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EDUCATION

2005/08 – 2010/06 Ph.D. Graduate Institute of Occupational Safety and Health, Kaohsiung Medical University, Taiwan
2002/08 – 2004/06 M.S. Graduate Institute of Occupational Safety and Health, Kaohsiung Medical University, Taiwan
1998/08 – 2002/06 B.A. Depart. of Public Health, Chung Shan Medical University, Taiwan

EMPLOYMENT

2024/09 - present	Assistant Research Fellow	RCEC, Academia Sinica, Taiwan
2021/08 - present	Adjunct Assistant Research Fellow	Research Center for Precision Environmental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan
2021/08 - 2024/08	Assistant Professor & Director of the Curriculum Section, Office of Academic Affairs	International Master Program of Translational Medicine, College of Engineering and Science, National United University, Miaoli, Taiwan
2023/08 - 2024/07	Assistant Professor	International Master Program of Translational Medicine, College of Engineering and Science, National United University, Miaoli, Taiwan
06/2018, 06/2019, 02/2023	Visiting Scientist (Prof Robert J Turesky Lab)	Masonic Cancer Center, University of Minnesota, USA
08/2017 – 07/2021	Assistant Research Fellow & Analytical Laboratory Manager	Research Center for Environmental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan
08/2010 – 07/2017	Post-doc Fellow, Department of Public Health (Prof Ming-Tsang Wu)	Kaohsiung Medical University, Kaohsiung, Taiwan
07/2004 – 07/2009	Research Assistant	Division of Environmental Health and

Occupational Medicine, National Health Research Institutes, Miaoli, Taiwan

HONORS & AWARDS

2023 Outstanding Research Excellence Award (Third place winner) & Outstanding Research Project Award of the College of Science and Engineering, National United University

2022 Outstanding Research Excellence Award of the College of Science and Engineering, National United University

2019 MOST 108 Shackleton Program Grant Award (Breakthrough Project)

2015 21th Distinguished Research Award Scholarship of Taiwan Public Health Association (Memory Award of Professor KP Chen)

2013 Distinguished Research Award Scholarship of International Conference of Industrial Hygiene & Occupational Medicine

2007 1st Asian Conference on Environmental Mutagens (ACEM) & 36th Annual Meeting of Japanese Environmental Mutagen Society (JEMS), Kitakyushu, Japan, Chosen as oral presentation

2007 Academic Excellence Award for Graduate Institute of Occupational Safety and Health, Kaohsiung Medical University

2006 Academic Excellence Award for Graduate Institute of Occupational Safety and Health, Kaohsiung Medical University

2006 Young Asian Environmental Epidemiology Award (YAEE Award Third Place winner) of the First East Asia Conference of International society for Environmental Epidemiology (ISEE)

2005 Distinguished Research Award (Honorable Mention) of Conference of Industrial Hygiene & Occupational Medicine

2004 Excellent Graduate Award graduate from Institute of Occupational Safety and Health, Kaohsiung Medical University

2004 Distinguished Research Award (Second place winner) of Conference of Industrial Hygiene & Occupational Medicine

2003 Academic Excellence Award for Graduate Institute of Occupational Safety and Health, Kaohsiung Medical University

RESEARCH INTEREST

My background and experience are in the field of clinical analytical chemistry and molecular epidemiology in environmental and occupational medicine. Over the past several years, my research has focused on investigating the health effects of emerging environmental pollutants using human biomonitoring from a public health perspective, and can be divided into two major areas of environmental exposure: (1) the impact of melamine and phthalates in plastic products on kidney damage; and (2) aldehyde exposure from indoor cooking oil fumes and its effect on lung health.

My research strategy primarily emphasizes the development of clinical analytical methods using mass spectrometry to measure trace levels of these environmental pollutants and their metabolites in human biological specimens. Additionally, early-stage markers are also explored to assess health risks across different population and elucidate the mechanisms behind it. The endeavor of my research activity is to provide the scientific-evidence data of important environmentally-related health issues to the public. The ultimate goals are (1) to bridge the gap in molecular epidemiological knowledge of the markers in the mechanism underlying the associations found in traditional epidemiologic studies, and (2) to prevent and mitigate exposure of such health risks to the public.

RESEARCH HIGHLIGHTS

1. **Identify major health risks of melamine and implementing mitigation strategy**
   Following the 2008 melamine-contaminated milk scandal in China, my research team identified melamine tableware as a major source of melamine exposure in daily life [Chien et al., 2011; Wu et al., 2013a]. We further demonstrated that replacing melamine tableware with stainless steel alternatives could reduce melamine exposure by ~68%, gaining recognition both domestically and internationally [Wu et al., 2015a]. We also used pragmatic intervention trials in engineering improvements in melamine tableware-manufacturing factory, resulting in a 70% reduction in workplace melamine exposure and a 58% decrease in workers' oxidative stress levels [Wu et al., 2015b; Hsu et al., 2021; Wu et al., 2024, submit]. In addition to these interventions, we first using urinary melamine concentration to establish reference values for daily tolerable intake (TDI) for vulnerable population, including individuals with kidney stones [Wang et al., 2020], chronic kidney disease [Chen et al., 2021], and pregnant women [Chen et al., 2022], aiming to reduce the risk of kidney disease linked to melamine exposure.
2. **Identify major health risks of phthalates such as Taiwan's Phthalate-tainted Food Scandal and implementing mitigation strategy**
   In response to the 2011 Taiwan's phthalate-tainted food scandal, in collaboration with Kaohsiung Medical University, we promptly established a "Phthalates Clinic for Children, PCC" [Wu et al., 2012] with the goal of immediately analyzing urinary phthalate concentrations to assess phthalate exposure in children who had consumed contaminated food, thereby providing the most accurate exposure assessment close to the time of the incident. We revealed that children under 10 years of age with higher levels of DEHP exposure had correspondingly higher concentrations of DEHP metabolites in their urine, which was associated with reduced thyroid-stimulating hormone (TSH) levels [Wu et al., 2013b]. Following our government policy and our health education, a significant reduction in urinary DEHP metabolites was observed in follow-ups conducted 6 and 44 months later, along with a decrease in oxidative stress markers in children [Wu et al., 2013c; Wu et al., 2020a]. These findings were subsequently provided to Taiwan's NHRI and the Consumers' Foundation as scientific evidence to support public health policies aimed at reducing environmental exposure to phthalates. We now continue monitoring their long-term health consequences [Tsai et al., 2022].

3. **Establish Taiwan Maternal and Infant Cohort Study (TMICS) and its food safety-related research**

   Following the 2011 phthalate-tainted food scandal, we established the Taiwan Maternal and Infant Cohort Study (TMICS), providing critical scientific evidence showing that DEHP and other phthalate exposure levels among pregnant women in Taiwan had significantly decreased, although low-level exposure remained [Wu et al., 2018]. We continued to develop a long-term database to monitor environmental exposures and health impacts on pregnant women and their offspring [Tsai et al., 2021], aiming to protect child health and prevent exposure to environmental pollutants. I also focused on different biospecimens such as placenta tissue closer to real exposure to link environmental exposures and health outcomes between the mother and developing fetus [Wu et al., 2020b]. Furthermore, the research led to practical preventive strategies, such as showing that washing hands with soap could reduce phthalate exposure on hands by 95% [Lin et al., 2017], offering a simple yet effective method to lower phthalate exposure in children.

4. **International Collaborations on adducts-related research**

   I have been working with Professor Robert J Turesky from the Masonic Cancer Center at the University of Minnesota focusing on the innovative use of biologically effective biomarkers in DNA adductomics, which is the study of adducts that uniquely form between toxins and biological molecules in humans. We have received an international R01 project funded by the US National Institutes of Health (NIH), spanning five years since 2019, entitled “DNA adductome of human bladder from tobacco exposome”. We first identified that various carcinogenic compounds in smoke condensates induced differential cytotoxicity, oxidative stress and lipid peroxidation in human bladder cell lines [Bellamri et al., 2022]; additionally, high-resolution mass spectrometry was used for the first time to provide evidence of DNA damage linked to these exposures [Konorev et al., 2023]. Furthermore, I received the most prestigious award in a two-year Shackleton Breakthrough Research Grant under our Taiwan’s Ministry of Science and Technology, and have continued collaborating with Prof Turesky on the topic “cooking oil fumes (COFs)-induced DNA damage that might contribute to non-smoking lung adenocarcinoma”.

All this research offers crucial evidence for public health policies aimed at minimizing environmental toxicants and protecting vulnerable populations from related health risks.

REPRESENTATIVE PUBLICATIONS (*: corresponding author)

1. Chien CY, **Wu CF**, Liu CC, Chen BH, Huang SP, Chou YH, Chang AW, Lee HH, Pan CH, Wu WJ, Shen JT, Chang MY, Huang CH, Shiea J, Hsieh TJ, Wu MT: High melamine migration in daily-use melamine-made tableware. J Hazard Mater 188: 350-356, 2011. (ENGINEERING, CIVIL, 2/115=1.7%; IF: 3.723)
2. Wu MT, **Wu CF**, Wu JR, Chen BH, Chen EK, Chao MC, Christiani DC, Ho CK: The public

health threat of phthalate-tainted foodstuffs in Taiwan: the policies the government implemented and the lessons we learned. Environmental Int 44: 75-79, 2012 (ENVIRONMENTAL SCIENCES, 7/205=3.4%; IF: 5.297)

3. **Wu CF**, Hsieh TJ, Chen BH, Liu CC, Wu MT: A crossover study of noodle soup consumption in melamine-made bowls and total melamine excretion in urine. JAMA Intern Med 173: 317-319, 2013a (MEDICINE, GENERAL & INTERNAL, 7/155=4.5%; IF: 10.579)
4. Wu MT, **Wu CF**, Chen BH, Chen EK, Chen YL, Shiea J, Lee WT, Chao MC, Wu JR: Intake of phthalate-tainted foods alters endocrine functions in Taiwanese children. PLOS ONE 8: e55005, 2013b (MULTIDISCIPLINARY SCIENCES, 7/56=12.5%; IF: 3.730)
5. **Wu CF**, Chen BH, Shiea J, Chen EK, Liu CK, Chao MC, Ho CH, Wu JR, Wu MT: Temporal changes of urinary oxidative metabolites of di(2-ethylhexyl)phthalate after the 2011 phthalate incident in Taiwanese children: findings of a six month follow-up. Environ Sci Technol 47: 13754-13762, 2013c (ENVIRONMENTAL SCIENCES, 7/210=3.3%; IF: 5.257)
6. **Wu CF**, Peng CY, Liu CC, Lin WY, Pan CH, Cheng CM, Hsieh HM, Hsieh TJ, Chen BH, Wu MT: Ambient melamine exposure and urinary biomarkers of early renal injury. J Am Soc Nephrol 26: 2821-2829, 2015 (UROLOGY & NEPHROLOGY, 3/78=3.8%; IF: 9.343)
7. Wu MT, **Wu CF**, Chen BH: Behavior intervention and decreased daily melamine exposure from melamine tableware. Environ Sci Technol 49: 9964-9970, 2015 (ENVIRONMENTAL SCIENCES, 10/223=4.5%; IF: 5.330)
8. Lin PI (co-first), **Wu CF (co-first)**, Kou HS, Huang TY, Shiea J, Wu MT: Soap and the removal of di-(2-ethylhexyl)phthalate from hands: N-of-1 and crossover designs. Sci Rep 7: 454, 2017 (MULTIDISCIPLINARY SCIENCES, 10/64=15.6%; IF: 4.259)
9. **Wu CF,** Chen HM, Sun CW, Chen ML, Hsieh CJ, Wang SL, Wu MT: Cohort profile: Taiwan Maternal and Infant Cohort Study (TMICS) of phthalate exposure and health risk assessment. Int J Epidemiol 47: 1047-1047j, 2018 (PUBLIC, ENVIRONMENTAL & OCCUPATIONAL HEALTH, 5/181=2.76%; IF: 8.360)
10. **Wu CF* (corresponding)**, Cheng CM, Hsu YM, Li SS, Huang CY, Chen YH, Kuo FC, Wu MT. Development of analytical method of melamine in placenta from pregnant women by isotope dilution liquid chromatography/tandem mass spectrometry. Rapid Commun Mass Spectrom 34 Suppl 1: e8599, 2020 (SPECTROSCOPY, 15/42=35.7%; IF: 2.200)
11. Wang YH (co-first), **Wu CF (co-first)**, Liu CC, Hsieh TJ, Tsai YC, Wu MT, Chen CC. A probabilistic approach for benchmark dose of melamine exposure for a markers of early renal dysfunction in patients with calcium urolithiasis. Ecotoxicol Environ Saf 200: 110741, 2020 (TOXICOLOGY, 11/92=12.0%; IF: 4.872)
12. **Wu CF**, Hsiung CA, Tsai HJ, Chen BH, Hu CW, Huang YL, Wu MT. Reverses in urinary di-2-ethylhexyl phthalate (DEHP) metabolites and biomarkers of oxidative stress in children exposed to DEHP-tainted foods in Taiwan in 2011: A 44-month follow up. Environ Pollut 266: 115204, 2020 (ENVIRONMENTAL SCIENCES, 21/265=7.92%; IF: 6.792)

13. Tsai HJ, Kuo FC, **Wu CF**, Sun CW, Hsieh CJ, Wang SL, Chen ML, Hsieh HM, Chuang YS, Wu MT*. Association between two common environmental toxicants (phthalates and melamine) and urinary markers of renal injury in the third trimester of pregnant women: The Taiwan Maternal and Infant Cohort Study (TMICS). Chemosphere 272: 129925, 2021 (ENVIRONMENTAL SCIENCES, 30/274=10.9%; IF: 7.086)
14. Chen CC, Tsai YC, Wang YH, **Wu CF**, Chiu YW, Hwang SJ, Liu CC, Hsieh TJ, Wu MT. Melamine exposure threshold in early chronic kidney disease patients- A benchmark dose approach. Environ Int 156: 106652, 2021 (ENVIRONMENTAL SCIENCES, 14/274=5.1%; IF: 9.621)
15. Hsu YM (co-first), **Wu CF (co-first)**, Huang MZ, Shiea J, Pan CH, Liu CC, Chen CC, Wang YH, Cheng CM, Wu MT. Avatar-like body imaging of dermal exposure to melamine in factory workers analyzed by ambient mass spectrometry. Chemosphere 303: 134896, 2022. (ENVIRONMENTAL SCIENCES, 33/279=11.83%; IF: 8.943)
16. Chen CC, Wang YH, **Wu CF**, Hsieh CJ, Wang SL, Chen ML, Tsai HJ, Li SS, Liu CC, Tsai YC, Hsieh TJ, Wu MT. Benchmark dose in the presence of co-exposure to melamine and di-(2-ethylhexyl) phthalate and urinary renal injury markers in pregnant women. Environ Res 215: 114187, 2022. (PUBLIC, ENVIRONMENTAL & OCCUPATIONAL HEALTH, 21/210=10.0%; IF: 8.431)
17. Bellamri M, Walmsley SJ, Brown C, Brandt K, Konorev D, Day A, **Wu CF**, Wu MT, Turesky RJ. DNA damage and oxidative stress of tobacco smoke condensate in human bladder epithelial cells. Chem Res in Toxicol 35: 1863-1880, 2022. (TOXICOLOGY, 35/94=37.23%; IF: 3.973)
18. Li SS, Chen JJ, Su MW, Lin R, Chen CC, Wang YH, Liu CC, Tsai YC, Hsieh TJ, Wu MT, **Wu CF***. Sex-specified interactive effect of melamine and DEHP on the marker of early kidney damage in the community-dwelling adults: A national population-based study from Taiwan Biobank. Ecotoxicol Environ Saf 263: 115208, 2023 (TOXICOLOGY, 6/94=6.4%; IF: 6.8)
19. Konorev D, Bellamri M, **Wu CF**, Wu MT, Turesky RJ. High-field asymmetric waveform ion mobility spectrometry analysis of carcinogenic aromatic amines in tobacco smoke with an orbitrap tribrid mass spectrometer. Chem Res in Toxicol 36: 1419-1426, 2023 (CHEMISTRY, MULTIDISCIPLINARY, 64/230=27.8%; IF: 4.1)
20. **Wu CF**, Hsu YM, Peng CY, Tsai WC, Shiea J, Pan CH, Cheng CM, Wu MT. Reduced ambient melamine exposure and its biomarkers in melamine workers: A pragmatic intervention. 2024.