

Na Li

Position: Associate Professor



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Teaching Modules: Chinese Medicine Chemistry (BP12209/BPAZ0010), Unique Processing Methods of Chinese Medicines (BP12307), Experimental Techniques in Natural Products Chemistry Research (ME 1008), Advances in Chinese Medicine Pharmaceutics (DCMSZ01/ME1005)

Research areas: Natural product chemistry and Chinese herbal toxicology

Dr. Na Li obtained her Ph.D. degree in Medicinal Chemistry from China Pharmaceutical University in 1999. She proceeded to her postdoctoral training at Institute of Materia Medica of Chinese Academy of Medical Sciences and Peking Union Medical College (CAMS & PUMC) during 1999-2001. In 2001, she was sponsored by Japan Society for the Promotion of Science (JSPS) to work as a postdoctoral research fellow in Niigata University, Japan. From 2003 to 2007, she engaged in the study of bioactive compounds in The National Center for Drug Screening, Shanghai Institute of Materia Medica, Chinese Academy of Sciences (CAS). Her research in The Chinese University of Hong Kong during the period 2007 to 2011 mainly focused on the toxicity of natural products. She works as a principal investigator in Macau University of Science and Technology (MUST) from 2011, and the research interests include the method development and application of proteomics to reveal the mechanism of Chinese herbal medicines as well as the identification of bioactive natural products. She has rich experience in the research of natural

product chemistry, especially the isolation and structural elucidation of bioactive components and biomarkers using NMR and MS techniques. She has published more than 60 research articles in number of international journals including Journal of Hepatology, PNAS, Analytical Chemistry, Journal of Medicinal Chemistry, Molecular Pharmaceutics, Journal of Mass Spectrometry, Analytica Chimica Acta, Journal of Natural Products and etc.

Academic Qualifications

1999.7 Ph. D. China Pharmaceutical University, Nanjing, Jiangsu Province, China
1994.7 B. Sc. West China University of Medical Sciences, Chengdu, Sichuan Province, China

Working Experiences

2018.7 – Present Associate Professor, State Key Laboratory for Quality Research in Chinese Medicine, Macau University of Science and Technology
2011.9 – 2018.6 Assistant Professor, State Key Laboratory for Quality Research in Chinese Medicine, Macau University of Science and Technology
2007.11 – 2011.8 Research Associate, The Chinese University of Hong Kong, Hong Kong
2003.12 – 2007.10 Associate Professor, The National Center for Drug Screening, Shanghai Institute of Materia Medica, CAS
2001.11 – 2003.11 Postdoctoral Fellow, Niigata University, Japan
1999.9 – 2001.10 Postdoctoral Fellow, Institute of Materia Medica, CAMS & PUMC

Representative Publications

- 1) Y Liang, GY Yan, JL Wu, XX Zong, ZQ Liu, H Zhou, L Liu*, N Li*. Qualitative and Quantitative Analysis of Lipo-alkaloids and Fatty acids in *Aconitum carmichaelii* using LC-MS and GC-MS. *Phytochem Anal* **2018**, *29*, 398-405.
- 2) MZ Zhu, GL Chen, JL Wu, N Li, ZH Liu, MQ Guo. Recent development in mass spectrometry and its hyphenated techniques for the analysis of medicinal plants. *Phytochem Anal* **2018**, *29*, 365-374.
- 3) GL Chen, JL Wu, N Li, MQ Guo. Screening for anti-proliferative and anti-inflammatory components from *Rhamnus davurica* Pall. using bio-affinity ultrafiltration with multiple drug targets. *Anal Bioanal Chem* **2018**, *410*, 3587-3595.

- 4) WY Gu, MX Liu, BQ Sun, MQ Guo, JL Wu*, N Li*. Profiling of polyunsaturated fatty acids in human serum using off-line and on-line solid phase extraction-nano-liquid chromatography-quadrupole-time-of-flight mass spectrometry. *J Chromatogr A* **2018**, 1537, 141-146.
- 5) Y Zhuo, JL Wu, XJ Yan, MQ Guo, N Liu, H Zhou, L Liu*, N Li*. Strategy for Hepatotoxicity Prediction Induced by Drug Reactive Metabolites Using Human Liver Microsome and Online 2D-nano-LC-MS Analysis. *Anal Chem* **2017**, 89, 13167-13175.
- 6) XQ Bian, BQ Sun, PY Zheng, N Li*, JL Wu*. Derivatization enhanced separation and sensitivity of long chain-free fatty acids: Application to asthma using targeted and non-targeted liquid chromatography-mass spectrometry approach. *Anal Chim Acta* **2017**, 989, 59-70.
- 7) MZ Zhu, N Li, YT Wang, N Liu, MQ Guo, BQ Sun, H Zhou, L Liu, JL Wu. Acid/Salt/pH Gradient Improved Resolution and Sensitivity in Proteomics Study Using 2D SCX-RP LC-MS. *J Proteome Res* **2017**, 16(9), 3470-3475.
- 8) M Yang, J Ruan, H Gao, N Li, J Ma, J Xue, Y Ye, PP Fu, J Wang, G Lin. First evidence of pyrrolizidine alkaloid N-oxide-induced hepatic sinusoidal obstruction syndrome in humans. *Arch Toxicol.* **2017**, 91, 3913-3925.
- 9) N Li, F Zhang, W Lian, HL Wang, J Zheng, G Lin. Immunoassay approach for diagnosis of exposure to pyrrolizidine alkaloids. *J. Environ. Sci. Health C Environ. Carcinog. Ecotoxicol. Rev.* **2017**, 35(3), 127-139.
- 10) XX Zong, GY Yan, JL Wu, EL Leung, H Zhou, N Li*, L Liu*. New C₁₉-Diterpenoid Alkaloids from the Parent Roots of *Aconitum carmichaelii*. *Tetrahedron Lett.* **2017**, 58, 1622-1626.
- 11) MZ Zhu, N Li*, M Zhao, WL Yu, JL Wu*. Metabolomic profiling delineate taste qualities of tea leaf pubescence. *Food Res. Int.* **2017**, 94 (4), 36-44.
- 12) Y Liang, JL Wu, X Li, MQ Guo, EL Leung, H Zhou, L Liu*, N Li*. Anti-cancer and Anti-inflammatory New Vakognavine-type Alkaloid from the Roots of *Aconitum carmichaelii*. *Tetrahedron Lett.* **2016**, 57(52), 5881-5884.
- 13) Y Liang, JL Wu, EL Leung, H Zhou, ZQ Liu, GY Yan, L Liu*, N Li*. Identification of Oxygenated Fatty Acid as a Side Chain of Lipo-Alkaloids in *Aconitum carmichaelii* by UHPLC-Q-TOF-MS and a Database. *Molecules* **2016**, 21(4), 437-454.
- 14) GL Chen, YQ Tian, JL Wu, N Li, MQ Zhu. Antiproliferative activities of Amaryllidaceae

- alkaloids from *Lycoris radiata* targeting DNA topoisomerase I. *Sci. Rep.* **2016**, *6*, 38284.
- 15) JJ Wu, N Lin, FY Li, GY Zhang, SG He, YF Zhu, RL Qu, **N Li**, SQ Liu, LZ Feng, L Liu, ZQ Liu, LL Lu. Induction of P-glycoprotein expression and activity by Aconitum alkaloids: implication for clinical drug-drug interactions. *Sci. Rep.* **2016**, *6*, 25343.
 - 16) L Zhu, JQ Ruan, **N Li**, PP Fu, Y Ye, G Lin. A novel ultra-performance liquid chromatography hyphenated with quadrupole time of flight mass spectrometry method for rapid estimation of total toxic retronecine-type of pyrrolizidine alkaloids in herbs without requiring corresponding standards. *Food Chem.* **2016**, *194*, 1320-1328.
 - 17) ZB Jiang, J Huang, C Xie, X Li, L Liu, J He, H Pan, L Huang, XX Fan, XJ Yao, Y Xie, **N Li**, L Liu, JX He, EL Leung. Combined use of PI3K and MEK inhibitors synergistically inhibits lung cancer with EGFR and KRAS mutations. *Oncol. Rep.* **2016**, *36(1)*, 365-375.
 - 18) J Ruan, H Gao, **N Li**, J Xue, J Chen, C Ke, Y Ye, PP Fu, J Zheng, J Wang, G Lin. Blood pyrrole-protein adducts - A biomarker of pyrrolizidine alkaloid-induced liver injury in humans. *J. Environ. Sci. Health C Environ. Carcinog. Ecotoxicol. Rev.* **2015**, *33*, 404-421.
 - 19) YH Li, WCS Tai, JY Xue, WY Wong, C Lu, JQ Ruan, **N Li**, TF Wan, WY Chan, WLW Hsiao, and G Lin. Proteomic Study of Pyrrolizidine Alkaloid-Induced Hepatic Sinusoidal Obstruction Syndrome in Rats. *Chem. Res. Toxicol.* **2015**, *28*, 1715-1727.
 - 20) H Gao, JQ Ruan, J Chen, **N Li**, CQ Ke, Y Ye, G Lin, JY Wang. Blood pyrrole-protein adducts as a diagnostic and prognostic index in pyrrolizidine alkaloid-hepatic sinusoidal obstruction syndrome. *Drug Design, Development and Therapy* **2015**, *9*, 4861-4868.
 - 21) WY Gu, **N Li***, ELH Leung, H Zhou, XJ Yao, L Liu, JL Wu*. Rapid identification of new minor chemical constituents from *Smilacis Glabrae Rhizoma* by combined use of UHPLC-Q-TOF-MS, preparative HPLC and UHPLC-SPE-NMR-MS techniques. *Phytochem. Anal.* **2015**, *26*, 428-435.
 - 22) WY Gu, **N Li***, ELH Leung, H Zhou, GA Luo, L Liu, JL Wu*. Metabolites software-assisted flavonoids hunting in plant using ultra-high performance liquid chromatography-quadrupole-time of flight mass spectrometry. *Molecules* **2015**, *20*, 3955-3971.
 - 23) L Zhu, **N Li**, JQ Ruan, PP Fu, ZZ Zhao, G Lin. Chemical diversity investigation of hepatotoxic pyrrolizidine alkaloids in Qianliguang (*Senecio scandens*) and related species by UHPLC-QTOF-MS. *World J. Tradit. Chin. Med.* **2015**, *1*, 1-11.
 - 24) XX Fan, **N Li**, et al. Celastrol induces apoptosis in gefitinib-resistant non-small cell lung cancer cells via caspases-dependent pathways and Hsp90 client protein degradation.

Molecules **2014**, *19*, 3508-3522.

- 25) JL Wu, EL Leung, H Zhou, L Liu*, N Li*. Metabolite analysis of toosendanin by an ultra-high performance liquid chromatography-quadrupole-time of flight mass spectrometry technique. *Molecules* **2013**, *18*, 12144-12153.
- 26) YH Li, WL Kan, N Li, G Lin. Assessment of pyrrolizidine alkaloid-induced toxicity in an in vitro screening model. *J. Ethnopharmacol.* **2013**, *150*, 560-567.
- 27) J Ruan, N Li, et al. Characteristic ion clusters as determinants for the identification of pyrrolizidine alkaloid *N*-oxides in pyrrolizidine alkaloid-containing natural products using HPLC–MS analysis. *J. Mass Spectrom.* **2012**, *47*, 331-337.
- 28) Q Liu, N Li, et al. Cyclobutane derivatives as novel nonpeptidic small molecule agonists of glucagon-like peptide-1 receptor. *J. Med. Chem.* **2012**, *55*(1), 250-267.
- 29) H Gao, N Li, et al. Definitive diagnosis of hepatic sinusoidal obstruction syndrome induced by pyrrolizidine alkaloids. *J. Dig. Dis.* **2012**, *13*, 33-39.
- 30) B Ma, S Chai, N Li, et al. Reversal of P-glycoprotein-mediated multidrug resistance by a synthetic α -aminoxy peptidomimetic. *Int. J. Pharm.* **2012**, *424*, 33-39.
- 31) B Ma, N Li, G Lin. Importance of Metabolic Activation Study to the Safe Use of Chinese Herbal Medicines. *Curr. Drug Metab.* **2012**, *13*, 652-658.
- 32) G Lin,* JY Wang,* N Li, et al. Hepatic sinusoidal obstruction syndrome associated with consumption of *Gynura segetum*. *J. Hepatol.* **2011**, *54*, 666-673.
- 33) B Ma, HY Zha, N Li, et al. Effect of structural modification of α -aminoxy peptides on their intestinal absorption and transport mechanism. *Mol. Pharmaceutics* **2011**, *8*, 1073-1082.
- 34) N Li, Q Xia, J Ruan, et al. Hepatotoxicity and tumorigenicity induced by metabolic activation of pyrrolizidine alkaloids in herbs. *Curr. Drug Metab.* **2011**, *12*, 823-834.