

Ching-Huang Lai, Ph.D.



CORRESPONDENCE ADDRESS

School of Public Health
National Defense Medical Center (NDMC)
Room 4325, 161 Min-Chuan E. Road, Sec. 6,
Taipei, Taiwan, R.O.C.
Tel: (886) (2) 879-23100 ext 18464 or 18465
Fax: (886) (2) 879-26485
e-mail: lgh@mail.ndmctsgh.edu.tw

Specialty:

Occupational Environmental Epidemiology, Exposure Assessment

Research Description:

1. Occupational and environmental epidemiology, especially in the field traffic exhaust exposure and health effects, and the joint effects of genetic and environmental factors. Environmental monitoring, especially in the field of particulate matter (PM_{2.5} and nanoparticle) and polycyclic aromatic hydrocarbons (PAHs) samplings and analyses.
2. Biomarker, especially in the field of biomarker of exposure, e.g. blood lead, urinary 1-hydroxypyrene or 1-hydroxypyrene-glucuronide, oxidative DNA damage (8-hydroxydeoxyguanosine, 8-OHdG), comet assay and lipid peroxidation.

EDUCATION AND TRAINING

9/1997- 6/2002

Doctor of Philosophy, Department of Epidemiology, Division of Occupational & Environmental Epidemiology, Bloomberg School of Public Health, Johns Hopkins University, U.S.A.

8/1992- 7/1994

Master of Science, Division of Epidemiology, Institute of Public Health, National Defense Medical Center (NDMC), Taipei, Taiwan, R.O.C.

8/1984- 7/1988

Bachelor of Science in Public Health, Department of Public Health, National Defense Medical Center, Taipei, Taiwan, R.O.C.

PROFESSIONAL EXPERIENCES/ EMPLOYMENT HISTORY

8/2012 – present

Professor, School of Public Health, NDMC, Taipei, Taiwan, R.O.C.

8/2009 – 11/2009

Visiting Scholar, Department of Environmental Health Sciences, Bloomberg School of Public Health, Johns Hopkins University, U.S.A.

3/2006 – 8/2006

Visiting Scholar, Institute of Occupational Environmental Medicine, University of Birmingham, U.K.

2/2005-7/2012

Associate Professor, School of Public Health, NDMC, Taipei, Taiwan, R.O.C.

11/2002- 1/2005

Assistant Professor, School of Public Health, NDMC, Taipei, Taiwan, R.O.C.

1/2002 – 5/2002

Visiting Scholar, Department of Public Health, University of Helsinki, Finland

6/1996- 10/2002

Instructor, School of Public Health, NDMC, Taipei, Taiwan, R.O.C.

2/1994- 6/1996

Teaching Assistant, School of Public Health, NDMC, Taipei, Taiwan, R.O.C.

8/1994- 2/1995

SOCIETY AND ORGANIZATION MEMBERSHIP

International Society of Exposure Analysis, U.S.A.

Taiwan Public Health Association, R.O.C.

Taiwan Epidemiology Association, R.O.C.

PUBLICATIONS

JOURNAL ARTICLES

1. Chien WC*, Lai CH, Pai L, Kao S, Chung CH, Chiu YL, Tsai MS (2013) A Retrospective Population-Based Study of Hospitalization Injuries Associated with Intimate Partner Violence in Taiwan from 1997 through 2009. Journal of Family Violence, 2013, 28(6): 587-594. (SSCI IF=1.167, 16/38=42.10%)

2. Chien WC, Chung CH, Lin CH, Lai CH*. A Nationwide Evidence-based Study of Factors Associated with Hospitalizations due to Unintentional Poisoning and Poisoning Mortality in Taiwan. *International Journal of Injury Control and Safety Promotion*, 2013, 20(3): 295-301. (SSCI IF=0.786, 111/139=79.85%)
3. Chien WC*, Lai CH, Chung CH, Pai L, Chang WT. A Nation-wide Evidence-based data Analyses of Repeated Suicide Attempts. *Crisis*. 2013;34(1);22-31. (SSCI IF=1.085, 54/125=43.2%)
4. Lai CH, Chu NF, Chien WC, Chang CT, Lin MH, Wang SL, Chang CW, Chen KH, Wang WM, Liou SH, Chu CM. Androgenic Alopecia is associated with less dietary soy, higher blood vanadium and rs1160312 1 polymorphism in Taiwanese communities. *PLOS One*. 8(12): e79789.
5. Liao HY, Chung YT, Lai CH, Wang SL, Chiang HC, Li LA, Tsou TC, Li WF, Lee HL, Wu WT, Lin MH, Hsu JH, Ho JJ, Chen CJ, Shih TS, Lin CC, Liou SH. Six-month follow-up study of health markers of nanomaterials among workers handling engineered nanomaterials. *Nanotoxicology*. 2013
6. Tsai IH, Graves DE, Lai CH, Hwang LY, Pompeii LA. The association of internet use and depression among The spinal cord injury population. *Archives of physical medicine and rehabilitation* (2011 SCI IF=2.18).
7. Huang HB, Chen GW, Wang CJ, Lin YY, Liou SH, Lai CH* and Wang SL. Exposure to heavy metals and polycyclic aromatic hydrocarbons and DNA damage in Taiwanese traffic conductors. *Cancer Epidemiology Biomarkers & Prevention*. 22(1); 102-108 January 2013. (2011 SCI IF=4.123, *Public, Environmental & Occupational Health*, 11/157=7%) (DOH97-TD-G-111-032, DOH98-TD-G-111-02)
8. Chung CH, Lai CH, Chien WC, Lin CH, Cheng CH. A population-based study of inpatients admitted due to suffocation in Taiwan during 2005-2007. *Accident Analysis and Prevention* (IF 2.35, 2/83)
9. Lai CH*, Chuang CY, Liou SH, Lung SC, Loh CH, Yu DS, Strickland PT, Jaakkola JK*. Exposure to Cooking Oil Fumes and Oxidative Damages: A Longitudinal Study in Chinese Military Cooks. *Journal of Exposure Science and Environmental Epidemiology*. 2013;23,94-100. (corresponding author) (2011 Environmental Science IF 2.932 42/205) (2011 *Public, Environmental & Occupational Health* 29/157)
10. Lai CH*, Liou SH, Jaakkola JJK, Huang HB, Su TY, Strickland PT. Exposure to Polycyclic Aromatic Hydrocarbon Associated with Traffic Exhaust Increases Lipid Peroxidation and Reduces Antioxidant Capacity. *Aerosol and Air Quality Research*. 2012;12:941-950. (corresponding author) (2011 Environmental Science IF 2.827 43/205)

11. Huang HB, Lai CH, Chen GW, Lin YY, Jaakkola JJK, Liou SH, Wang SL. Traffic-related air pollution and DNA damage: A longitudinal study in Taiwanese traffic conductors. *PLoS One*. 2012;7:e37412. (IF=4.411; *Biology* 12/86=13.9%) (2011 IF 4.092 12/84=14.28)
12. Liou SH, Tsou TC, Wang SL, Li LA, Chiang HC, Li WF, Lin PP, Lai CH, Lee HL, Lin MH, Hsu JH, Chen CR, Shih TS, Liao HY, Chung YT. Epidemiological Study of Health Hazards among Engineered Nanomaterial Handling Workers. *Journal of Nanoparticle Research*. (Accepted) (IF=3.25; *MATERIALS SCIENCE, MULTIDISCIPLINARY* 35/225) (IF 3.287 *MATERIALS SCIENCE* 38/231)
13. Tsai YT, Lin FY, Lai CH, Lin YC, Lin CY, Tsai CS. On-pump Beating-heart Coronary Artery Bypass Provides Efficacious Short- and Long-term Outcomes in Hemodialysis Patients. *Nephrology Dialysis Transplantation*. (SCI, IF 3.56, 12/69) (2012) 27: 2059-2065. (SCI IF 3.396 15/73)
14. Chien WC, Lai CH, Chung CH, Lin CH. A retrospective population-based data analyses of unintentional fall mortality and hospitalisation in Taiwan during 2005-2007. *Int J Inj Contr Saf Promot*. 2012 Apr 10. [Epub ahead of print] PubMed PMID: 22486220.
15. Chien WC, Lai CH, Chung CH, Pai L, Chang WT (2012) A National-wide Evidence-based data Analyses of Repeated Suicide Attempts. *The Journal of Crisis Intervention and Suicide Prevention*, (SSCI IF=1.383, 45/120=37.50%) (Accept)
16. Lu KC, Yang HY, Lin YF, Kai SY, Lai CH, Chu CM, Wu CC, Su SL. The T-1137C polymorphism of the toll-like receptor-9 gene is associated with chronic kidney disease in a han Chinese population. *Tohoku J Exp Med*. 2011;255, 109-116.
17. Chien WC, Lin JD, Lai CH, Chung CH, Hung YC. Trends in Poisoning Hospitalization and Mortality in Taiwan, 1999-2008: a retrospective analysis. *BMC Public Health*. 2011;11;703 (SCI, IF:2.36, 41/140)
18. Chen M, Ho CW, Huang YC, Wu KY, Wu MT, Jeng HA, Chen CJ, Shih TS, Lai CH, Pan CH, Chen YM. Glycine N-Methyltransferase Affects Urinary 1-Hydroxypyrene and 8-Hydroxy-2'-Deoxyguanosine Levels After PAH Exposure. *J Occup Environ Med*. 2011;53(7):812-819. (SCI, IF 1.98, 55/140)
19. Chien WC, Lai CH, Jaakkola JJK, Pai L, Kao S, Lin JD, Hung YC (2011). Characteristics and trends with respect to unintentional pesticide poisoning mortality and hospitalization in Taiwan, 1999-2008. InTech - Open Access Publisher.
20. Lin MH, Liou SH, Chang CW, Huang IH, Strickland PT, Lai CH. An engineering intervention resulting in improvement in lung function and change in urinary 8-hydroxydeoxyguanosine among foundry workers in Taiwan. *Int Arch Occup Environ Health*. 2011;84:175-183. (58/142=0.41, IF=1.91) (64/157=0.4076 IF=1.889)
21. Chu CM, Chien WC, Lai CH, Bludau HB, Tschai HJ, Pai L, Hsieh SM, Chu NF, Klar A, Haux R,

- Wetter T (2009) A Bayesian Expert System for Clinical Detecting Coronary Artery Disease. *Journal of Medical Sciences*. 29(4): 187-194.
22. Tsai YT, Chang LC, Lin YF, Tsai CS, Lai CH, Chen JS. Protamine-associated hypotension in patients on hemodialysis: retrospective study and prevalence of antiprotamine antibodies. *Clin Nephrol*. 2009;72(2):122-8.
 23. Tsao YT, Hsu YJ, Chu NF, Lai CH, Chiu JS, Lin SH. Association of plasma adiponectin and cardiovascular risk profiles in nondiabetic uremic patients on peritoneal dialysis. *J Nephrol*. 2008 ;21(5):744-52. (SCI)
 24. Shih TS, Lai CH, Hung HF, Ku SY, Tsai PJ, Yang T, Liou SH, Loh CH, Jaakkola JJK. Exposure to elemental and organic carbon among highway toll workers in Taipei. *Sci Total Environ*. 2008 Sep 1;402(2-3):163-70. (2011 Environmental Science IF 3.286 29/205)
 25. Liou SH, Sun CA, Tung HJ, Lai CH, Chung TC, Chou Y-C, Yang T. Effects of anticoagulants and duration of storage on blood lead levels. *Taiwan J Public Health*. 2007;26(4):254-60.
 26. Wu MH, Chou YC, Yu JC, Yu CP, Wu CC, Chu CM, Yang T, Lai CH, Hsieh CY, You SL, Chen CJ, Sun CA. Hormonal and body-size factors in relation to breast cancer risk: a prospective study of 11,889 women in a low-incidence area. *Ann Epidemiol*. 2006;16(3):223-9.
 27. Lai CH, Liou SH, Lin HC, Shih TS, Tsai PJ, Chen JS, Yang T, Jaakkola JJK, Strickland PT. Exposure to traffic exhausts and oxidative DNA damage. *Occup Environ Med*. 2005;62(4): 216-22.
 28. Luo ST, Chou YC, Wu MH, Yang T, Chu CM, Lai CH, Hsieh CY, You SL, Chen CJ, Sun CA. Epidemiological correlates of impaired liver function in Taiwan, an area endemic for chronic liver disease. *Med Sci*. 2005; 25(2):71-76.
 29. Chou YC, Wu MH, Wu CC, Yang T, Chu CM, Lai CH, Hsieh CY, You SL, Chen CJ, Sun CA. Total urinary isothiocyanates, glutathione S-transferase M1 genotypes, and lung cancer risk: a preliminary nested case-control study in Taiwan. *J Med Sci*. 2005; 25(1):21-25.
 30. Lai CH, Liou SH, Shih TS, Tsai PJ, Chen HL, Buckley T, Strickland P, Jaakkola JJK. Urinary 1-hydroxypyrene-glucuronide as a biomarker of exposure to traffic exhausts among Highway Toll Station Workers. *Arch Environ Health* 2004; 59(2): 61-69. (SCI)
 31. Lai CH, Liou SH, Shih TS, Tsai PJ, Chen HL, Buckley T, Strickland P, Jaakkola JJK. Exposure to fine particulate matter (PM_{2.5}) among Highway Toll Workers in Taipei. *Arch Environ Health* 2004; 59(3):138-48. (SCI)
 32. Tsai PJ, Shih TS, Chen SL, Lee WJ, Lai CH, Liou SH. Using urinary 1-Hydroxypyrene as an indicator for assessing the exposures of booth attendants of a Highway Toll Station to Polycyclic Aromatic Hydrocarbons. *Environ Sci & Tech*. 2004;38:56-61. (SCI)
 33. Tsai PJ, Shih TS, Chen SL, Lee WJ, Lai CH, Liou SH. Assessing and Predicting the Exposures of Polycyclic Aromatic Hydrocarbons (PAHs) and Their Carcinogenic Potencies from Vehicle Engine

- Exhausts to Highway Toll Station Workers. *Atmospheric Environ.* 2004; 38:333-343. (SCI)
34. Lai CH, Liou SH, Shih TS, Tsai PJ, Chen HL, Buckley T, Strickland P, Jaakkola JJK. Concentration of pyrene in relation to aerosol size distribution in traffic exhausts. *Arch Environ Health.* 2003; 58(10):624-32.
 35. Tsai PJ, Lee CC, Chen MR, Shih TS, Lai CH, Liou SH. Predicting the contents of BTEX and MTBE for the three types of tollbooth at a highway toll station via the direct and indirect approaches. *Atmospheric Environ* 36: 5961–5969; 2002. (SCI)
 36. Tsai PJ, Shih TS, Chen HL, Lee WJ, Lai CH, Liou SH. Assessing the Contents of Polycyclic Aromatic Hydrocarbons in the Tollbooths of a Highway Toll Stations via Direct and Indirect Approaches. *Environ Sci Tech.* 36(22): 4748- 4753; 2002. (SCI)
 37. Lee CC, Chen MR, Shih TS, Tsai PJ, Lai CH, Liou SH. Exposure assessment on volatile organic compounds (VOCs) for tollway station workers via direct and indirect approaches. *J Occup Health.* 2002; 44:294-300. (SCI)
 38. Chen MR, Lee CC, Tsai PJ , Shih TS, Liou SH, Lai CH. Characteristics and contents of Volatile Organic Compounds in the atmosphere of a toll station. *Institute of Occupational Safety and Health Journal* 2003;11: 179-187. (In Chinese)
 39. Yang T, Lai CH, Shyr JC, Wu DM, Shen MH, Lin CC, Liou SH. Assessment the relationship between blood lead levels and health effects in shipbuilding employees. *Chinese Journal of Occupational Medicine.* 2003; 10(3):117-130. (In Chinese)
 40. Hsieh SC, Yang T, Lai CH, Ho SF, Loh CH, Liou SH. Longitudinal changes in pulmonary function and cotton dust exposure in cotton textile workers- a three years follow-up study. *Chinese Journal of Occupational Medicine.* 2004; 11(1):11-32. (In Chinese)
 41. Lai CH, Liou SH, Yang T, Lin CL. Survey of Occupational Lead Exposure Among a Specific Group of Workers. *Chinese Journal of Occupational Medicine.* 1995; 2(3):165-177. (In Chinese)
 42. Yang T, Liou SH, Lin C, Lai CH. Epidemiological Survey of the Blood Lead Levels of the Workers from a PVC Stabilizers Manufactory in Taoyuan. *Chinese Journal of Occupational Medicine.* 1996; 3(3):133-145. (In Chinese)
 43. Sun CH, Chang YC., Lai CH, Wu DM, Liou SH. Assessment of test consistency of blood lead levels: the experience from a study on blood lead levels in Taiwanese population. *Chinese J Public Health.* 1998; 17(2): 103-110. (In Chinese)
 44. Sun CA, Lai CH, Wu DM. Variability of biological measurements in molecular epidemiology: intra-individual biological variability and test reliability. *J Med Sci* 1997; 17: 195-204.
 45. Yang T, Wu TN, Hsu SW, Lai CH, Ko KN, Liou SH. Blood lead levels of primary-school children in Penghu county, Taiwan: distribution and influencing factors. *Int Arch Occup Environ Health.* 2002; 75: 528-534. (SCI)

46. Chen HM, Yang T, Lai CH, Liu MC, Cheng HC, Liou SH. The evaluation of blood and ambient air lead concentrations among highway toll workers. *Chinese Journal of Occupational Medicine*. 2002; 9(4):231-261. (In Chinese)

INTERNATIONAL CONGRESS ABSTRACT

1. Lai CH, Wang YJ, Liou SH. Exposure to Indium Tin Oxide and health effects among Indium Tin Oxide Manufacturing Workers. 6th International Symposium on Nanotechnology, Occupational and Environmental Health. Nagoya, Japan. Oct 28-31, 2013.
2. Liu MW, Hsieh CH, Lung SC, Liou SH, Lai CH. Exposure to Diesel Exhaust and Oxidative Lipid Damage in Military Vehicle Maintenance Technicians. 22nd Annual Meeting of The International Society of Exposure Science October 28- November 1, 2012, Seattle, Washington
3. Lai CH, Lin HY, Lin FG, Lin CC. Sleep quality and associated factors of radar monitoring workers. World Sleep 2011, Kyoto, International conference Center, Oct 16 to Oct 20, 2011, Kyoto, Japan.
4. Lai CH, Chuang CY, Jaakkola JK, Loh CH, Yu DS, Lung SC, Strickland PT, Liou SH. Oil fume exposure and oxidative DNA damage. 2010 EPICOH-MEDICHEM Taipei, Taiwan, ROC. 21-25 April, 2010.
5. Chen GW, Lee SY, Lai CH, Wang CH, Wang CJ, Liu YH, Lin YY, Shih TS and Wang SL. Effect of airborne fine particulates (PM_{2.5}) exposure on oxidative stress DNA adducts and the carcinogenic metals in traffic policemen in Taiwan. 2010 EPICOH-MEDICHEM Taipei, Taiwan, ROC. 21-25 April, 2010.
6. Lai CH, Lin MH, Loh CH, Chen CJ, Jaakkola JJK, Liou SH. Investigation of health effects in nanotechnological industry. Twentieth Conference of the International Society for Environmental Epidemiology (Joint with ISEA) Pasadena, California, USA - October 12-16, 2008
7. Lai CH, Loh CH, Liou SH, Lin MH, Chen CJ. Airborne carbon nanotube concentrations at university research centers. International Occupational Hygiene Association. 7th International Scientific Conference. Taipei, Taiwan. February 18-22, 2008.
8. Lai CH, LoH CH, Liou SH, Strickland P, Jaakkola JJK. Exposure to traffic exhausts increases lipid peroxidation and reduces antioxidant capacity: a possible link to acute cardiovascular effects. The Eleventh International Congress of Toxicology (ICT XI) Jul 15-19, 2007, Montreal, Canada.
9. Lai CH, Liou SH, Strickland P, Jaakkola JJK. Exposure to traffic exhausts and oxidative stress. The International Conference on Environmental Epidemiology & Exposure 2 > 6 September 2006, la Villette Conference Centre, Paris.
10. Lai CH, Hung HF, Gu SY, Loh CH, Liou SH, Jaakkola JJK. Exposure to Carbonaceous Species among Highway Toll Workers in Taipei The 15th Annual Conference of the International Society of Exposure Analysis, October. 30- November 3, 2005, Tucson, AZ, USA.

11. Lai CH, Gu SY, Loh CH, Yang T, Liou SH. 8-Hydroxydeoxyguanosine as a biomarker of psychological stress in fire fighters. The 2nd ICOH International Conference on Psychosocial Factors at Work, August 23-26, 2005, Okayama, Japan.
12. Liou SH, Lai CH. The impact of workshift rotation on psychosocial health among guard workers. The 2nd ICOH International Conference on Psychosocial Factors at Work, August 23-26, 2005, Okayama, Japan.
13. Lai CH, Liou SH, Lin HC, Shih TS, Tsai PJ, Chen JS, Yang T, Jaakkola JJK, Strickland PT. Exposure to traffic exhausts and oxidative DNA damage. The 14th Annual Conference of the International Society of Exposure Analysis, October. 17-21, 2004, Philadelphia, PA, USA.
14. Lai CH, Liou SH, Shih TS, Tsai PJ, Chen HL, Buckley T, Strickland P, Jaakkola JJK. Urinary 1-hydroxypyrene-glucuronide as a biomarker of exposure to traffic exhausts among Highway Toll Station Workers. The 13th Annual Conference of the International Society of Exposure Analysis, September 21-25, 2003, Stresa, Italy.
15. Lai CH, Liou SH, Shih TS, Tsai PY, Chen HL, Buckley T, Strickland P, Jaakkola JJK. Traffic density and fine particulate matter concentrations in highway toll station workers in Taipei. The Fourteenth Annual Meeting of the International Society for Environmental Epidemiology, August 11-15, 2002, Vancouver, Canada. *Epidemiology* 2002;13:S220.

DOCTORAL THESIS

1-hydroxypyrene-glucuronide as a biomarker of exposure to traffic exhausts

Johns Hopkins University, School of Hygiene and Public Health, Baltimore, MD, USA., 2002

RESEARCH GRANT PARTICIPATION

Research Topic	Position:	Study Period	Sponsor	Amount of Grant
海軍艦艇官兵睡眠品質探討 Determinants of Sleep Quality in Naval Soldiers of Surface Vessels	PI	2014/01~ 2014/12	Ministry of National Defense R.O.C, (MND)	
微粒與鎳共同暴露對胰島素抗性之關係探討 Effect of Co-Exposure to Nickel and particulate Matter on Insulin Resistance	PI	2013/08~ 2014/07	National Science Council (NSC)	
細懸浮微粒(PM2.5)流行病學調查研究 Epidemiological Study of Health Effects Attributed to Fine particles	CO-PI	2013/06~ 2014/05	Environmental Protection Administration (EPA)	
由投保金額與住院醫療利用探討台灣地區健康不平等現況 Investigating the Status of Health Inequality in Taiwan by the Insured Amount and Utilization of Inpatient Health Care	Professor	2013/03~ 2013/09	Department of Health(DOH)	
國軍 102 年菸害暨檳榔防制計畫 2013 Tobacco and Betel Nut Prevention Plan among Military	PI	2013/02~ 2013/12	MND	

Research Topic	Position:	Study Period	Sponsor	Amount of Grant
國軍鑄造作業勞工二氧化矽暴露與氧化性傷害評估 Exposure to Free Silica and Oxidative Stress among Military Foundry Workers	PI	2013/01~ 2013/12	MND	
國軍 101 年菸害暨檳榔防制計畫 2012 Tobacco and Betel Nut Prevention Plan among Military	PI	2012/02~ 2012/12	MND	
空氣汙染物與自閉症之關係回朔性研究 (生科所博士班學生蘇庭耀) Air Pollutants and the Risk of Autism: A Population-Based Longitudinal Study	Professor	2012/03~ 2012/09	Department of Health (DOH)	
國軍飛行器發動機維修人員多環芳香化合物之暴露研究 Polycyclic Aromatic Hydrocarbon (PAHs) Exposure among Aircraft Maintenance Workers	PI	2012/01~ 2012/12	MND	
國軍車輛維修作業人員廢氣暴露與脂質氧化傷害 I-24 Exposure to Diesel Exhaust and Oxidative Lipid Damage in Military Vehicle Maintenance Technicians	PI	2011/01~ 2011/12	MND	

Research Topic	Position:	Study Period	Sponsor	Amount of Grant
消防作業人員流行病學調查 An Epidemiological Investigation of Occupational Health among Fire Fighters	PI	2011/06~ 2011/12	Institute of Occupational Safety and Health (IOSH)	
雷達作業人員睡眠品質調查 Sleep Quality and Associated Factors of Radar Monitoring Workers	PI	2010/01~ 2010/12	MND	
國軍食勤人員油煙暴露與脂質氧化傷害 Exposure to Cooking Oil Fumes and Lipid Peroxidation in Military Cooks	PI	2010/01~ 2010/12	MND	
國軍焊接作業勞工錳暴露及神經效應 Manganese Exposure and Neurological Effects among Military Welding Workers	PI	2010/01~ 2010/12	MND	
台中縣海線地區環境與健康評估計畫 Study of Environmental and Health Assessment in Coastal Area of Taichung County	PI	2008/10~ 2009/09	Taichung City Government	

Research Topic	Position:	Study Period	Sponsor	Amount of Grant
台灣與肺癌相關之危險因子：空氣中粒徑小於 2.5 μ m 微粒(PM2.5) 的化學特性及其毒性研究 Chemical and Toxicological Characterization of Airborne Fine Particulates (PM2.5) as A Risk Factor Associated with Lung Cancer in Taiwan	Researcher	2007/08	Department of Health(DOH)	
Assessment of oxidative stress exposure to free silica among foundry workers	Co-PI	2005/08/01 ~ 2005/12/31	Institute of Occupational Safety and Health (IOSH)	
Exposure to traffic exhausts and oxidative stress (95-2314-B-016-010-)	PI	2006/8/1 ~ 2007/7/31	National Science Council (NSC)	
Exposure to traffic exhausts and oxidative stress (1/2)(94-2314-B-016-061-)	PI	2005/8/1 ~ 2006/7/31	NSC	
Assessment of oxidative stress exposure to free silica among incinerator demolition workers	PI	2004/02/01 ~ 2004/12/31	IOSH	
Assessment of exposure to reactive oxygen species in traffic exhaust particles among highway toll workers (2/2)(93-2320-B-016-009-)	PI	2004/8/1~ 2005/8/31	NSC	

Research Topic	Position:	Study Period	Sponsor	Amount of Grant
Assessment of exposure to reactive oxygen species in traffic exhaust particles among highway toll workers (1/2)(92-2320-B-016-062-)	PI	2003/8/1~ 2004/7/31	NSC	
Assessment of exposure to toxious mixture during firefighting by biomonitoring NSC 91-2320-B-016-036	Researcher	2002/08/01~ 2005/07/01	NSC	
Evaluation of urinary 1-hydroxypyrene-glucuronide as a biomarker for exposure to fine particulate NSC89-2320-B-016-053 NSC89-2314-B-016-116	Researcher	1999/08/01 ~ 2002/07/31	NSC	

TEACHING EXPERIENCE

List of courses developed as the principle instructor:

Principles of Epidemiology, School of Public Health, National Defense Medical Center, Taiwan, ROC.

Occupational Epidemiology, School of Public Health, National Defense Medical Center, Taiwan, ROC.

Environmental Toxicology, School of Public Health, National Defense Medical Center, Taiwan, ROC.

Occupational Epidemiology, School of Public Health, National Defense Medical Center, Taiwan, ROC.