Curriculum Vitae

QI YAN

DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCES

MAILMAN SCHOOL OF PUBLIC HEALTH, COLUMBIA UNIVERSITY

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EDUCATION

UCLA, Fielding School of Public Health   Los Angeles, CA

Ph.D., 2015 – 2021 (GPA: 3.8)

Peking University, School of Life Sciences   Beijing, China

Bachelor of Arts in Biological Science, 2011 – 2015 (GPA: 3.4)

MAJOR RESEARCH EXPERIENCE

Columbia University, New York, NY

Postdoctoral Research Scientist, 2021 – present

UCLA, Los Angeles, CA

Ph.D., 2015 – present

- *Multi-omics and environmental health*

Dissertation: "Multi-omic Assessment of Air Pollution and Pesticides Exposure in California"

Committee: Beate Ritz (Chair), Steve Horvath, Alexandra Binder, Roch Nianogo

  o Utilized metabolomics to investigate the maternal serum metabolome perturbations in response to traffic-related air pollutions

  o Identified intermediate metabolites or metabolic pathways associated with air pollutants and autism

  o Integrated metabolomics with epigenomics to identify comprehensive molecular signatures of organophosphates pesticide exposure

- *Epigenetic aging clock*

Employed multi-omics approaches to investigate the potential biological mechanisms behind epigenetic aging clocks

  o Systematically investigated the relationship between the accumulation of stochastic epigenetic mutations, a measurement of the epigenetic maintenance system, and epigenetic age acceleration calculated using various epigenetic aging clocks

  o Utilized metabolomics to delineate a comprehensive picture of the shared and contrasting metabolic features captured across various epigenetic aging clocks

- *Other epidemiological studies*

  o Analyzed association between maternal smoking before/during pregnancy and autism with sibling comparison design

  o Assessed whether autism is associated with traffic-related air pollution in pregnancy and during vulnerable periods of fetal development

Peking University, Beijing, China

B.A., 2011 – 2015

- *Cognitive neuroscience*

  o Utilized Stroop and Simon tests to investigate how Reward dominates at the pre-response level of conflict control

PUBLICATIONS (Underline denotes First Author/Co-first Author):

1. **Yan, Q.**; Paul, K. C.; Walker, D. I.; Furlong, M. A.; Del Rosario, I.; Yu, Y.; Zhang, K.; Cockburn, M. G.; Jones, D. P.; Ritz, B. R., High-Resolution Metabolomic Assessment of Pesticide Exposure in Central Valley, California. Chemical Research in Toxicology 2021.

2. Kim, J. H.; **Yan, Q.**; Uppal, K.; Cui, X.; Ling, C.; Walker, D. I.; Heck, J. E.; von Ehrenstein, O. S.; Jones, D. P.; Ritz, B., Metabolomics analysis of maternal serum exposed to high air pollution during pregnancy and risk of autism spectrum disorder in offspring. Environ Res 2021, 110823.

3. **Yan, Q.**; Paul, K. C.; Lu, A. T.; Kusters, C.; Binder, A. M.; Horvath, S.; Ritz, B., Epigenetic mutation load is weakly correlated with epigenetic age acceleration. Aging 2020, 12.

4. von Ehrenstein, O. S.; Cui, X.; **Yan, Q.**; Aralis, H.; Ritz, B., von Ehrenstein et. al respond to "Sibling comparison designs, are they worth the effort?". American Journal of Epidemiology 2020.

5. von Ehrenstein, O. S.; Cui, X.; **Yan, Q.**; Aralis, H.; Ritz, B., Maternal Prenatal Smoking and Autism Spectrum Disorder in Offspring: a California Statewide Cohort and Sibling Study. American Journal of Epidemiology 2020.

6. Ritz, B.; **Yan, Q.**; Uppal, K.; Liew, Z.; Cui, X.; Ling, C.; Inoue, K.; von Ehrenstein, O.; Walker, D. I.; Jones, D. P., Untargeted Metabolomics Screen of Mid-pregnancy Maternal Serum and Autism in Offspring. Autism Res 2020.

7. Inoue, K.; **Yan, Q.**; Arah, O. A.; Paul, K.; Walker, D. I.; Jones, D. P.; Ritz, B., Air Pollution and Adverse Pregnancy and Birth Outcomes: Mediation Analysis Using Metabolomic Profiles. Current Environmental Health Reports 2020, 7 (3), 231-242.

8. Inoue, K.; Mayeda, E. R.; Paul, K. C.; Shih, I.-F.; **Yan, Q.**; Yu, Y.; Haan, M.; Ritz, B. R., The Association of Physical Activity with Cardiovascular Events and Mortality Mediated by Diabetes in Older Mexican Americans. American Journal of Epidemiology 2020.

9. Furlong, M. A.; Paul, K. C.; **Yan, Q.**; Chuang, Y.-H.; Cockburn, M. G.; Bronstein, J. M.; Horvath, S.; Ritz, B., An epigenome-wide association study of ambient pyrethroid pesticide exposures in California's central valley. International Journal of Hygiene and Environmental Health 2020, 229, 113569.

10. **Yan, Q.**; Liew, Z.; Uppal, K.; Cui, X.; Ling, C.; Heck, J. E.; von Ehrenstein, O. S.; Wu, J.; Walker, D. I.; Jones, D. P., Maternal serum metabolome and traffic-related air pollution exposure in pregnancy. Environ Int 2019, 130, 104872.

11. Tang, M.; Xu, C.; Chen, K.; **Yan, Q.**; Mao, W.; Liu, W.; Ritz, B., Hexachlorocyclohexane exposure alters the microbiome of colostrum in Chinese breastfeeding mothers. Environmental Pollution 2019, 254, 112900.

12. Ritz, B.; Liew, Z.; **Yan, Q.**; Cui, X.; Virk, J.; Ketzel, M.; Raaschou-Nielsen, O., Air pollution and Autism in Denmark. Environ Epidemiol 2018, 2 (4).

SELECTED PRESENTATIONS

Yan, Q.; Paul, K.; Walker, D.; Ritz, B. (2020, August). Metabolome-wide association study of organophosphate pesticide exposure. Poster session presented at the 32nd Annual Conference of the International Society for Environmental Epidemiology (ISEE 2020).

Yan, Q.; Paul, K.; Walker, D.; Jones, D.; Ritz, B., (2019, August). Metabolomic profiling of mid-pregnancy exposed to air pollution and autism in offspring. Poster session presented at the 31st Annual Conference of the International Society for Environmental Epidemiology (ISEE 2019).

Yan, Q.; Uppal, K.; Heck, J.; Walker, D.; Jones, D.; Ritz, B., (2018, June). Metabolomic assessment of exposure to ambient air pollution. Poster session presented at the 14th International Conference of the Metabolomics Society (Metabolomics 2018).

Yan, Q.; Uppal, K.; Heck, J.; Walker, D.; Jones, D.; Ritz, B., (2018, June). Untargeted Metabolomics Screen of Mid-pregnancy Maternal Serum and Autism in Offspring. Poster session presented at the Annual Conference of the Society of Epidemiologic Research (SER 2018).

HONORS AND AWARDS

2019	Fielding School of Public Health Dissertation Year Fellowship
2018	UCLA Department of Epidemiology Student Fellowship
2017	Burroughs Wellcome Fund-Chronic Diseases Inter-school Training Pro-gram (BWF-CHIP) Fellowship
2017	Center for Occupational & Environmental Health (COEH) Student Project Award

COURSE PROJECTS

Introduction to Statistical Modeling and Data Mining

- Conducted multiple data mining and machine learning approaches, including random forest, partial least squares discriminant analysis, Principal component analysis, and support vector machine on data from Kaggle.

Computational Algorithms

- Applied tools for parallel computing, cloud computing, linear programming, quadratic programming, (mixed) integer programming, dynamic programming, EM/MM algorithms.

Multivariate Analysis with Latent Variables

- Utilized the structural equation model to investigate the relationship between social factors and autism.

Machine Learning for Bioinformatics

- Applied machine learning algorithms including K-means clustering, elastic net, SVM, random forest, neural network to solve real-life problems in the bioinformatics field.

PROFESSIONAL EXPERIENCE

Office of Epidemiology, Chinese Center for Disease Control and Prevention (CDC)   **Beijing, China**

Internship   *2014.7 – 2014.9*

- Participated in one project studying the risk factors for Work-Related Musculoskeletal Disorders among greenhouse farmworkers and mainly in charge of the data analyses and the database's establishment.

SL Pharmaceutical Co., Ltd, Technology Center   **Beijing, China**

Internship   *2013.12 – 2014.3*

- Collected and analyzed experiment data, and obtained the pharmacodynamics result of the experimental drug.

SERVICE EXPERIENCE

Volunteer for the Center for Occupational & Environmental Health symposium   2017.6

Volunteer at Beijing Autism Education Center and taught children with autism weekly   2014.11

Conducted a survey on coal workers with pneumoconiosis in Shanxi province, and organized the work for treating the pneumoconiosis patients.   2013.7

SKILLS

Computer Skill: R, Python, SAS, STATA, SPSS, LaTex, MySQL

Experimental Skill: LC/MS

Language: English, Mandarin