
BIOGRAPHICAL SKETCH

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NAME: Laumbach, Robert, John

eRA COMMONS USER NAME (credential, e.g., agency login): LAUMBACH

POSITION TITLE: Associate Professor of Environmental and Occupational Health and Justice

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
The Cooper Union School of Art, New York, NY			Program in Fine Arts
Rutgers University, Cook College, New Brunswick, NJ	BS	2/84	Environmental Science
Rutgers-Robert Wood Johnson Medical School, New Brunswick, NJ	MD	5/97	Medicine
Columbia University School of Public Health, New York, NY	MPH	2/92	Occupational & Environmental Health
Rutgers-Robert Wood Johnson Medical School, New Brunswick, NJ	Resident/ Chief Resident	1997-2000	Family Medicine
Rutgers-Robert Wood Johnson Medical School, New Brunswick, NJ	Fellow	2000-2001	Occupational Medicine

A. Personal Statement

I am very excited to continue to contribute to the mission of the Cancer Institute of New Jersey to increase awareness and prevention of cancer in New Jersey and beyond as a member of the Cancer Prevention and Control Program. I am a physician-scientist conducting research to assess causal associations between environmental and occupational exposure to chemical agents and adverse health outcomes including cancer. Much of my recent research has focused on inhalation exposure to diesel engine emissions, a known human carcinogen, and exposure to per- and polyfluoroalkyl substances (PFAS), probable human carcinogens, in contaminated drinking water. These are two of the environmental chemical exposures of most concern in New Jersey and across the US and the world at this time. I am also a co-investigator on New Jersey Firefighter Cancer Assessment and Prevention Study (J. Graber PI) that focuses on assessing and reducing risk factors for cancer among volunteer firefighters. I use community-engaged research approaches, such as community engaged participatory research (CBPR) and community (a.k.a. "citizen") science to encourage active participation of people with diverse perspectives to assess causal pathways and develop interventions to reduce exposure and risk from environmental chemical exposures. I direct the Community Engagement Core of our NIEHS-funded Center for Environmental Exposure and Disease (CEED), which provides ongoing support for engaging community members and decision-makers in environmental public health research. I look forward to increased collaboration and synergies between CINJ and CEED, as we have unique and complementary roles in merging cutting-edge science with the resources of New Jersey's diverse and vibrant, but struggling, post-industrial communities as they seek to move beyond legacy environmental challenges. At CEED we have developed strong relationships with state and local government and regulators that have enabled us to leverage this work to inform policy to reduce the cumulative impacts of multiple environmental stressors in overburdened communities, including recent a groundbreaking state environmental justice law and regulations.

B. Positions, Scientific Appointments, and Honors

Positions and Employment

2015-	Associate Professor, Department of Environmental and Occupational Health and Justice, Rutgers-School of Public Health
2012- 2015	Associate Professor, Department of Environmental and Occupational Medicine, Rutgers-Robert Wood Johnson Medical School
2002-2012	Assistant Professor (joint), Department of Environmental and Occupational Health, Rutgers-School of Public Health
2001-2012	Assistant Professor (joint), Department of Family Medicine, Rutgers- Robert Wood Johnson Medical School
2001-2012	Assistant Professor, Department of Environmental and Occupational Medicine, Rutgers-Robert Wood Johnson Medical School
2000-2001	Postdoctoral Fellow in Occupational and Environmental Medicine, (EOHSI)
1999-2000	Chief Resident, Rutgers-Robert Wood Johnson Family Medicine Residency Program
1997-2000	Resident, Rutgers-Robert Wood Johnson Family Medicine Residency Program.
1989-1993	Corporate Safety, Health and Environmental Manager, Cambrex Corp., E. Rutherford, NJ.
1988-1989	Industrial Hygienist, Lederle Laboratories, Pearl River, NY.
1985-1988	Sanitary Inspector, Manalapan and Matawan Regional Health Departments, NJ.

Other Experience and Professional Memberships

2010-present	Member, NJ Department of Environmental Protection Science Advisory Board
2009-present	Member, NJ Clean Air Council
2002-present	Member, American Thoracic Society (ATS)
2001-present	Member, American College of Occupational & Environmental Medicine (ACOEM)
1999-present	Member, American Industrial Hygiene Association, NJ Chapter
1993-present	Certified Industrial Hygienist, American Board of Industrial Hygiene

Honors

2000	Occupational Physicians Scholarship Fund Award
1999	Frank C. Snope Excellence Award for UMDNJ-RWJMS Family Medicine Residents
1997	Alpha Omega Alpha Medical Honor Society
1997	Appleton and Lange Outstanding Medical Student Award
1983	Tri Beta National Biological Sciences Honor Society

C. Contributions to Science

1. My early work focused on characterizing biological response indicators of exposures to complex, real-world chemical mixtures using controlled exposure experiments with human subjects. This work addressed the challenging problem of symptomatic responses to complex mixtures of low-level chemical exposures in indoor spaces, including "sick building syndrome." In addition to chemical exposures, this work addressed host factors that might influence pathophysiological and symptomatic responses to chemicals including personality characteristics and psychosocial stressors. Hypotheses included the role of indoor air chemistry, especially reactions between ozone and volatile organic compounds that produce toxic reaction products such as free radical species and particles. In addition to human studies, these studies included parallel translational studies with sensitive rodent models. The results highlighted the importance of considering host factors and co-exposures in assessing risk of illness from low-level chemical exposures.
 - a. Laumbach, R.J., Fiedler, N., Gardner, C.R., Laskin, D.L., Fan, Z.H., Zhang, J., Weschler, C.J., Liou, P.J., Devlin, R.B., Ohman-Strickland P, Kelly-McNeil K, & Kipen HM. (2005) Nasal effects of a mixture of volatile organic compounds and their ozone oxidation products. *Journal of Occupational and Environmental Medicine*, 47, 1182-89. PMID: 16282880.

- b. Sunil V, Laumbach RJ, Patel K, Turpin BJ, Lim HJ, Kipen HM, Laskin J, & Laskin DL. (2007) Pulmonary Effects of Inhaled Limonene Ozone Reaction Products in Elderly Rats. *Toxicology and Applied Pharmacology*, 222(2), 211-20. PMID: PMC2772190.
2. My work then moved on to traffic-related air pollution, another complex mixture of particles and gases encountered in every-day life for which epidemiological evidence suggested that short-term exposures may trigger serious acute pulmonary and cardiovascular health outcomes. Recognizing that acute psychosocial stress tends to occur in temporal and spatial proximity to exposures to traffic-related air pollution (TRAP) in urban areas and while in traffic, we set out to simulate diesel exhaust exposures in controlled exposure studies, with and without an added psychological stressor. We tested the hypothesis that exposures to TRAP and acute psychological stress have additive or synergistic effects on acute phase responses that lead to prothrombotic effects and symptomatic sickness responses. We developed a system to deliver and control diluted diesel exhaust exposure conditions. We could not detect measurable effects on systemic biomarkers of the acute phase response, but demonstrated effects of diesel exhaust on airway hyperreactivity in young persons with asthma and we discovered that decreased proteasome activity may be a novel mechanism for systemic effects of particulate matter inhalation.
 - a. Laumbach, R., Tong, J., Zhang, L., Ohman-Strickland, P., Stern, A., Fiedler, N., Kipen, H., Kelly-McNeil, K., Liou, P., & Zhang, J. (2009) Quantification of 1-aminopyrene in human urine after a controlled exposure to diesel exhaust. *Journal of Environmental Monitoring*, 11(1), 153-159. PMID: PMC4049318.
 - c. Laumbach, R.J., Kipen, H.M., Kelly-McNeil, K., Zhang, L., Liou, P.J., Ohman-Strickland, P., Gong, J., Kusnecov, A., & Fiedler, N. (2011) Sickness response symptoms among healthy volunteers after controlled exposures to diesel exhaust and psychological stress. *Environmental Health Perspectives*, 119(7), 945-950. PMID: PMC3223003
 - d. Sarkar, S., Song, Y., Sarkar, S., Kipen, H.M., Laumbach, R.J., Zhang, J., Ohman-Strickland, P.A., Schwander, S. (2012) Suppression of the NF- κ B pathway by diesel exhaust particles impairs human antimycobacterial immunity. *Journal of Immunology*, 188(6), 2778-2793. PMID: PMC3293992
 - e. Hussain, S., Laumbach, R., Coleman, J., Youssef, H., Kelly-McNeil, K., Ohman-Strickland, P., Zhang, J., & Kipen, H. (2012) Controlled exposure to diesel exhaust causes nitrite in exhaled breath condensate among subjects with asthma. *Journal of Occupational and Environmental Medicine*, 54(10), 1186-1191. PMID: PMC4443752.
 3. Earlier work in controlled exposure studies of diesel exhaust in humans and animal models was translated into quasi-controlled real-world exposures to TRAP in vehicles traveling on busy highways over the past several years. Many individuals receive a relatively high proportion of daily exposure to fine and ultrafine particles during relatively intense daily commutes and These studies have involved healthy adults as well as potentially susceptible groups such as persons with diabetes and COPD. We developed an innovative approach to removing particles with HEPA filtration in order to evaluate if particles are necessary to cardiovascular responses observed in earlier studies.
 - a. Laumbach, R.J. & Kipen, H.M. (2010) Acute effects of motor vehicle traffic-related air pollution exposures on measures of oxidative stress in human airways. *Annals of the New York Academy of Sciences*, 1203, 107-12. PMID: PMC4043285
 - b. Laumbach, R.J., Rich, D.Q., Gandhi, S., Amorosa, L., Schneider, S., Zhang, J., Ohman-Strickland, P., Gong, J., Lelyanov, O., & Kipen, H.M. (2010) Acute changes in heart rate variability in subjects with diabetes following a highway traffic exposure. *Journal of Occupational and Environmental Medicine*, 52 (3), 324-31. PMID: PMC4043282
 - c. Laumbach, R.J., Kipen, H.M., Ko, S., Kelly-McNeil, K., Cepeda, C., Pettit, A., Ohman-Strickland, P., Zhang, L., Zhang, J., Gong, J., Veleparambil, M., & Gow, A.J. (2014) A controlled trial of acute effects of human exposure to traffic particles on pulmonary oxidative stress and heart rate variability. *Particle and Fiber Toxicology*, 11:45. PMID: PMC4236446
 - d. Laumbach, R.J. & Kipen, H.M. (2012) Respiratory health effects of air pollution: update on biomass smoke and traffic pollution. *Journal of Allergy and Clinical Immunology*, 129, 3-11. PMID: PMC3272333

4. Ongoing work continues to translate results of our controlled and semi-controlled particle exposure studies to community exposures to TRAP, and more recently, SARS-CoV-2. A community-based participatory research study of impacts of diesel truck traffic emissions and stress on childhood asthma exacerbation in the Ironbound community in Newark NJ is ongoing. Other studies tested an air filter intervention to reduce SARS-CoV-2 transmission in homes of self-isolating patients.
 - a. Payne-Sturges DC, Korfmacher KS, Cory-Slechta DA, Jimenez M, Symanski E, Carr Shmool JL, Dotson-Newman O, Clougherty JE, French R, Levy JI, Laumbach RJ, Rodgers K, Bongiovanni R, Scammell MK. Engaging communities in research on cumulative risk and social stress-environment interactions: lessons learned from EPA's STAR program. *Environmental Justice*, 8(6): 203-212. 2015. PMID: 26011147.
 - b. Ji N, Fang M, Baptista A, Cepeda C, Greenberg M, Mincey IC, Ohman-Strickland P, Haynes F, Fiedler N, Kipen HM, Laumbach RJ. Exposure to traffic-related air pollution and changes in exhaled nitric oxide and DNA methylation in arginase and nitric oxide synthase in children with asthma. *Environ Health*. 2021 Feb 11;20(1):12. 8. PMID: 33573660; PMID: PMC7879528.
 - c. Laumbach RJ, Mainelis G, Black KG, Myers NT, Ohman-Strickland P, Alimokhtari S, Hastings S, Legard A, de Resende A, Calderón L, Lu FT, Kipen HM. Presence of SARS-CoV-2 Aerosol in Residences of Adults with COVID-19. *Ann Am Thorac Soc*. 2022 Feb;19(2):338-341. PMID: PMC8867362.
 - d. Myers NT, Laumbach RJ, Black KG, Ohman-Strickland P, Alimokhtari S, Legard A, De Resende A, Calderón L, Lu FT, Mainelis G, Kipen HM. Portable air cleaners and residential exposure to SARS-CoV-2 aerosols: A real-world study. *Indoor Air*. 2022 Apr;32(4):e13029. PMID: PMC9111720.

Complete List of Published Work in My Bibliography:

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