **Li, Y. Y.** (2012). Lanostane type triterpenoid with anti-tumor activity, preparation method and application. Chinese patent number CN101747400B. Filed December 17, 2008; issued September 5, 2012.

## Teaching

I am a co-instructor of Nutrition 714 (NUTR714) “Nutritional Biochemistry, Metabolism and Health.” My lecture focused on lipids.

## Active Research Support

### **U24CA268153 (Sumner, PI, UNC-CH)**

01/12/2022-12/31/2026

NIDDK

### **NIH Common Fund Nutrition for Precision Health Metabolomics and Clinical**

Role: Co-Investigator/Alternate PI, Director of Untargeted Metabolomics

### **1U2CES030857 (Sumner, Fennell and Du, MPI, UNC-CH)**

09/01/2019-08/31/2024

National Institute of Environmental Health Sciences

Human Health Exposure Analysis Resource (HHEAR) Hub

Role: Co-Investigator/Alternate PI, Untargeted Metabolomics

### **5P30DK056350-20 (Myers-Davis, PI)**

04/01/2021 – 03/31/2026

NIDDK

Nutrition Obesity Research Center (NORC) at the University of North Carolina at Chapel Hill

The overarching theme of the NORC at UNC-CH is Trans-Disciplinary Nutrition

Role: Manager, Untargeted Metabolomics