

News at a Glance

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CEG

Center for Environmental Genetics



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The Center for Environmental Genetics welcomes new member [Melinda Mahabee-Gittens, M.D., M.S., C.T.T.S.](#), a professor of Pediatrics at the University of Cincinnati and attending physician in the Cincinnati Children's Hospital Medical Center (CCHMC)



Division of Emergency Medicine. Dr. Mahabee Gittens' interests and expertise include research on tobacco prevention and education in medical settings. She has been funded by the National Cancer Institute (K23CA117864; K22CA163747), the Agency for Healthcare Research and Quality (R03HS11038), the American Lung Association (CG-004-N), and the Charlotte R. Schmidlapp Woman Scholars Award.

With support from the National Institute of Environmental Health Sciences (NIEHS R01

ES027815), Dr. Mahabee-Gittens is currently studying the contribution of thirdhand smoke to overall tobacco smoke exposure in pediatric patients. Thirdhand smoke is the persistent residue emanating

from secondhand smoke that accumulates in dust, in objects, and on surfaces in homes where tobacco has been used. The homes of smokers become reservoirs of persistent toxic pollutants (e.g., nicotine, polycyclic aromatic hydrocarbons (PAH) and tobacco-specific nitrosamines, to which children may remain vulnerable, even after the smokers quit smoking.



CEG members **Kelly Brunst, Pat Ryan, Kim Yolton, Grace LeMasters, and Kim Cecil, et al.**, have published an article in [Environmental Research](#) indicating a link between traffic-related air pollution (TRAP) and anxiety symptoms in children.

As part of the Cincinnati Childhood

Allergy and Air Pollution Study and in work funded in part through a \$40,000 CEG pilot award (2018), the team sought to evaluate the impact of TRAP on brain metabolism and its relation to anxiety symptoms. A sample of 145 adolescents underwent magnetic resonance spectroscopy. The researchers measured in the anterior cingulate cortex several brain metabolites, including myo-inositol, N-acetylaspartate, creatine, choline, glutamate, glutamate plus glutamine, and glutathione. This is the first study of children to utilize neuroimaging to link TRAP exposure, metabolite dysregulation in [the brain](#), and generalized anxiety symptoms among otherwise healthy children. Brunst and colleagues posit that TRAP may elicit atypical excitatory neurotransmission and glial inflammatory responses leading to increased metabolite levels and subsequent [anxiety symptoms](#).

Long-time CEG member **Gurjit Khurana Hershey, M.D., Ph.D.**, is one of four 2019 recipients of the Daniel Drake Medical from the UC College of Medicine. The prestigious award is given annually to living faculty members or alumni for their outstanding contributions to medical education, scholarship and research. CEG clinical member **Brett Kissela, M.D.**, Professor and Chair of Neurology and Rehabilitation Medicine, has been accepted into the 2019–2020 Class of the Association of American Medical Colleges (AAMC) Council of Deans Fellows.

Recent Publications

Amos-Kroohs RM, Usach V, Piñero G, **Vorhees CV**, Martinez Vivot R, Soto PA, Williams MT, Setton-Avruj P. Metal bashing: iron deficiency and manganese overexposure impact on peripheral nerves. *J Toxicol Environ Health A*. 2019;82(2):99-112. doi: 10.1080/15287394.2019.1566105. [PMID: 30652531](#). Robyn Amos-Kroohs was a 2012–2013 CEG New Investigator Scholar and at that time received CEG career development funds for her project, "Interaction of manganese, iron and stress during brain development." Co-author Charles Vorhees is a CEG clinical member.

Bermudez ML, Seroogy KB, **Genter MB**. Evaluation of carnosine intervention in the Thy1-aSyn mouse model of Parkinson's disease. *Neuroscience*. 2019 Accepted; in press.

Brunst KJ, Ryan PH, Altaye M, **Yolton K**, Maloney T, Beckwith T, **LeMasters G, Cecil KM**. Myo-inositol mediates the effects of traffic-related air pollution on generalized anxiety symptoms at age 12 years. *Environ Res*. 2019 May 11;175:71-78. doi: 10.1016/j.envres.2019.05.009. [Epub ahead of print] [PMID: 31103795](#).

Sullivan CR, Mielnik CA, O'Donovan SM, Funk AJ, Bentea E, DePasquale EA, Alganem K, Wen Z, Haroutunian V, Katsel P, Ramsey AJ, **Meller J, McCullumsmith RE**. Connectivity analyses of bioenergetic changes in schizophrenia: Identification of novel treatments. *Mol Neurobiol*. 2019 Jun;56(6):4492-4517. [PMID: 30338483](#)

Vuong AM, Yolton K, Xie C, Dietrich KN, Braun JM, Webster GM, Calafat AM, Lanphear BP, **Chen A**. Prenatal and childhood exposure to poly- and perfluoroalkyl substances (PFAS) and cognitive development in children at age 8 years. *Environ Res*. 2019 May;172:242-248. doi: 10.1016/j.envres.2019.02.025. Epub 2019 Feb 16. [PMID: 30818233](#)

Xie C, Leung YK, Chen A, Long DX, Hoyo C, **Ho SM**. Differential methylation values in differential methylation analysis. *Bioinformatics*. 2019 Apr 1;35(7):1094-1097. doi: 10.1093/bioinformatics/bty778. [PMID: 30184051](#)