

Jooyeon Hwang, PhD, CIH

Department of Environmental & Occupational Health Sciences | School of Public Health
University of Texas Health Science Center at Houston
1930 Old Spanish Trail | Office 751.01 | Houston TX 77054
Email: Jooyeon.hwang@uth.tmc.edu | Phone: 713.500.9274

Background

Education

National Institutes of Health National Cancer Institute Bethesda MD Postdoctoral Fellow in Cancer Research Training	2015
University of Minnesota School of Public Health Minneapolis MN Ph.D. Industrial Hygiene Minor in Biostatistics	2013
University of Minnesota School of Public Health Minneapolis MN M.S. Environmental Health Sciences	2008
Seoul National University College of Agriculture and Life Sciences Seoul Korea M.S. Animal Environment	2003
Konkuk University College of Animal Husbandry Seoul Korea B.S. Animal Nutritional Resources	2001

Certification

Certified Industrial Hygienist #CIH-CP 13193 Board for Global EHS Credentialing	2024
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Honors

1st Place. Scientific Poster Award, Fire smoke neurotoxins: Occupational exposure and mental health implications for firefighters. 2025 International Fire Service Cancer Symposium, Firefighter Cancer Initiative, 2025, Miami, FL.

Mentor (Student: Juan Alvarez). Characterizing firefighter exposure to endocrine-disrupting chemical mixtures by biomonitoring. Southwest Center for Occupational and Environmental Health, Pilot Projects Research Training (PPRT) Program, 2025, Houston, TX.

Selected Participant. 2023 Future Leaders' Conference, Overseas Koreans Agency (OKA), 2023, South Korea.

1st Place, Academic Advisor (Student: Mingze Zhu). Student Poster Awards, AIHA Protective Clothing and Equipment Committee, 2023, Phoenix, AZ.

1st Place, Academic Advisor (Student: Mingze Zhu). Student Poster Awards, AIHA Biological Monitoring Committee, 2023, Phoenix, AZ.

Selected Participant. GMA Region 3 Technical Training Summit Travel Award, University of New Mexico Comprehensive Cancer Center, 2023, NM.

Selected Participant. UTHealth 2023 Grants 102 Course, University of Texas Health Science Center at Houston,

2023, Houston, TX.

Provost's Research Award for Clinical/Translational Junior Faculty. University of Oklahoma Health Sciences Center, 2022, OK.

Early-Career Investigator Scholarship. Skills for Health and Research Professionals (SHARP) Program, Columbia University, 2020, New York, NY.

Selected Faculty. Oklahoma Shared Clinical and Translational Resources Translating Practice into Research (TPIR) Program 2018-2019, University of Oklahoma Health Sciences Center, 2018, OK.

Winner, Mentor (Student: Nandini Bezawada). Western Kentucky University Student Research Conference Graduate Posters, Health and Human Services Session 51, Western Kentucky University, 2017, KY.

Early Investigators Award. Office of Research & Creative Activity, Western Kentucky University, 2016, KY.

Selected Faculty Award. Kentucky Biomedical Research Infrastructure Network (KBRIN), University of Louisville, 2015, KY.

Selected Participant. Zuheir Sofia Endowed International Faculty Seminar (ZSEIFS) to South Korea, Western Kentucky University, 2015, KY.

Volunteer Group Service Award. AIHA Exposure Assessment Strategies Committee, 2014, San Antonio, TX.

Editor's Choice Award. A comprehensive assessment of exposures to elongated mineral particles (EMP) in the taconite mining industry. *Ann Occup Hyg*. 2014 Oct;57(8):966–78. PMID: 23792972.

Postdoctoral Fellowship. Cancer Research Training Award (CRTA), National Institutes of Health, National Cancer Institute, 2013–2015, Bethesda, MD.

Outstanding Poster Award, Faculty Choice. School of Public Health Research Day, University of Minnesota, 2013, Minneapolis, MN.

Future Leaders Institute Program. American Industrial Hygiene Association, 2011, MD.

Selected Participant. Boreas Environmental Leadership Program, Institute on Environment, 2011, MN.

TSI/Arthur J. Abrams Memorial Scholarship. American Industrial Hygiene Foundation, 2010, VA.

James L. Craig Fellowship. Public Health, University of Minnesota, 2009, Minneapolis, MN.

Scholarly Travel Grant. Graduate and Professional Student Assembly, University of Minnesota, 2009, 2011, Minneapolis, MN.

Selected Student. International Students' Meeting on Public Health at the World Congress on Public Health, 2009, Istanbul, Turkey.

Cross-Cultural Leadership Retreat. International Student and Scholar Services, University of Minnesota, 2009, Minneapolis, MN.

3M Science and Technology Fellowship. Environmental Health, 2008–2012, Minneapolis, MN.

Finnegan-Mosberger Family Fellowship. School of Public Health, University of Minnesota, 2008–2009, Minneapolis, MN.

Roberta Craig Fellowship. International Public Health, School of Public Health, University of Minnesota, 2008–2009, Minneapolis, MN.

Travel Grant. The National Association of Graduate-Professional Students Conference, University of Minnesota, 2008, Minneapolis, MN.

Sponsored Student. American Industrial Hygiene Association Conference, 2008, MN.

Outstanding Poster Award, Faculty and Alumni Choice. School of Public Health Research day, University of Minnesota, 2008, Minneapolis, MN.

Environmental Section Scholarship Award. American Public Health Association, 2007, Washington DC.

Alumni Scholarship. Konkuk University Alumni Association, 2007, Seoul, Korea.

Summit of Sages Scholarship. University of Minnesota School of Nursing, 2007, Minneapolis, MN.

Fellowship. Korean-American Graduate Student Association, 2007, Washington DC.

Dean's Scholarship for Academic Excellence. Research Grant for Field Experience in Vietnam, School of Public Health, University of Minnesota, 2006, Minneapolis, MN.

Brain Korea 21 Research Fellowship. Ministry of Education, 2001–2003, Seoul, Korea.

Sponsored Graduate Student. Research Grants, 2000–2004, Seoul, Korea.

- Ministry of Agriculture and Forestry
- College of Agriculture and Life Sciences, Seoul National University
- Water Resources Corporation
- Environzyne Corporation

Appointment

Research Health Science Specialist	2026– present
Data and Biorepository Core Military Exposure Research Program Michael E. DeBakey VA Medical Center Houston TX	
Associate Professor	2023– present
University of Texas Health Science Center at Houston School of Public Health Department of Environmental & Occupational Health Sciences Houston TX	
Adjunct Faculty	2023– present
University of Oklahoma Health Sciences Center Hudson College of Public Health Department of Occupational and Environmental Health Oklahoma City OK	
Program Director	2024– present
Industrial Hygiene and Exposure Sciences Program Southwest Center for Occupational and Environmental Health (a NIOSH Education and Research Center) University of Texas Health Science Center at Houston Houston TX	
Deputy Director	2023–2025
Southwest Center for Occupational and Environmental Health (a NIOSH Education and Research Center) University of Texas Health Science Center at Houston Houston TX	
Assistant Professor	2018–2022
University of Oklahoma Health Sciences Center Hudson College of Public Health Department of Occupational and Environmental Health Oklahoma City OK	
Assistant Professor	2015–2018
Western Kentucky University College of Health and Human Services Department of Public Health Environmental & Occupational Health Science Bowling Green	

KY

Postdoctoral Fellow	2013–2015
National Institutes of Health/National Cancer Institute (NIH/NCI) Division of Cancer Epidemiology & Genetics Occupational and Environmental Epidemiology Branch Rockville MD	
Graduate Research Assistant	2008–2013
University of Minnesota School of Public Health Division of Environmental Health Science Minneapolis MN	
Research Assistant	2009
American Industrial Hygiene Association Exposure Assessment Strategies Committee Minneapolis MN	
Graduate Research Assistant	2007–2009
University of Minnesota School of Public Health Division of Environmental Health Science Lab of Industrial Hygiene Minneapolis MN	
Graduate Research Assistant	2000–2003
Seoul National University College of Agriculture and Life Science Department of Animal Science Lab of Animal Environment Seoul Korea	

Research

Publications

Peer Reviewed

1. **Hwang J***, Singh A, Peng Z, Xu C, Agnew RJ, Xu X, Yang Z, Ahsan N*. Fire-smoke induced protein alterations in firefighters body fluids identify prognostic pancreatic cancer biomarkers. *Environment & Health*. 2026. <https://doi.org/10.1021/envhealth.6c00062>
2. Grunsted P+, Xu C, **Hwang J***. Firefighter severe injury incidence: An analysis of National Fire Incidence Reporting System (NFIRS) data from 2010 to 2019. *Fire Technol*. 2026;62(118). <https://doi.org/10.1007/s10694-026-01945-9>
3. Grunsted P+, Xu C*, Janitz A, Reese J, Campbell J, Santiago-Rodriguez TM, Javornik Cregreen SJ, Petrosino JF, **Hwang J***. Nasal cavity microbial makeup and the influence on psychiatric symptoms following fire exposure in firefighters. *Front Microbiomes*. 2026;5:1832151. <https://doi.org/10.3389/frmbi.2026.1832151>
4. Zhang W, **Hwang J**, Lu B, Xu X. Effects of high-intensity interval training on inflammatory biomarkers in patients with heart failure: A meta-analysis of randomized controlled trials. *Front Cardiovasc Med*. 2025;12:1641635. DOI: [10.3389/fcvm.2025.1641635](https://doi.org/10.3389/fcvm.2025.1641635)
5. **Hwang J***, Gipson J, Xu C, VanWagoner T, Xu X, Agnew RJ, Freeman WM. Comparison of MicroRNA profiling in the skin and serum of volunteer and career firefighters. *Environ Res*. 2025;285(Part 1):122348. DOI: <https://doi.org/10.1016/j.envres.2025.122348>
6. Zhu M+, **Hwang J***, Xu C*. Meta-analysis identifies key genes and pathways implicated in Benzo[a]pyrene exposure response. *Chemosphere*. 2024;364(Sept 2024):143121. DOI: <https://doi.org/10.1016/j.chemosphere.2024.143121>

7. Zhu M+, Agnew RJ, Xu C, VanWagoner T, Xu X, **Hwang J***. Residual polycyclic aromatic hydrocarbons and firefighters' hematological profile. *Front Environ Health, Occupational Safety and Health Interventions*. 2024;3:1381159. <https://doi.org/10.3389/fenvh.2024.1381159>
8. **Hwang J***, Peng Z, Najjar FZ, Xu C, Agnew RJ, Xu X, Yang Z, Ahsan N*. Urine proteome profile of firefighters with exposure to emergency fire-induced smoke: A pilot study to identify potential carcinogenic effects. *Sci Total Environ*. 2024;972:172273. DOI: <https://doi.org/10.1016/j.scitotenv.2024.172273>
9. Mitchell J, **Hwang J**, Larson P, Mandal S, Agnew RJ. Preliminary analyses of accumulation of carcinogenic contaminants on retired firefighter ensembles. *J Occup Environ Hyg*. 2024;21(4):213–219. PMID: 38416517. DOI: <https://doi.org/10.1080/15459624.2023.2296628>
10. **Hwang J***, Chong NS, Zhang M, Agnew RJ, Xu C, Li Z, Xu X. Face-to-face with scorching wildfire: Potential toxicant exposure and the health risks of smoke for wildland firefighters at the wildland-urban interface. *Lancet Reg Health Am*. 2023 Mar 26;21:100482. PMID: 37008196. PMCID: PMC10060103. DOI: [10.1016/j.lana.2023.100482](https://doi.org/10.1016/j.lana.2023.100482)
11. Pourbabaki R, Abbaslou H, Sadeghi-Yarandi M, Soleimani E, **Hwang J***. Global trends and research progress of occupational exposure to formaldehyde and cancer: A bibliometric analysis (1991–2022). *Research Square*. 2023. DOI: <https://doi.org/10.21203/rs.3.rs-3308054/v1>
12. **Hwang J***, Xu C, Grunsted P, Agnew RJ, Malone TR, Clifton S, Thompson K, Xu X. Urinary metabolites of polycyclic aromatic hydrocarbon in firefighters: A systematic review and meta-analysis. *Int J Environ Res Public Health*. 2022;19(14):8475. PMID: 35886320. PMCID: PMC9318785. DOI: [10.3390/ijerph19148475](https://doi.org/10.3390/ijerph19148475)
13. Chen WJ, Robledo C, Davis EM, Goodman JR, Xu C, **Hwang J**, Janitz AE, Garwe T, Calafat AM, Peck JD. Assessing urinary phenol and paraben mixtures in pregnant women with and without gestational diabetes mellitus: A case-control study. *Environ Res*. 2022;214(2):113897. PMID: 35839910. DOI: <https://doi.org/10.1016/j.envres.2022.113897>
14. Floyd E, Oni T, Cai C, Rehman B, **Hwang J**, Watson T. Validation of a high flow rate puff topography system designed for measurement of sub-ohm, third generation electronic nicotine delivery systems. *Int J Environ Res Public Health*. 2022;19(13):7989. PMID: 35805644. PMCID: PMC9265855. DOI: [10.3390/ijerph19137989](https://doi.org/10.3390/ijerph19137989)
15. Zhu T, Zhou J, **Hwang J**, Xu X. Effects of platelet-rich plasma on the clinical outcomes of anterior cruciate ligament reconstruction: A systematic review and meta-analysis. *Orthop J Sports Med*. 2022 Jan 31;10(1):23259671211061535. PMID: 35127959. PMCID: PMC8811441. DOI: [10.1177/23259671211061535](https://doi.org/10.1177/23259671211061535)
16. Taylor R, Macy G, **Hwang J**, Golla V, Cann C, Sanyang E. Using collaborative partnerships to engage firefighters in rural communities. *Int J Environ Res Public Health*. 2022;19(4):2009. PMID: 35206197. PMCID: PMC8871703. DOI: <https://doi.org/10.3390/ijerph19042009>
17. Zhu T, Hu Y, **Hwang J**, Zhao D, Huang L, Qiao L, Wei A, Xu X. Urinary proteomics of simulated firefighting tasks and its relation to fitness parameters. *Int J Environ Res Public Health*. 2021 Oct 11;18(20):10618. PMID: 34682364. PMCID: PMC8536002. DOI: <https://doi.org/10.3390/ijerph182010618>
18. Shao Y, **Hwang J**, MacLehose R, Alexander B, Mandel J, Ramachandran G. Reconstructing historical exposures to respirable dust and respirable silica in the taconite mining industry for 1955–2010. *Ann Work Expo Health*. 2022;66(4):459–471. PMID: 34864842. DOI: [10.1093/annweh/wxab099](https://doi.org/10.1093/annweh/wxab099)

19. **Hwang J***, Xu C, Agnew RJ, Clifton S, Malone TR. Health risk of structural firefighters from exposure to polycyclic aromatic hydrocarbons: A systematic review and meta-analysis. *Int J Environ Res Public Health*. 2021;18(8):4209. PMID: 33921138. PMCID: PMC8071552. DOI: <https://doi.org/10.3390/ijerph18084209>
20. Cai C, Nishimura T, **Hwang J**, Hu XM, Kuroda A. Asbestos detection with fluorescence microscopy images and deep learning. *Sensors*. 2021 Jul 4;21(13):4582. PMID: 34283157. PMCID: PMC8272007. DOI: <https://doi.org/10.3390/s21134582>
21. Friesen MC, Choo-Wosoba H, Sarazin P, **Hwang J**, Dopart P, Russ DE, Deziel NC, Lavoué J, Albert PS, Zhu B. Simultaneous modeling of detection rate and exposure concentration using semi-continuous models to identify exposure determinants when left-censored data may be a true zero. *J Expo Sci Environ Epidemiol*. 2021;31(6):1047–1056. PMID: 34006962. DOI: <https://doi.org/10.1038/s41370-021-00331-7>
22. Chen WJ, Davis EM, Stoner JA, Robledo C, Goodman JR, Garwe T, Janitz A, Xu C, **Hwang J**, Peck JD. Urinary total arsenic and arsenic methylation capacity in pregnancy and gestational diabetes mellitus: A case-control study. *Chemosphere*. 2021 May;271:129828. PMID: 33736216. DOI: [10.1016/j.chemosphere.2021.129828](https://doi.org/10.1016/j.chemosphere.2021.129828)
23. Shao Y, MacLehose R, Lin L, **Hwang J**, Alexander B, Mandel J, Ramachandran G. A Bayesian approach for determining the relationship between various Elongate Mineral Particles (EMPs) definitions. *Ann Work Expo Health*. 2020 Nov 16;64(9):993–1006. PMID: 33196824. DOI: [10.1093/annweh/wxaa074](https://doi.org/10.1093/annweh/wxaa074)
24. Shao Y, **Hwang J**, MacLehose R, Alexander B, Mandel J, Ramachandran G. Reconstructing historical exposures to Elongate Mineral Particles (EMPs) in the taconite mining industry for 1955–2010. *J Occup Environ Hyg*. 2019;16(12):817–826. PMID: 31647751. DOI: [10.1080/15459624.2019.1676431](https://doi.org/10.1080/15459624.2019.1676431)
25. Macy G, **Hwang J**, Taylor R, Golla V, Cann C, Gates B. Examining behaviors related to retirement, cleaning, and storage of turnout gear among rural firefighters. *Workplace Health Saf*. 2020;68(3):129–138. PMID: 31735131. DOI: <https://doi.org/10.1177/2165079919882951>
26. Hwang J*, Golla V, Metwali N, Thorne PS. Inhalable and respirable particulate and endotoxin exposures in Kentucky equine farms. *J Agromedicine*. 2020 Apr;25(2):179–189. PMCID: PMC7031016. DOI: [10.1080/1059924X.2019.1656128](https://doi.org/10.1080/1059924X.2019.1656128)
27. **Hwang J***, Taylor R, Macy G, Cann C, Golla V. Comparison of use, storage, and cleaning practices for personal protective equipment between career and volunteer firefighters in northwestern Kentucky in the U.S. *J Environ Health*. 2019;82(5):8–15. <https://www.jstor.org/stable/26858040>
28. **Hwang J***, Taylor R, Cann C, Golla V, Gilbert W. Assessment of ambient air diesel particulates in fire departments using different exposure metrics: Pilot study. *Fire Saf J*. 2019;106:155–162. DOI: <https://doi.org/10.1016/j.firesaf.2019.04.005>
29. Hwang J*, Taylor R, Cann C, Norris P, Golla V. Evaluation of accumulated polycyclic aromatic hydrocarbons and asbestiform fibers on firefighter vehicles: Pilot study. *Fire Technol*. 2019;55(6):2195–2213. DOI: <https://doi.org/10.1007/s10694-019-00851-7>
30. Huynh T, Ramachandran G, Quick H, **Hwang J**, Raynor PC, Alexander BH, Mandel JH. Real-time fine aerosol exposures in taconite mining operations. *bioRxiv*. 2018;263442, Cold Spring Harbor Laboratory. DOI: <https://www.biorxiv.org/content/10.1101/263442v1.abstract>
31. Huynh T, Ramachandran G, Quick H, **Hwang J**, Raynor P, Alexander B, Mandel J. Ambient fine aerosol concentrations in multiple metrics in taconite mining operations. *Ann Work Expo Health*. 2019;63(1):77–90. PMID: 30351393. DOI: <https://doi.org/10.1093/annweh/wxy086>

32. Hwang J, Ramachandran G, Raynor P, Alexander B, Mandel J. A comprehensive assessment of exposures to respirable dust and silica in the taconite mining industry. *J Occup Environ Hyg.* 2017;14(5):377–388. PMID: 28388309. DOI: [10.1080/15459624.2016.1263392](https://doi.org/10.1080/15459624.2016.1263392)
 33. Ramachandran G, **Hwang J**, Raynor P, Alexander B, Mandel J. Response to Letter to the Editor by Weill et al. In reference to Hwang et al. “The Relationship Between Various Exposure Metrics for Elongate Mineral Particles (EMP) in the Taconite Mining and Processing Industry.” *J Occup Environ Hyg.* 2015;12(6):D88–D89. PMID: 25616980. DOI: <https://doi.org/10.1080/15459624.2015.1006640>
 34. Hwang J, Ramachandran G, Raynor P. The relationship between various exposure metrics for elongated mineral particles (EMP) in the taconite mining and processing industry. *J Occup Environ Hyg.* 2014;11(9):613–624. PMID: 24512074 DOI: <https://doi.org/10.1080/15459624.2014.890287>
 35. **Hwang J**, Ramachandran G, Raynor P, Alexander B, Mandel J. Comprehensive assessment of exposures to elongated mineral particles in the taconite mining industry. *Ann Occup Hyg.* 2013;57(8):966–978. PMID: 23792972. DOI: [10.1093/annhyg/met026](https://doi.org/10.1093/annhyg/met026)
 36. Adgate J, Banerjee S, Wang M, McKenzie L, **Hwang J**, Cho SJ, Ramachandran G. Performance of dust allergen carpet samplers in controlled laboratory studies. *J Expo Sci Environ Epidemiol.* 2012;23(4):385–391. PMID: 23281430. DOI: [10.1038/jes.2012.112](https://doi.org/10.1038/jes.2012.112)
- [*corresponding author, +mentored trainee]*

Grants

Awarded (The amounts listed in parentheses indicate Direct Costs only)*

1. CDC/NIOSH T42 Southwest Center for Occupational and Environmental Health Industrial Hygiene and Exposure Sciences (\$1,391,452), 07.01.2026-06.30.2031. **Program Director** (Contact PI: Sarah Felknor).
2. Cancer Prevention & Research Institute of Texas (CPRIT), Individual Investigator Research Award for Prevention and Early Detection. Protecting those who protect us: On-scene decontamination for Texas firefighter cancer prevention – RP260181 (\$1,140,000). 12.1.2025–11.30.2029. **Principal Investigator**.
3. 89th Texas Legislature, Texas Senate Bill 1, E.3.3 Firefighter Cancer Research appropriation. Texas Firefighter Cancer Study (\$4,250,000). 9.1.2025–8.31.2027. **Principal Investigator**.
4. Gulf Coast Center for Precision Environmental Health (GC-CPEH). Unveiling the impact of fire smoke neurotoxins on firefighters' mental health using whole shotgun metagenomics (\$60,160). 9.1.2024–8.31.2025. **Principal Investigator**.
5. Wisdom Family Foundation Interprofessional Educators and Practitioners Association (IEPA), Seed Grant. Automation of the healthcare professional circle diagramming technique for use in interprofessional clinical learning experiences, 2022–2023 (\$3,990). 6.10.2022–5.31.2023. **Co-I** (PI: V. Dennis).
6. University of Oklahoma Office of the Vice President for Research and Partnerships. Cultivating child well-being (\$139,604). 1.1.2021–12.31.2022. **Co-PI** (PI: S. Castle).
7. CDC/NIOSH. Effects of residual PAH exposure from firefighters' turnout gear on plasma microRNA expression – K01OH011891 (\$323,843). 9.1.2020–8.31.2023. **Principal Investigator**.

8. NIH/NIEHS. Interaction of ambient ammonia and endotoxins with airborne and human nasal microbiome diversity in communities near large-scale poultry feeding operations – R21ES032098 (\$398,464). 6.3.2020–5.31.2022. Co-Investigator (Original **Principal Investigator**: Relinquished PI role to M. Phillips to devote 75% effort to CDC/NIOSH K01).
9. American Cancer Society – Institutional Research Grant, Stephenson Cancer Center. A cancer-related microRNA profile: The critical role of firefighter protective equipment practices (\$48,306). 4.1.2020–5.31.2022. **Principal Investigator**.
10. Oklahoma Shared Clinical and Translational Resources, Clinical and Translational Research Pilot (CTRP). Assessment of exposure to residual PAH from turnout gear in Oklahoma firefighters (\$72,500). 7.1.2020–6.30.2022. **Principal Investigator**.
11. Western Kentucky University Research & Creative Activities Program (RCAP). Epigenetic studies of household air pollution-associated essential hypertension in rural Kenya (\$16,000). 5.15.2018–12.15.2019. **Co-PI** (PI: N. Rice).
12. Western Kentucky University College of Health and Human Services Quick Turn Around Grants (QTAG). Firefighters' exposure to smoke contaminants in live fire training (\$2,000). 4.11.2018–6.30.2018. **Principal Investigator**.
13. CDC/NIOSH Pilot Research Project Training Program of the University of Cincinnati Education and Research Center. Assessment of diesel particulates in fire departments using different exposure metrics (\$6,950). 7.1.2017–6.30.2018. **Principal Investigator**.
14. CDC/NIOSH Pilot Research Project Training Program of the University of Cincinnati Education and Research Center. Biomarkers of exposure and stress in firefighters in northwestern Kentucky (\$8,000). 7.1.2017–6.30.2018. **Co-I** (PI: J. Yadav).
15. Western Kentucky University College of Health and Human Services (CHHS), Center for Environmental and Workplace Health (CEWH), (\$269,510). 8.15.2017–6.30.2019. **Core Research Faculty** (Director: R. Taylor).
16. CDC/NIOSH. Environmental Health Science Undergraduate Program, Occupational Safety and Health Training Project Grants T03OH010637 (\$250,000). 7.1.2016–6.30.2021. **Co-I** (PI: V. Golla).
17. Western Kentucky University Research & Creative Activities Program (RCAP). Evaluation of accumulated contaminants on firefighter vehicles (\$16,000). 5.15.2016–12.31.2017. **Principal Investigator**.
18. Western Kentucky University College of Health and Human Services Quick Turn Around Grants (QTAG). Qualitative approach to assessing exposure to fire smoke and occupational air contaminants for firefighters (\$2,650). 4.11.2016–11.30.2016. **Principal Investigator**.
19. CDC/NIOSH Extramural Research and Training Program – South Center for Agricultural Health and Injury Prevention. Occupational exposure to endotoxins in airborne particles in Kentucky's equine industry (\$12,000). 10.15.2015–9.29.2016. **Principal Investigator**.
20. U.S. Poultry & Egg Association. Measurement of airborne endotoxins in poultry industry in Kentucky (\$80,000). 7.1.2016–6.30.2017. **Principal Investigator**.

Presentations

Invited Speaker

1. Progress and Updates on the Texas Firefighter Cancer Study, City of Houston Council Committee Meeting, Public Safety and Homeland Security Committee Hearing, 2026, Houston, TX
2. Texas Firefighter Cancer Study (TFCS): From fireground exposure to biological early detection – A unified research framework for reducing firefighter cancer. El Paso Implementation Science Exchange, 2026, El Paso, TX.
3. Texas Firefighter Cancer Study: Project progress and future projections. Texas Commission on Fire Protection Meeting, 2026, Austin, TX.
4. Occupational health impacts of toxic contaminants in ambient fire smoke. 2025 KSEA West Gulf Coast Regional Conference, 2025, Houston, TX
5. Texas Firefighter Cancer Study: Project planning and initiative overview. Texas Commission on Fire Protection Meeting, 2025, Austin, TX.
6. Genesis and health consequences of toxic smoke exposure from emergency fires in firefighters. 2025 Annual Center Retreat, Gulf Coast Center for Precision Environmental Health, 2025, Galveston, TX.
7. Firefighter omics profile reveals health effects of emergency fire-induced smoke exposure. Translational Research Seminar Series (TRSS), UTHealth at Houston School of Public Health Brownsville Campus, 2023, Brownsville, TX.
8. Research Progress – Oklahoma Firefighter Health Study. Metro Chiefs & Green Country Chiefs Joint Meeting, 2023, Stillwater/Drumright, OK.
9. Multi-omics profiling for evaluating carcinogenic exposure and health effects in firefighters during emergency fires. 36th annual US-Korea Conference (UKC 2023), Technical Group Symposium, Medical Science, Pharmaceutical Science, Veterinary Medicine, Physical Education (MPS), 2023, Dallas, TX.
10. Assessment of firefighters' health risks in the work environment. Gulf Coast American Society of Safety Professionals (ASSP) chapter meeting, 2023, Deer Park, TX.
11. The impact of climate change on firefighters' health. Annual student-led conference Global Issues Summit, Global Studies Academy, Travis High School, 2023, Richmond, TX.
12. Evaluation of toxicant exposures at the wildland urban interface for firefighters. National Fire Protection Association (NFPA) Conference & Expo, 2022, Boston, MA.
13. Health risks to firefighters of smoke from climate change. Bridges to Access (B2A): Health and Climate, University of Oklahoma Community Health Alliance, 2022, Oklahoma City, OK.
14. Occupational exposure assessment in firefighters working environments. CDC/NIOSH Training Project Grants Seminar, Western Kentucky University, 2019, Bowling Green, KY.

Conference Presenter

1. Cancer Mortality Among Firefighters Compared With Other U.S. Workers, 2020-2024, CPRIT Innovations VII: The Cancer Prevention and Research Conference, Galveston, TX. (Principal Investigator, Poster presenter: Youngran Kim)
2. Evaluating On-Scene Decontamination to Mitigate Firefighter Carcinogenic Exposure: Rationale and Prospective Study Design, CPRIT Innovations VII: The Cancer Prevention and Research Conference, Galveston, TX. (Principal Investigator, Poster presenter: Yi-Hsuan Amelia Chen)
3. Rethinking firefighter particulate matter exposure across fire scenarios: Integrating size-resolved aerosols and urinary metal biomarkers. AIHA Connect 2026, 2026, New Orleans, LA. Student Proposal (Principal Investigator, Oral presenter: Yi-Hsuan Amelia Chen)
4. Plasma metabolomic variations in firefighters after exposure to fire smoke at the fireground. UTHealth SPH Student Research Showcase 2026, 2026, Houston, TX. (Principal Investigator, Poster presenter: Jingyu Liang)
5. From differential expression to cross-omics correlation: Integrating miRNA and proteomics in longitudinal framework. ERSA (Epidemiologic Research Student Association) Research Showcase, 2026, Oklahoma City, OK. (Principal Investigator, Poster presenter: Bingkun Luo)
6. Texas Firefighter Cancer Study: Carcinogenic exposure assessment. International Agency for Research on Cancer, World Health Organization, 2026, Lyon, France. (Poster presenter)
7. Nasal cavity microbial makeup and the influence on psychiatric symptoms following acute fire exposure in firefighters. American Society of Human Genetics, 2025, Boston, MA. (Principal Investigator, Poster presenter: Paul Grunsted)
8. Occupational risk factors for mental health outcomes in firefighters. GET PHIT Summit, 2025, Laredo, TX (Thesis advisor, Poster presenter: Kevin Dang)
9. Effectiveness of dermal wipes in removing PAHs from urban firefighters. UTHealth-CPRIT 2025 Summer Undergraduate Innovation in Cancer Prevention Research Program, 2025, Houston, TX. (Faculty mentor, Poster presenter: Isabella Smetana)
10. The role of decontamination wipes on polycyclic aromatic hydrocarbons (PAHs) removal and microbiome shifts in firefighter skin. AIHA Connect 2025 Student poster, 2025, Kansas City, MO. (Principal Investigator, Poster presenter: Catherine Turlington)
11. Fire smoke neurotoxins: Occupational exposure and mental health implications for firefighters. 2025 International Fire Service Cancer Symposium, Firefighter Cancer Initiative, 2025, Miami, FL. (Poster presenter)
12. Efficacy study on firefighter skin wipes for polycyclic aromatic hydrocarbon (PAH) removal. Texas Public Health Association, 2025, Brownsville, TX. (Principal Investigator, Oral presenter: Shelley Forse)
13. Impact of exposure to fire smoke on miRNA expression in firefighters' blood and skin samples. American Society of Human Genetics 2024 Annual Meeting, 2024, Denver, CO. (Principal Investigator, Poster presenter: Paul Grunsted)

14. The effects of residual polycyclic aromatic hydrocarbons on the hematological profile of firefighters. American Industrial Hygiene Conference & Expo, 2023, Phoenix, AZ. (Academic advisor, Student Poster presenter: Mingze Zhu)
15. Incremental conversion of healthcare professionals circle diagramming technique from manual to digital. 2nd Interdisciplinary Collaboration Symposium, Interdisciplinary Programs Office of the Vice Provost for Academic Affairs & Faculty Development, 2022, Oklahoma City, OK. (Poster co-presenter)
16. Using collaborative partnerships to engage firefighters in rural communities. 3rd International Symposium to Advance Total Worker Health, 2022, Bethesda, MD. (Poster co-presenter)
17. Effects of environmental exposure on genetic factors affecting firefighters' health. Department of Biostatistics and Epidemiology Seminar, University of Oklahoma Health Sciences Center, Virtual, 2021. (Oral co-presenter)
18. Assessment of exposure to residual PAH from turnout gear in Oklahoma firefighters. Oklahoma Shared Clinical & Translation Resources External Advisory Committee meeting, 2020 [Virtual]. (Oral presenter)
19. Preliminary analyses of accumulation of carcinogenic contaminants in retired turnout gear. ReIGNITE Conference Fire-Rescue International Research Symposium, 2020 [Virtual]. (Oral co-presenter)
20. Determination of changes in fire properties and toxicity of combustion in single family dwellings from the 1950s to projected 2020 era construction. Society of Open Innovation: Technology, Market, and Complexity, 2020 [Virtual]. (Oral co-presenter)
21. Effects of residual PAH exposure from firefighters' turnout gear on plasma microRNA expression. Translating Practice into Research Program, University of Oklahoma Shared Clinical and Translational Resources 2018-2019, 2019, Oklahoma City, OK. (Oral presenter)
22. Assessment of diesel particulates in fire departments using different exposure metrics: Pilot study. American Industrial Hygiene Conference & Expo, 2019, Minneapolis, MN. (Poster presenter)
23. Assessment of diesel particulates in fire departments using different exposure metrics: Pilot study. 2018 Pilot Research Project Symposium, University of Cincinnati, NIOSH Education and Research Center, 2018. (Oral presenter)
24. Evaluation of accumulated polycyclic aromatic hydrocarbons on firefighter vehicles: Pilot study. American Industrial Hygiene Conference & Expo, 2018, Philadelphia, PA. (Poster presenter)
25. A mixed-methods approach to assessing exposure to fire smoke and occupational air contaminants of firefighters in Kentucky. 6th Annual Southeastern States Occupational Network (SouthON) Meeting, Council of State and Territorial Epidemiologists, 2017, Nashville, TN. (Oral presenter)
26. Occupational exposure to airborne size-based endotoxins in Kentucky's equine industry. Deep South Center for Occupational Health and Safety, National Institute for Occupational Safety and Health Education and Research Center, The University of Alabama at Birmingham & Auburn University, 2017, Opelika, AL. (Oral presenter)
27. Firefighters, occupational exposures, and lessons learned in northwestern Kentucky. Works in Progress, Western Kentucky University, 2017, Bowling Green, KY. (Oral presenter)

28. Occupational exposure to endotoxins in airborne particles in Kentucky's equine industry. Southeast Center for Agricultural Health & Injury Prevention (SCAHIP) and Central Appalachian Regional Education and Research Center (CARERC), University of Kentucky, 2016, Lexington, KY. (Oral presenter)
29. Absent vs. present but not quantified: Can a job exposure matrix be used to predict samples where lead exposure is likely absent in U.S. OSHA inspection measurements? American Industrial Hygiene Conference & Expo, 2015, Salt Lake City, UT. (Oral presenter, withdrawal)
30. Reconstructing exposures (1973-2011) to elongated mineral particles (EMPs) on Minnesota's Iron Range based on different size-based definitions. American Industrial Hygiene Conference & Expo, 2012, Indianapolis, IN. (Oral presenter)
31. Methodological issues in taconite elongated mineral particles (EMPs) on Minnesota's Iron Range based on different size-based definitions. 3M Graduate Fellowship Program Poster Session, 2011, St. Paul, MN. (Poster presenter)
32. Method to convert fiber counts asbestos and non-asbestos based on NIOSH 7400/7402 into counts based on other fiber definitions. American Industrial Hygiene Conference & Expo, 2011, Portland, OR. (Poster presenter)
33. Methodological issues in taconite dust exposure assessment. American Industrial Hygiene Conference & Expo, 2010, Denver, CO. (Oral Presenter)
34. Historical and exposure reconstruction in the taconite mining industry– Study design. American Industrial Hygiene Conference & Expo, 2009, Toronto, Canada. (Oral Presenter)
35. Historical and exposure reconstruction in the taconite mining industry– Study design. 12th World Congress on Public Health, 2009, Istanbul, Turkey. (Poster Presenter)
36. Evaluating PM 10 in rural areas and in Hanoi and Ho Chi Minh City in Vietnam. 136th American Public Health Association conference, 2008, San Diego, CA. (Poster Presenter)
37. Evaluating PM 10 in rural areas and in Hanoi and Ho Chi Minh City in Vietnam. American Industrial Hygiene Conference & Expo, 2008, Minneapolis, MN. (Poster Presenter)

Teaching

Classes Taught

University of Texas Health Science Center at Houston

Occupational Health Controls, PH 2250 (3 credits). Required for MPH in Industrial Hygiene. 2026–Present. Sole Instructor.

Occupational Health Field Trips, PH 2260 (3 credits). Required for MPH in Industrial Hygiene. 2025–Present. Co-Instructor.

Public Health Ecology & the Human Environment, PHWM2110L (3 credits). Required for MPH in School of Public Health. 2024. Sole Instructor.

Environmental Sampling & Analysis, PHM/PHD 2155 (4 credits). Required for MPH in Environmental Science. 2024–Present. Sole Instructor.

EOHS Research Seminar Series, PHD 2105 EOHS Doctoral Seminar. 2023. Guest Speaker.

Guest Speaker

Community Health course for undergraduate majors in Public Health Sciences, Kinesiology Department, Rice University, 2026, Houston, TX.

University of Oklahoma Health Sciences Center

Principles of Safety, OEH 5702. Required for MS in Industrial Hygiene & Environmental Health Sciences, Department of Occupational and Environmental Health. 2019–2022. Sole Instructor.

Public Health Biology and Sanitation, OEH 5023. Required for MPH in Environmental Health, Department of Occupational and Environmental Health. 2019–2022. Sole Instructor.

Western Kentucky University

Air Quality Management, PH 571. Elective course for MS in Environmental and Occupational Health Sciences, Department of Public Health. 2016–2018. Sole Instructor.

Environmental Sciences, ENV 280. Colonnade Program's requirements for the Natural and Physical Sciences subcategory of the Explorations Category, Department of Public Health. 2015–2018. Sole Instructor.

Industrial Hygiene, EOHS 570. Required for MS in Environmental and Occupational Health Sciences, Department of Public Health. 2015–2018. Sole Instructor and developer of course.

Fundamental of Industrial Hygiene, ENV 321. Required course for BS in Environmental Health Sciences, Department of Public Health. 2015–2018. Sole Instructor.

Environmental Management and Risk Assessment, PH 560. Elective for MS in Environmental and Occupational Health Sciences, Department of Public Health. 2015–2018. Sole Instructor.

Konkuk University in Seoul, Korea

Occupational and Environmental Exposure Assessment Studies. Summer session. College of Animal Bioscience & Technology and the Graduate School of Agriculture & Animal Science. 2014–2016. Sole Instructor.

Service

Service to the Profession

Journal Peer Review

Aerosol Science & Technology
Annals of Work Exposures and Health
Archives of Environmental and Occupational Health
Atmosphere
Atmospheric Pollution Research
BMC Pulmonary Medicine
Current Women's Health Reviews
Discover Public Health
Fire Technology
Frontiers in Public Health
Inhalation Toxicology

International Journal of Environmental Research and Public Health
JMIR Research Protocols
Journal of Medical Internet Research
Occupational and Environmental Medicine
Safety and Health at Work
Science of the Total Environment
Sleep
Sustainability
Toxicology and Industrial Health
Toxics

Affiliations

National Fire Protection Association
Korean-American Scientists and Engineers Association
American Conference of Governmental Industrial Hygiene
American Industrial Hygiene Association

Institutional Service

Rice University

Mentor | 2025–2026 | Rice Health Policy Hackathon, Social Policy Analysis Department

Mentor | 2026 | Center for Civic Leadership, Alternative Spring Break (ASB) program, Environmental Justice Civic Engagement Program

UTHealth Houston

Program Interviewer | 2024–Present | Occupational and Environmental Medicine

Admissions Committee | 2024–Present | Department of Environmental & Occupational Health Sciences, School of Public Health

Curriculum Committee | 2024–2026 | Department of Environmental & Occupational Health Sciences, School of Public Health

Faculty Search Committee | 2024–Present | Department of Environmental & Occupational Health Sciences, School of Public Health

Representative, Faculty Council | 2023–2025 | Department of Environmental & Occupational Health Sciences (EOHS) School of Public Health

Judge | 2023, 2025, 2026 | School of Public Health Student Association (SPHSA)'s Virtual Research Day Poster Presentation

Standing Committee | 2023–Present | Chemical Safety Committee, Safety, Health, Environment & Risk Management

University of Oklahoma Health Sciences Center

Program Evaluation Committee | 2019–2022 | Graduate College

Research Committee | 2019–2022 | Interprofessional Educators and Practitioners Association (IEPA)

College Awards Committee | 2019–2021 | Hudson College of Public Health

Judge | 2019–2020 | Graduate Research Education and Technology (GREAT) Symposium, Poster presentation

Faculty Member | 2018–2022 | Industrial Hygiene Constituent Committee, Department of Occupational and Environmental Health, Hudson College of Public Health

Academic Appeals Board – Provisional Positions | 2018–2021 | Hudson College of Public Health

Western Kentucky University

Reviewer | 2017–2018 | Zuheir Sofia Endowed International Faculty Seminar (ZSEIFS) Project continuation grant (PCG), Curriculum Development/International Program Grant (CDIP), International Activities Grant (IAG), Office of International Programs

Reviewer | 2017–2018 | Faculty–Undergraduate Student Engagement (FUSE) Grant

Session Moderator | 2016–2018 | 46th – 48th Annual WKU Student Research Conference

Search Committee Member | 2016–2017 | Assistant professor position, Environmental and Occupational Health and Sciences Programs, Department of Public Health, College of Health and Human Services

Board Member | 2016–2017 | Center for Asian Studies

Guest Speaker | 2016 | International Year of South Korea

MPH/PH Program Committee | 2015–2018 | College of Health and Human Services

Appointed Committee Member | 2015–2018 | Environmental and Occupational Health and Sciences Programs, Department of Public Health, College of Health and Human Services

Committee Member | 2015–2018 | MPH curriculum, Department of Public Health, College of Health and Human Services

Faculty Committee Member | 2015–2018 | MPH/BSPH program, Department of Public Health, College of Health and Human Services

External Service

Program Peer Reviewer | 2026 | Florida Department of Health Biomedical Research Program (FLDOH) Biomedical Research Programs, Tallahassee, FL

Objective Reviewer | 2025 | NIEHS Research Opportunity Announcement (ROA) OTA-25-007: Limited Competition: The East Palestine, Ohio Train Derailment Study (OT2)

Reviewer | 2025 | The Institution of Occupational Safety and Health (IOSH), Topic: Firefighters' exposure to toxic chemicals: Barriers and facilitators to adopting decontamination practices, Leicestershire, UK

Special Awarding Judge | 2025–Present | for AIHA Gulf Coast Section, Science & Engineering Fair of Houston, Fort Bend County Epicenter, Rosenberg, TX

Ad hoc External Reviewer | 2023 | Intramural research project proposal, Respiratory Health Division, National Institute for Occupational Safety and Health (NIOSH), Morgantown, WV

Ad hoc Reviewer | 2023 | NIOSH Safety and Occupational Health Study Section, Washington DC

Reviewer | 2023–Present | Southwest Center for Occupational and Environmental Health (SWCOEH), NIOSH Education and Research Center (ERC), Pilot Projects Research (PRP) Training Program, University of Texas Health Science Center at Houston, School of Public Health, Houston, TX

Programmatic Panel Member | 2022–Present | Toxic Exposure Research Program (TERP), Congressionally Directed Medical Research Programs (CDMRP), Department of Defense, Washington DC

Reviewer | 2022 | NY/NJ NIOSH Education and Research Center (ERC), Pilot Projects Research (PRP) Training Program, Icahn School of Medicine at Mount Sinai, New York, NY

Ad hoc Reviewer | 2021 | Early Career Reviewer (ECR), NIH Center for Scientific Review (CSR) Behavioral Genetics and Epidemiology Study Section (BGES), Washington DC

Reviewer | 2017–Present | PRP, NIOSH ERC, University of Cincinnati, Cincinnati, OH

Service to Public Health

Senior Full Member | 2026–Present | Gulf Coast Center for Precision Environmental Health (GC-CPEH), NIEHS Environmental Health Sciences Core Center, Houston, TX

Member | 2026–Present | Founding Team, The Association of Occupational and Environmental Clinics (AOEC) Clinical Industrial Hygiene Network, Washington, DC

Faculty Mentor | 2026 | 2025-2026 Rice Health Policy Hackathon, Rice University Social Policy Analysis Department (Student, Katie Chin), Houston, TX

Faculty Mentor | 2026 | Alternative Spring Break (ASB) program, Rice University Center for Civic Leadership, Houston, TX (BS Bioengineering students, Sadhana Chari and Mjwi Achoh), Houston, TX

Organizing Committee | 2025 | 2025 KSEA West Gulf Coast Regional Conference (WGCRC), Houston, TX

Research consultant | 2025 | Medical surveillance protocol and optional screening using multi-omics approach for workers at waste-to-energy (WTE) plant fire, Houston, TX

Fire Research Partner | 2024–Present | Houston Fire Department Strategic Plan, Houston, TX

Academic Advocate | 2023 | The community-based challenges and solutions around advancing sustainability and environmental protection in Houston, Axios Expert Voices roundtable discussion, Houston, TX

Ad hoc Scientific Advisor | 2023 | Addressing a health concern of a permanent rock crushing facility next to a regional hospital, Harris Health System, Virtual

Ad hoc External Expert | 2023 | NFPA 1989 Standard on Breathing Air Quality for Emergency Services Respiratory Protection Subcommittee (Task Group 4 & 6), Virtual

CBRNE Safety Working Group | 2023–Present | City of Houston, Houston Health Department, Houston, TX

Invited stakeholder | 2022 | TERP, CDMRP, Department of Defense, Washington DC

Editorial Board Member | 2020–2022 | Environmental Science and Engineering Section, International Journal of Environmental Research and Public Health, Basel, Switzerland

Co-Chair | 2019–2022 | Regional Firefighter Research Advisory Group, Comanche County, OK

Co-Facilitator | 2019–2022 | Community meeting for assessing air quality near poultry feeding operations, Kansas, OK

Member | 2018–2022 | Oklahoma Firefighter Health and Safety Research Committee, Stillwater, OK

Steering Committee Member | 2016–2018 | PRP, NIOSH ERC, University of Cincinnati, Cincinnati, OH

Co-chair | 2015–2018 | Firefighter Exposure Research Steering Committee, Green River Firefighter Association, Owensboro, KY

Reviewer | 2014 | Guideline on Occupational Exposure Reconstruction (2008), Chapter 7: Develop Exposure Estimates, Fairfax, VA

Translator | 2013 | AIHA Exposure Assessment Strategies Committee, translate *IH MOD* (modeling and statistical analysis in exposure assessment) from English to Korean, Minneapolis, MN

Co-Arranger | 2012 | 3M manufacturing facility visit for University of Minnesota Industrial Hygiene Student Group, Eagan, MN

Translator | 2012 | AIHA Exposure Assessment Strategies Committee, translate *IH Stat* (statistical package for industrial hygienist) from English to Korean, Minneapolis, MN

Member | 2009 | APHA Environment Section: Student Involvement Committee, Washington DC

Campus Liaison | 2008 | APHA Student Assembly, Washington DC

Web Content Developer | 2008 | American Public Health Association Environment Section, Community Committee: Webpage, University of South Carolina, Columbia, SC

Student Ambassador | 2008–2009 | School of Public Health, University of Minnesota, Minneapolis, MN

Member | 2007–2008 | School of Public Health Committee, Academic Health Center Multicultural Society Leadership, University of Minnesota, Minneapolis, MN

Major Representative | 2006–2008 | Division of Environmental Health Science, School of Public Health Student Senate, School of Public Health, University of Minnesota, Minneapolis, MN

Administrative Leader | 2006 | Commissioner's Taskforce on HIV/AIDS Prevention, Seoul, Korea