Lisa M. Tran, Ph.D.

Health Scientist

Summary of Experience

Lisa Tran is a toxicologist with 8 years of experience investigating the effects of environmental chemicals on lung health. Lisa earned her Ph.D. in Pharmacology and Toxicology at the University of Arizona. Her graduate work involved evaluating the role of cytochrome P450 enzymes in xenobiotic-induced lung toxicity. Lisa has conducted toxicology research on a wide range of environmental health topics. She studied toxicity mechanisms of pulmonary toxicants including tobacco smoke, tobacco-specific nitrosamines, pesticides, polycyclic aromatic hydrocarbons, and arsenic. She is experienced in evaluating toxicological data and biomarkers associated with exposure and toxicity. She has additional experience in studying the role of macrophages in inflammation, tissue repair, and lung disease development. Lisa has published 18 abstracts, book chapters, and peer-reviewed articles on various toxicology and environmental health topics.

Education

Bachelor of Sciences (B.S.), Global Disease Biology, 2018, University of California, Davis

Doctor of Philosophy (Ph.D.), Pharmacology and Toxicology, 2025, University of Arizona

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Project Experience

Respiratory Toxicology Research

Experienced in applying principles of toxicology to evaluate toxic responses to environmental chemicals in the lung. Designed and executed animal studies and utilized a variety of toxicological endpoints and biomarkers to characterize responses to chemical exposure. Chemicals studied include pesticides, volatile organic compounds, tobacco smoke, nitrosamines, arsenic, engineered nanoparticles, and more. Also experienced with operating chemical inhalation exposure systems, including whole body and nose-only inhalation exposure systems. Highly experienced in evaluating toxicological data and scientific information to inform research decisions.

Researched the contribution of cytochrome P450 enzymes in the respiratory tract in bioactivation of tobacco smoke carcinogens and in the development of lung cancer in mice. Evaluated the potential for macrophage estrogen to modulate inflammation and lung tissue repair following xenobiotic exposure. Evaluated the effects of arsenic ingestion and co-exposure to naphthalene or 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK) in acute toxicity, airway epithelial repair, and lung tumorigenesis. Explored mechanisms of acute chloropicrin toxicity in the lung. Evaluated the toxic potential of ingested 3,3'-dichlorobiphenyl (PCB 11) in the lung. Screened engineered nanoparticles for cytotoxicity and potential to impair wound healing in cell culture models. Supported studies evaluating the effects of acute wildfire smoke exposure to mice.

Professional Experience

Health Scientist, Valeo Sciences LLC, January 2026 – Present.

Evaluate the toxicology, health, and safety of environmental chemicals in human exposure settings. Conduct literature reviews and extract scientific information to support projects. Collaborate with multi-disciplinary teams to solve complex problems in environmental health.

Research Professional II, University of Arizona, November 2025 – Present.

Research the role of cytochrome P450 enzymes in lung tissue repair and carcinogenesis. Support writing projects by analyzing experimental data, extracting information from scientific literature, and preparing manuscripts for publication.

Intern, Lawrence Livermore National Laboratory, June 2025 – August 2025.

Research mechanisms of macrophage phagocytosis and post-traumatic stress disorder (PTSD) using in vitro and in vivo models. Culture mammalian and bacterial cells to study macrophage phagocytosis using lattice light sheet microscopy. Conduct behavioral assays and measure biomarkers of stress to evaluate the role of the gut microbiome in a rat model of PTSD.

Graduate Assistant, College of Pharmacy, University of Arizona, August 2020 – May 2025.

Research the role of cytochrome P450 (P450) enzymes in lung tissue responses to xenobiotic exposure. Design and execute in vivo studies to characterize xenobiotic-induced toxic responses in P450-knockout mouse models. Chemicals studied include tobacco smoke, nicotine-derived nitrosamines, naphthalene, arsenic, and paraquat. Evaluate and summarize scientific literature and technical documents to support writing projects.

Junior Specialist, Center for Health and the Environment, University of California, Davis, November 2018 – June 2020.

Research the toxicity of environmental pollutants in the lung using in vitro and in vivo models. Evaluate lung tissue responses to chloropicrin, engineered nanoparticles, traffic-related air pollution, cigarette smoke, PCB 11, and naphthalene in mouse models and cell culture models.

Laboratory Assistant II, Department of Plant Pathology, University of California, Davis, June 2018 – November 2018.

Research pathogenesis of *Fusarium* fungal species on various plants including tomatoes, strawberries, lettuce, blackberries, and pines.

Undergraduate Research Assistant, Department of Plant Pathology, University of California, Davis January 2016 – June 2018.

Research the colonization and virulence of the *Fusarium circinatum* in grasses and pines. Support research studies by culturing fungi, performing growth rate assays, inoculating and harvesting plants, and evaluating virulence if pathogens.

Professional Membership and Service

- American Society for Pharmacology and Experimental Therapeutics (ASPET)
- Society of Toxicology (SOT)

Peer-Reviewed Publications

Tran, L., Zhang, Q., Van Winkle, L. and Ding, X. (2026) Metabolism of Xenobiotics in the Respiratory Tract. In: McQueen, Charlene A. (ed.) Comprehensive Toxicology, 4th Edition, vol. 9, pp. 120–149. London: Elsevier.

Domanico, M., Fukuto, A., **Tran, L. M.**, Bustamante, J. M., Edwards, P. C., Pinkerton, K. E., Thomasy, S. M., Van Winkle, L. S. Cytotoxicity of 2D engineered nanomaterials in pulmonary and corneal epithelium. NanoImpact. 2022 Apr;26:100404. doi: 10.1016/j.impact.2022.100404. Epub 2022 May 2. PMID: 35560287; PMCID: PMC9205178.

Stevens, N. C., Edwards, P. C., **Tran L. M.**, Ding, X., Van Winkle, L. S., Fiehn, O. Metabolomics of Lung Microdissections Reveals Region- and Sex-Specific Metabolic Effects of Acute

Naphthalene Exposure in Mice. Toxicol Sci. 2021 Nov 24;184(2):214-222. doi: 10.1093/toxsci/kfab110. PMID: 34498071; PMCID: PMC8633889.

Published Abstracts

Tran, L. M., Hellinger, R. D., Ledford, J. G., Studer, I. M., Yang, W., Han, W., Zhang, Q.-Y., Van Winkle, L. S., Ding, X., Role of macrophage CYP19A1 in LPS-induced inflammation in mice; American Society for Pharmacology and Experimental Therapeutics Annual Meeting 2025, Portland, OR.

Wu, X., Li, H., Uwimana, E., Zhang, Q.-Y., Yang, W., **Tran, L. M.**, Hannon, S. L., Han, W., Van Winkle, L. S., Ding, X., **I**nsights from a novel liver-specific Ephx1-null mouse on the role of hepatic Ephx1 in the biotransformation of naphthalene and 19,20-epoxydocosapentaenoic acid; American Society for Pharmacology and Experimental Therapeutics Annual Meeting 2025, April 3rd, 2025, Portland, OR.

Tran, L. M., Hellinger, R. D., Ledford, J. G., Studer, I. M., Yang, W., Han, W., Zhang, Q.-Y., Van Winkle, L. S., Ding, X., Role of macrophage CYP19A1 in LPS-induced inflammation in mice; Society of Toxicology Annual Meeting 2025, March 19th, 2025, Orlando, FL.

Tran, L. M., Yang, S., Li, H., Han, W., Zhang, Q-Y, Ding, X., Arsenic exposure via drinking water inhibits lung tissue repair in mice; Society of Toxicology Annual Meeting 2024; March 12th, 2024, Salt Lake City, UT.

Tran, L. M., Yang, S., Li, H., Han, W., Zhang, Q-Y, Ding, X., Arsenic inhibits lung tissue repair in mice; NIEHS Superfund Annual Grant Recipient Meeting 2023; December 4th, 2023, Albuquerque, NM.

Hannon S. L., Yin, L., **Tran, L. M.**, Studer, I.M, Zhang, Q.-Y., Turesky, R., Van Winkle, L. S. and X. Ding, Naphthalene-DNA adduct formation is attenuated in blood and lungs of Cyp2abfgs-null mice compared to wild-type mice; Society of Toxicology Annual Meeting 2023; March 20th, 2023, Nashville, TN.

Tran, L. M., Edwards, P.C., Yang, W., Zhang, Q-Y., Han, W., Kovalchuk, N., Hannon, S., Ding, L., Wu, X., Bustamante, J-M., Kelty, S., Brown, V., Domanico, M., Reader, R., Van Winkle, L.S., Ding, X., Role of cytochrome P450-mediated bioactivation in tobacco smoke-induced lung carcinogenesis; Society of Toxicology Annual Meeting 2022; March 28th, 2022, San Diego, CA.

Hannon, S., Yin, L., Han, W., Yang, W., **Tran**, **L.**, Zhang, Q., Turesky, R., Van Winkle, L., and Ding, X., Environmental contaminant naphthalene forms adducts with DNA in vivo in mice; Society of Toxicology Annual Meeting 2022; March 29th, 2022, San Diego, CA.

Domanico, M. C., Klocke, C. R., Panesar, H. K., **Tran, L. M.**, Edwards, P. C., Lein, P. J., and Van Winkle L. S., Effects of Developmental 3,3'-Dichlorobiphenyl (PCB 11) Exposure on Lung Maturation; Society of Toxicology Annual Meeting 2022; March 29th, 2022, San Diego, CA.

Domanico, M. C., **Tran, L. M.**, Bustamante, J. M., Mo, K. J., Edwards, P. C., Thomasy, S. M., Pinkerton, K. E., and Van Winkle, L. S., Differences in Cell-Type Susceptibility to Engineered Nanomaterials; Society of Toxicology Annual Meeting 2021; March 23rd, 2021, Virtual.

Tran, L. M., Bustamante, J., Mo, K. J., Edwards, P., Thomasy S. K., Pinkerton, K. P., Van Winkle, L. S., Cytotoxicity of Engineered Nanomaterials on Primary Epithelial Cells in Air-Liquid Interface Culture; Society of Toxicology Annual Meeting 2020; March 17th, 2020; Virtual.

Tran, L. M., Edwards, P., Wu, V., Mo, K., Bein, K., Van Winkle, L. S., Chloropicrin Lung Cytotoxicity in Female CD-1 Mice; UC Davis 10th Annual Lung Day; June 14th, 2019, Davis, CA.

Bustamante, J.M., **Tran, L. M.**, Pinkerton, K., Van Winkle, L. S., Impact of Engineered Nanomaterial Exposure on Lung Cytotoxicity and Epithelium; UC Davis 10thAnnual Lung Day; June 14th, 2019; Poster.

Duong, C., Edwards, P., Patten, K., **Tran, L. M.**, Valenzuela, A., Bein, K., Lein, P., Silverman, J., Hernandez, A., Van Winkle, L. S., Effect of Vehicular Emissions on Lung Gene Expression; UC Davis Undergraduate Research Conference; April 26th, 2019, Davis, CA.

Muñoz, M., Edwards, P., Patten, K., **Tran, L. M.**, Valenzuela, A., Bein, K., Lein, P., Van Winkle, L. S., Lung Gene Expression in Rats Exposed to Freeway Emissions; UC Davis Undergraduate Research Conference; April 26th, 2019, Davis, CA.

Presentations

Tran, L. M., Hellinger, R. D., Ledford, J. G., Studer, I. M., Yang, W., Han, W., Zhang, Q.-Y., Van Winkle, L. S., Ding, X., Role of macrophage CYP19A1 in LPS-induced inflammation in mice; American Society for Pharmacology and Experimental Therapeutics Annual Meeting 2025, April 3rd, 2025, Portland, OR. [Poster]

Tran, L. M., Hellinger, R. D., Ledford, J. G., Studer, I. M., Yang, W., Han, W., Zhang, Q.-Y., Van Winkle, L. S., Ding, X., Role of macrophage CYP19A1 in LPS-induced inflammation in mice; Society of Toxicology Annual Meeting 2025, March 19th, 2025, Orlando, FL. [Poster]

Tran, L. M., Yang, S., Li, H., Han, W., Zhang, Q-Y, Ding, X., Arsenic exposure via drinking water inhibits lung tissue repair in mice; Society of Toxicology Annual Meeting 2024; March 12th, 2024, Salt Lake City, UT. [Poster]

Tran, L. M., Yang, S., Li, H., Han, W., Zhang, Q-Y, Ding, X., Arsenic inhibits lung tissue repair in mice; NIEHS Superfund Annual Grant Recipient Meeting 2023; December 4th, 2023, Albuquerque, NM. [Poster]

Tran, L. M., Lung Tissue Repair: Insights from a CYP19A1-null Mouse Model; College of Pharmacy, Department of Pharmacology and Toxicology Seminar; September 5th, 2023, Tucson, AZ. [Oral Presentation]

Tran, L. M., Ding, X., Microscopy Applications in Toxicology; Southwest Environmental Health Sciences Center, College of Pharmacy; January 20th, 2023, Tucson, AZ. [Oral Presentation]

Tran, L. M., Edwards, P.C., Yang, W., Zhang, Q-Y., Han, W., Kovalchuk, N., Hannon, S., Ding, L., Wu, X., Bustamante, J-M., Kelty, S., Brown, V., Domanico, M., Reader, R., Van Winkle, L.S., Ding, X., Role of cytochrome P450-mediated bioactivation in tobacco smoke-induced lung carcinogenesis; Society of Toxicology Annual Meeting 2022; March 28th, 2022, San Diego, CA. [Poster]

Tran, L. M., Herrick, S., Air Pollution; Southwest Environmental Health Sciences Center, A Student's Journey Program; July 15th, 2021, Tucson AZ. [Oral Presentation]

Tran, L. M., Bustamante, J., Mo, K. J., Edwards, P., Thomasy S. K., Pinkerton, K. P., Van Winkle, L. S., Cytotoxicity of Engineered Nanomaterials on Primary Epithelial Cells in Air-Liquid Interface Culture; Society of Toxicology Annual Meeting 2020; March 17th, 2020; Virtual. [Poster]

Tran, L. M., Edwards, P., Wu, V., Mo, K., Bein, K., Van Winkle, L. S., Chloropicrin Lung Cytotoxicity in Female CD-1 Mice; UC Davis 10th Annual Lung Day; June 14th, 2019, Davis, CA. [Poster]