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Education

Columbia University Mailman School of Public Health New York, NY
***Ph.D.**, Environmental Health Sciences, Aug. 2021* 2016 – 2021
Cumulative GPA: **3.89**/4.0
Relevant Courses: Biochemistry I & II, Survey of Neuroscience, Biostatistics, Statistics for Basic Sciences, Data Science, Responsible Conduct of Research, Toxicokinetics, Intro to Epidemiology, Design/Conduct of Observational Epidemiology, Applied Regression I & II, Analysis of Categorical Data, Advanced Analytic Methods in Environmental Health Science

Columbia University Mailman School of Public Health New York, NY
M.A., Columbia University Graduate School of Arts & Sciences, Oct. 2017 2016 – 2017

Boston University School of Public Health (SPH) (Boston, MA) 2016
Non-degree coursework
Courses: Intro. to Toxicology, Foundations of Environmental Health
Cumulative GPA: **4.0**/4.0

Northeastern University Boston, MA
B.S., Behavioral Neuroscience 2011 – 2015
Cumulative GPA: **3.985**/4.0, *summa cum laude, University Honors Distinction*
Relevant Courses: Biology Capstone, Neural Systems & Behavior, Functional Human Neuroanatomy, Behavioral Endocrinology, Organic Chemistry, Biochemistry, Genetics & Microbiology, Seminar in Biological Psychology, Psychobiology, Environmental Science

Research Experience

Columbia University Mailman School of Public Health New York, NY
Postdoctoral Research Scientist Aug. 2021 – present (remote)
Advisor: Dr. Diane Berengere Re

- Publish peer-reviewed research on extracellular vesicles, neurotoxicology, and environmental epidemiology as part of several research groups; *for full list of publications see Google Scholar and ResearchGate profiles*
- Design and execute scientific experiments and data analyses independently or collaboratively with 10+ team members
- Analyze data from thousands of observations spanning a period of up to 14 years, interpret, and present results through R markdown reports, manuscripts, and weekly presentations
- Prepare and deliver scientific presentations at national and international conferences including the National ALS Registry Annual Meeting and Conference of the International Society for Environmental Epidemiology
- Lead monthly collaborative meetings with other research groups such as the multi-department Extracellular Vesicle Working Group comprised of 30+ members
- Develop innovative ideas that promote current lab research
- Review, analyze, and summarize scientific literature; review manuscripts for over 10 academic journals

Ph.D. Candidate Sept. 2016 – Aug. 2021
Advisor: Dr. Andrea Baccarelli

- Worked independently and in a team environment on up to five projects simultaneously, prioritized and managed tasks, and met deadlines

- Improved understanding and comprehension of complex scientific topics for a diverse group of ~20 students with non-technical backgrounds by implementing pedagogical practices that draw on evidence-based educational research; *see here for a summary of my teaching philosophy*
- Pursued and secured independent funding including the Ruth L. Kirschstein National Research Service Award totaling over $40,000 USD
- Mentored students at the high school, graduate, and doctoral level

Dissertation: "Message in a bottle": Extracellular vesicle microRNAs as novel biomarkers of environmental exposures and health outcomes

- First detailed characterization of salivary extracellular vesicles of children with asthma
- Tested association between salivary extracellular vesicle microRNAs with ambient air pollution exposure (i.e., particulate matter, ozone, nitrogen dioxide)
- Found that plasma extracellular vesicle microRNAs are associated with cognitive function and rate of cognitive decline in a cohort of older men

Boston University School of Public Health Boston, MA
Research Associate May 2015 – June 2016
Advisors: Dr. Kimberly Sullivan, Dr. Roberta F. White

- Identified plasma biomarkers of Gulf War Illness using "omic" technology; assessed efficacy of daily intranasal insulin on memory and attention, mood, and overall physical health in Gulf War veterans with chronic multi-symptom illness
- Effectively communicated project to veterans to obtain their consent to produce iPSCs
- Administered neuropsychological evaluations to assess various aspects of cognitive function (memory, attention/executive function, information processing/motor speed, and visuospatial processing) in Gulf War veterans, completed data entry, and analyzed results
- Provided administrative support via tasks such as researching literature and writing grant project narratives and Institutional Review Board consent forms
- Provided research and administrative support to the Research Advisory Committee on Gulf War Veterans' Illnesses, chartered by Congress to advise the Secretary of Veterans Affairs (VA) regarding research on the unexplained illnesses affecting Gulf War veterans
- Identified and reviewed health research studies and articles, prepared research reports and recommendations, coordinated and facilitated Committee meetings, and communicated with veterans while supporting VA missions

Biogen, Neurology Dept. Cambridge, MA
Research Assistant July 2014 – May 2015
Advisors: Dr. Brandon Farley, Dr. Marion Wittmann

- Performed *in vivo* electrophysiological studies in support of Biogen's Neurology Discovery Department objectives: mainly included (1) development of novel assay to measure compound muscle action potentials (CMAP) in mouse model of Amyotrophic Lateral Sclerosis (ALS) to assess clinical disease onset and (2) optimization of demyelination assay in the optic pathway of rats after injection of a neurotoxic/gliotoxic compound
- Independently conducted EMG recordings of CMAPs in the $SOD1^{G93A}$ transgenic mouse model of ALS, analyzed results for decrement in CMAP which reflects motor unit loss in ALS mice, and presented findings at the Society for Neuroscience 2015 conference; *this work was published in J. Clin. Invest.*
- Measured EEG and visual evoked potentials (VEP) from rats and analyzed the response's latency delay and amplitude decrease from demyelination of fibers in optic pathway as a result of injection of ethidium bromide-lysolecithin (LPC)
- Assisted in surgery to implant recording acquisition tethers and LEDs above rats' eyes, and in stereotaxic injections of ethidium bromide/LPC as model of demyelination to mimic optic neuritis

- Dosed over forty mice intraperitoneally weekly with anti-Tau antibody
- Soldered to prepare telemetry devices for implantation and to create wires and cables used in recordings

Harvard Medical School, Neurobiology Dept. Boston, MA
Research Assistant May 2013 – May 2014
Advisors: Dr. Mark Histed, Dr. John H. R. Maunsell

- Deciphered general principles of cortical function in primary visual cortex (V1) of behaving mice; genetically, optically, and electrophysiologically manipulated and recorded neurons during behavior
- Responsible for changing the variables and monitoring the behavioral performance of nine mice; trained according to behavioral task paradigm
- Assembled optical windows for implantation, performed craniotomy/head post implant surgeries, took pictures of the window post-surgery with AxioVisionLE (Rel. 4.8) and edited images in ImageJ
- Acquired fluorescent images of brain slices using Olympus VS120 Slide Scanner (image used as Figure Panel in *J. Neurosci* publication)
- Conducted intrinsic signal mapping of retinotopy in V1 and analyzed results
- Assisted in single-unit recordings of V1 in awake mice
- Designed custom 3D-printed parts for experimentation rigs using AutoCAD program Autodesk Inventor to resolve a technical problem with existing rigs
- Searched Jax database for proper mouse strains, created new probes and cross strains using Transnetyx, acquired genetic samples from mice to send to Transnetyx for automated genotyping, and analyzed results

Northeastern University, Psychology Dept. Boston, MA
Undergraduate Intern Dec. 2011 – May 2013
Advisors: Dr. Thomas Morrison, Dr. Richard Melloni, Jr.

- Examined how use of anabolic-androgenic steroids (AAS) during adolescence facilitates offensive aggression in Syrian hamsters through alterations to dopaminergic neural system in lateral anterior hypothalamus
- Injected dozens of hamsters daily subcutaneously with AAS or sesame oil for three-week dosing regimen
- Performed surgery to implant cannulas into specific brain regions of hamsters
- Conducted behavior tests (elevated plus maze, dark box, resident-intruder), analyzed results, and completed data entry with behavioral scoring, test scores, video transfers, and data backup
- Performed cardiac perfusions, brain extractions, and sliced 35 µm coronal cross-sections of cortex using microtome for histological stains
- Applied immunohistochemistry techniques on sliced tissues; completed slide mounting, coverslipping, and slide analyses

Grants and Fellowships

2020	F31 Ruth L. Kirschstein Predoctoral Individual National Research Service Award (F31ES030973), "Air Pollution, Salivary Extracellular Vesicles, and Asthma Severity in Children with Asthma," National Institute of Environmental Health Sciences; Principal Investigator: Nicole Comfort
2018-2019	T32 Pre-doctoral Training Grant (5T32ES007322-17), National Institute of Environmental Health Sciences; Principal Investigator: Andrea Baccarelli
2017-2018	T32 Pre-doctoral Training Grant (2T32ES007322-16), National Institute of Environmental Health Sciences; Principal Investigator: Andrea Baccarelli
2016-2017	T32 Pre-doctoral Training Grant (4T32ES007322-15), National Institute of Environmental Health Sciences; Principal Investigator: Joseph H. Graziano

Publications

Peer Reviewed Publications:

2021

- **Comfort, N.** Addressing Racial Disparities in NIH Funding. *Journal of Science Policy and Governance.* 2021;18(4). https://doi.org/10.38126/JSPG180408.
- Gade, M.*, **Comfort, N.*,** Re, D.B. Sex-specific neurotoxic effects of heavy metal pollutants: epidemiological, experimental evidence and candidate mechanisms. *Environmental Research.* 2021;201(111558). PMCID: PMC8478794. https://doi.org/10.1016/j.envres.2021.111558. *Equal contribution.
- **Comfort, N.,** Cai, K., Bloomquist, T.R., Strait, M.D., Ferrante Jr., A.W., Baccarelli, A.A. Nanoparticle tracking analysis for the quantification and size determination of extracellular vesicles. *Journal of Visualized Experiments.* 2021;Mar 28 (169). PMCID: PMC8243380. https://doi.org/10.3791/62447.
- **Comfort, N.,** Bloomquist, T.R., Shephard, A.P., Petty, C.R., Cunningham, A., Hauptman, M., Phipatanakul, W., Baccarelli A. Isolation and characterization of extracellular vesicles in saliva of children with asthma. *Extracell Vesicles Circ Nucl Acids*. 2021;2(1): 29-48. PMCID: PMC8340923. https://doi.org/10.20517/evcna.2020.09.

2018

- Yarychkivska, O., Shahabudhin, Z., **Comfort, N.**, Boulard, M., Bestor, T.H. BAH domains and a histone-like motif in DNA methyltransferase 1 (DNMT1) regulate *de novo* and maintenance methylation *in vivo*. *J Biol Chem*. 2018;293(50): 19466-19475. PMCID: PMC6302165. https://doi.org/10.1074/jbc.RA118.004612.
- McCampbell A., Cole T., Wegener A.J., Tomassy G.S., Setnicka A., Farley B.J., Schoch K.M., Hoye M.L., Shabsovich M., Sun L., Luo Y., Zhang M., **Comfort N.**, Wang B., Amacker J., Thankamony S., Salzman D.W., Cudkowicz M., Graham D.L., Bennett C.F., Kordasiewicz H.B., Swayze E.E., Miller T.M. Antisense oligonucleotides extend survival and reverse decrement in muscle response in ALS models. *J Clin Invest.* 2018;128(8): 3558-3567. PMCID: PMC6063493. https://doi.org/10.1172/JCI99081.

2017

- **Comfort, N.**, Re, D.B. Sex-specific neurotoxic effects of organophosphate pesticides across the life course. *Curr Environ Health Rep*. 2017;4(4): 392-404. PMCID: PMC5677564. https://doi.org/10.1007/s40572-017-0171-y.
- Qiang, L., Rao, A.N., Mostoslavsky, G., James, M.F., **Comfort, N.**, Sullivan, K., Baas, P.W. Reprogramming cells from Gulf War veterans into neurons to study Gulf War Illness. *Neurology*. 2017;88(20): 1968-1975. PMCID: PMC5444312. https://doi.org/10.1212/wnl.0000000000003938.

Manuscripts submitted/under review:

- **Comfort, N.**, Wu, H., De Hoff, P., Vuppala, A., Vokonas, P.S., Spiro, A., Weisskopf, M., Coull, B.A., Laurent, L.C., Baccarelli, A.A., Schwartz, J. Extracellular microRNA and cognitive function in a prospective cohort of older men: the VA Normative Aging Study. *Translational Neurodegeneration,* submitted December 2021.

Manuscripts in progress:

- **Comfort, N.**, et al. Transcriptomic analysis of aging mouse sciatic nerve reveals early pathways leading to sarcopenia. *Manuscript in preparation.*

Link to Bibliography: https://www.ncbi.nlm.nih.gov/myncbi/1v5L4VkrjtH55/bibliography/public/

Acknowledgements:

- Histed, M.H. and Maunsell, J.H.R. Cortical neural populations can guide behavior by integrating inputs linearly, independent of synchrony. 2014. *Proc Natl Acad Sci U.S.A.*, 111(1): E178-E187.
- Glickfeld, L., Histed, M.H., Maunsell, J.H.R. Mouse primary visual cortex is used to detect both orientation and contrast changes. 2013. *J. Neurosci*, 33(50): 19416-19422.

Abstracts

2021

- **Nicole Comfort**, Madeleine Strait, Brianna Saglimbeni, Roheeni Saxena, Teresa Obis, Neil A. Shneider, Marianthi-Anna Kioumourtzoglou, Diane B. Re. *Central nervous system (CNS)-derived extracellular vesicles (EVs) as novel biomarkers for environmental exposure and disease progression in ALS*. 33rd Annual Conference of the International Society for Environmental Epidemiology (ISEE). New York, NY, USA. August 2021.
- **Nicole Comfort**, Meethila Gade, Madeleine Strait, Shingo Kariya, Diane Re. *Transcriptomic analysis of aging mouse sciatic nerve reveals early pathways leading to sarcopenia*. International Congress on Neuromuscular Diseases (ICNMD), May 2021.
- Mahdieh Danesh Yazdi, Feiby Nassan, Anna Kosheleva, Qian Di, Weeberb João Requia, Yaguang Wei, **Nicole T. Comfort**, Haotian Wu, Andrea Baccarelli, Joel D. Schwartz. *The effects of short- and long-term exposures to air pollution on microRNA in participants of the Normative Aging Study (NAS)*. 33rd Annual Conference of the International Society for Environmental Epidemiology (ISEE). New York, NY, USA. August 2021.

2020

- **Nicole Comfort,** Tessa Bloomquist, Amparito Cunningham, Marissa Hauptman, Wanda Phipatanakul, Andrea Baccarelli. *Isolation and characterization of extracellular vesicles in saliva of children with asthma.* American Society for Exosomes and Microvesicles 2020 Annual Meeting. November 2020.

2019

- **Nicole Comfort,** Cara Smith, Steven Chillrud, Qiang Yang, Andrea Baccarelli, Darby Jack. *Extracellular vesicles in saliva as biomarkers of exposure and effect: a feasibility pilot in the context of the New York City Biking and Breathing Study.* 31st Annual Conference of the International Society for Environmental Epidemiology (ISEE). Utrecht, The Netherlands. August 2019.

2018

- **Nicole Comfort,** Wanda Phipatanakul, Andrea Baccarelli. *Saliva extracellular vesicle (EV) microRNA and asthma severity in urban school children.* Academic Pediatric Association (APA) Environmental Health Scholars Retreat. Providence, RI. October 2018.

2017

- Teresa Obis, Meredith Loth, Agnese Ramirez, Samantha Merwin, Beatriz Blanco, Sara Guariglia, Vesna Ilievski, Silvia Tamanini, **Nicole Comfort**, Yanelli Nunez, Marfred E. Munoz Umanes, Mary Gamble, Vernice Jackson-Lewis, Shingo Kariya, Stefania Corti, Tomas Guilarte, and Diane B. Re. *PK11195, a ligand of the translocator protein 18KDa, improves grip strength, motor performance, and muscle innervation at early but not late disease stages in the amyotrophic lateral sclerosis mutant superoxide dismutase 1 mouse model.* Program No. 670.10. 2017 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2017. Online.

2015

- Brandon J. Farley, **Nicole T. Comfort**, Jessica L. Goodman, Anne M. Kuszpit, Tracy Cole, Holly Kordasiewicz, Eric Swayze, Alexander McCampbell, and Marion Wittmann. *Antisense oligonucleotide treatment protects against neuromuscular denervation in the SOD1 G93A mouse model of ALS as evaluated by a pre-symptomatic electrophysiological measure.* Program No. 69.18. 2015 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2015. Online.

2014

- M. H. Histed, **N. T. Comfort**, R. T. Ohman, A. R. Perillo, J. H. R. Maunsell. *Linear integration for perceptual behavior in mouse primary auditory and visual cortex.* Program No. 530.05. 2014 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2014. Online.

Selected Conference and Seminar Presentations

2021

- Oral presentation, *Extracellular vesicle isolation efficiency: Method comparison using multispectral nanoparticle tracking analysis,* HORIBA Particle Characterization Webinar. November 2021.
- **Oral presentation,** *Central nervous system (CNS)-derived extracellular vesicles (EVs) as novel biomarkers for environmental exposure and disease progression in ALS.* **33rd Annual Conference of the International Society for Environmental Epidemiology (ISEE),** New York, NY, USA.
- Dissertation defense, *"Message in a bottle": Extracellular vesicle microRNAs as novel biomarkers of environmental exposures and health outcomes*. Environmental Health Science Department, Mailman School of Public Health, Columbia University. New York, NY, USA. August 18, 2021.

2020

- Oral presentation, *Circulating extracellular vesicles (EVs): Description of saliva EVs and roles of plasma EV microRNAs in cognitive performance.* Seminar Series, Environmental Health Science Department (EHS), Mailman School of Public Health (MSPH), Columbia University. New York, NY, USA. December 2020.
- Oral presentation, *Isolation and characterization of extracellular vesicles in saliva of children with asthma.* American Society for Exosomes and Microvesicles (ASEMV) 2020 Annual Meeting. November 2020.
- Oral presentation, *Identification of differentially expressed genes and signaling pathways in the aging sciatic nerve in sarcopenia*. Seminar Series, EHS Department, Mailman School of Public Health (MSPH), Columbia University. New York, NY, USA. April 2020.

2019

- Poster presentation, *Extracellular Vesicles in Saliva as Biomarkers of Exposure and Effect: A feasibility pilot in the context of the New York City Biking and Breathing Study.* 31st Annual Conference of the International Society for Environmental Epidemiology (ISEE), Utrecht, The Netherlands.
- **Oral Presentation,** *Novel Extracellular Vesicle and Molecular Biomarkers of Environmental Exposure and Disease Progression in ALS.* **National ALS Registry Annual Meeting,** Department of Health and Human Services Center for Disease Control and Prevention Agency for Toxic Substances and Disease Registry, Atlanta, GA, USA. July 2019.

2018

- Oral presentation, *Indoor Air Pollution, Salivary Extracellular Vesicles, & Asthma Exacerbations in Children with Asthma: A School-Based Study.* Academic Pediatric Association Environmental Health Scholars Retreat, Brown University, Providence, RI.
- Poster presentation, *Saliva extracellular vesicle microRNA and asthma severity in urban school children.* Student Research Diversity Day, Columbia University, NY.

2015

- Poster presentation, *Antisense oligonucleotide treatment protects against neuromuscular denervation in the SOD1 G93A mouse model of ALS as evaluated by a pre-symptomatic electrophysiological measure.* 45th Annual Society for Neuroscience Meeting, Chicago, IL.
- Poster presentation, *Cortical neural populations can guide behavior by integrating inputs linearly, independent of synchrony.* RISE: Research, Innovation, and Scholarship Expo, Northeastern University.

2014

- Poster presentation, *Linear integration for perceptual behavior in mouse primary auditory and visual cortex.* 44th Annual Society for Neuroscience Meeting, Washington, D.C.
- Poster presentation, *Linear integration for perceptual behavior in mouse primary auditory and visual cortex.* Honors Evening Poster Session, Northeastern University, Boston, MA.

Awards and Honors

Columbia University

2021

- Third place, *Journal of Science Policy & Governance* and National Science Policy Network 2021 International Policy Memo Competition. The competition was centered around a theme of *Intersectional Science Policy* to raise awareness of intersectional science policy issues that directly affect marginalized scientists and communities.

2020

- Award for Exemplary Teaching Assistant in Environmental Health Science – *awarded to an EHS Doctoral Candidate who has excelled as a Teaching Scholar in an EHS course. All Teaching Scholars are expected to be actively involved in course development, student evaluation, and presentation of materials. This award goes to an individual who goes above and beyond these expectations.*

Northeastern University

2015

- Huntington 100 Award – *recognizes one hundred students selected for their impressive achievements and impact both on campus and around the world*
- Sears B. Condit Award – *recognizes the one hundred graduating students with the highest quality GPAs in the class*
- Provost Undergraduate Research and Creative Endeavors Award – *offers financial and academic support to Northeastern students seeking to conduct original projects of their own design*

2014

- President's Award – *awarded to the top ten students in the class; note that NU's total undergraduate enrollment is nearly 14,000 students*
- Behavioral Neuroscience Department Travel Award

2011-2015

- Dean's Scholarship, Dean's List

Teaching Experience

Specific courses

2020 **Teaching Assistant** for graduate course "Toxicokinetics."

2018, 2019 **Teaching Assistant** for graduate course titled "Fundamental Toxicology for Public Health-Related Disciplines." Developed and taught a lecture, developed quizzes and assignments, provided supplemental reading, graded assignments, held office hours.

2019 **Teaching Assistant** for graduate course "Laboratory Methods in Environmental Health Sciences."

Other teaching activities

2020- **Workshop facilitator** for Columbia's "PI Crash Course" Boot Camp, teaching the fundamental leadership and management skills to health and research professionals needed for success in running a lab

2020 Completed the "Course Design Seminar," an intensive, evidence-based teaching development program offered by the Center for Teaching and Learning at Columbia University. Program details are available at https://ctl.columbia.edu/graduate-instructors/programs-for-graduate-students/seminars-institutes-for-graduate-students/course-design-seminar/.

2019 **Workshop facilitator** for Columbia's NIH Grant Writing Boot Camp, a 2-day hands-on workshop to help participants powerfully frame their grant proposal so that it generates enthusiasm in reviewers.

2018 – 2019 Scientist-in-Residence participant, NYAS: *Pairs scientists with public school teachers to develop inquiry-based research projects for the classroom. Our 10th grade project looked at the effects of different carbon dioxide concentrations on various measures of plant growth. By building partnerships between teachers and scientists, this innovative program not only provides students the opportunity to engage in authentic, hands-on research, it also gives teachers the critical support they need to bring scientific inquiry to life in the classroom.*

2018 - 2021 Columbia University Teaching Development Program (TDP), Advanced Track. *The TDP allows doctoral students to cultivate, document, and articulate their teaching development across the arc of their graduate school career. By completing the advanced track, the participant will exhibit competencies such as being able to articulate and reflect on their own inquiry-based development as a teacher, present evidence of sustained teaching development, and demonstrate organized, engaging, and distinctive communication practices that extend into future professional settings.*

2018 **Workshop facilitator** for Columbia's Mendelian Randomization Boot Camp, a two-day intensive combination of seminars and hands-on analytical sessions to provide an overview of the concepts, techniques, packages, data sources, and data analysis methods needed to conduct Mendelian Randomization studies. Provide coding assistance to workshop participants.

2018 Completed the "Evidence-Based Teaching in Science & Engineering Seminar," an intensive, 4-week, STEM-focused teaching development program offered by the Columbia University Center for Teaching and Learning (CTL). Program details are available at http://ctl.columbia.edu/etse/.

2014 – 2015 Volunteer teacher for NEPTUN (NorthEastern Program for Teaching by Undergraduates) *Splash* weekends at Northeastern University. *Splash* is an immersive day held annually where high school students sign up for introductory topics that interest them that are developed and offered by undergraduates.

2013 – 2015 Interaxon volunteer, presenting neuroscience topics to K-12 public schools in Boston, MA.

2012 – 2013 College of Reading and Learning Association certified tutor, Northeastern University Peer Tutoring Program.

For more information such as my teaching philosophy and example teaching materials, visit my online Teaching Portfolio here.

Workshops and Certifications

Aug. 2020 Environmental Mixtures Boot Camp participant: This two-day intensive training of seminars and hands-on analytical sessions provides an overview of environmental mixtures concepts, techniques, and data analyses used in health studies.

Aug. 2019 Single Cell RNA-Seq Analysis Boot Camp participant: This two-day intensive boot camp starts with a fast-paced training session on single cell data collection and basic analysis, then continues with in-depth sessions on advanced methods for phenotyping single cell populations using systems-biology approaches.

Jun. 2019 High-Throughput Sequencing 6-week course, Department of Biostatistics and Bioinformatics of the Duke University School of Medicine. Gained the biological, statistical, computational, and informatics knowledge for implementing a well-designed genomics experiment.

Apr. 2019 Exosomes: Principles, Methods, and Applications. Completed 4-day Bio-Trac® workshop at Montgomery College, MD which balanced theoretical lectures with hands-on introduction to the isolation, quantitation, analysis, and engineering of exosomes.

Jun. 2018 Epigenetics Boot Camp participant: This two-day intensive boot camp integrates the principal concepts of epigenetics and the effects of risk factors on the epigenome while walking through the key components of designing and executing DNA methylation studies.

Professional Organizations and Society Memberships

2019- International Society for Environmental Epidemiology

2018- American Association for the Advancement of Science (AAAS)

2018-19 New York Academy of Sciences (NYAS)

2018- International Society for Extracellular Vesicles

2015- Nu Rho Psi National Honor Society, Massachusetts Beta Chapter

2015- Tri Beta Biological Honor Society, Chi Delta Epsilon Chapter

2014-2016 Society for Neuroscience

Ad Hoc Reviewer

2018- *Journal of Applied Toxicology, Behavioral and Brain Functions, Environment International, The Journal of Integrative Neuroscience, Neurological Research, Neurophotonics, NeuroToxicology, Neurotoxicity Research, Journal of Pollution Effects & Control, Journal of Visualized Experiments*

Publons: https://publons.com/researcher/1543846/nicole-comfort/

Leadership, Student Organizations, and Academic Service

Oct. 2021 Invited panel speaker, *Getting Started in Science Policy as an Early Career Scientist,* Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) National Diversity in STEM (NDiSTEM) 2021 Digital Conference.

2021 Mentor, 1-on-1 Mentoring with a SACNAS Leader: Get Advice from Faculty and STEM Mentors on Planning for your Science Career workshop; 6th Annual Workshop.

2020-2021 **Founding Member**, EHS Doctoral Student Subcommittee on Diversity, Equity, and Inclusion in the Department. *Identify ways to address structural inequity in EHS and build an actively antiracist department.*

Apr. 2019 Invited panel speaker, Applying to PhD & Doctoral Programs, Columbia University Mailman School of Public Health.

2018 Judge, NYC Science & Engineering Fair (NYCSEF) Preliminary Round, The City College of New York.

2017-2021 **Doctoral Representative,** Environmental Health Science, **Graduate Student Association,** Columbia Mailman School of Public Health.

2017-2021 Ph.D. Peer mentor, Columbia Environmental Health Science Department, mentor first year Ph.D. students.

2017 Invited panel speaker, Johns Hopkins University Center for Talented Youth Family Programs Environmental and Public Health Workshop, Columbia University.

2016-2021 Member, Students for Environmental Action, Columbia University Mailman School of Public Health.

2015- **Climate Reality Leader**, received training at twenty-seventh Climate Reality Leadership Corps Training, New Delhi, India.

2014-2015 **President**, Nu Rho Psi National Honor Society, Massachusetts Beta Chapter at Northeastern University.

2013-2014 Secretary, Nu Rho Psi National Honor Society, Massachusetts Beta Chapter at Northeastern University.

2014 **Alternative Spring Break Team Leader**, Northeastern University, Tandana Foundation, Ecuador.

2013 Alternative Spring Break Participant, Northeastern University, Rebuilding Together, Oklahoma, USA.

2012-2015 Behavioral Neuroscience program Peer Mentor – mentor incoming Behavioral Neuroscience major undergraduates.

Molecular biology skills

- Nucleic acid and protein purification
- DNA/RNA/protein quantification
- ELISA
- SDS-PAGE, Western Blot
- PCR, qRT-PCR
- Bisulfite sequencing
- Gel electrophoresis
- Mammalian cell culture
- Tissue dissections (e.g., brain, muscle) and sectioning
- Immunohistochemistry
- Exosome/extracellular vesicle isolation and characterization
- Nanoparticle tracking analysis (NTA)
- Transmission electron microscopy (TEM) image analysis

in vivo *technical skills*

- Neurodegenerative mouse model expertise
- *In vivo* electrophysiology
- Stereotaxic survival surgery
- Rodent dosing, handling
- Rodent behavioral assays
- Rotarod test
- Grip strength test
- Elevated plus maze
- Black and white box
- Operant conditioning
- Animal husbandry

Analytical skills

- Multivariable linear regression and linear mixed models
- Generalized estimating equations
- Latent class trajectory modeling
- Time-to-event analysis (survival analysis)
- Gene expression analysis
- RNA-Seq analysis
- Bioinformatic pathway analysis (GO/KEGG/DAVID/GSEA)
- DNA methylation analysis
- Biomarker discovery
- NHANES data analysis
- Dimensionality reduction techniques (e.g., PCA)
- High performance computing on public clouds (e.g., AWS, Genboree workbench, Galaxy)
- Computational analysis of large datasets

Coding/software skills

- R (Advanced)
- SAS (Novice)
- DESeq2, edgeR
- Unix/Linux/Bash (Beginner)
- ImageJ
- Git

Interests

International travel, acrylic painting, all things dogs, gardening, playing classical flute and piano, volunteering and activism