Applying Wastewater-based Epidemiology to Identify Risk Factors of Neurodegenerative Diseases and Cancer at the Population Level

Novel means are needed to diagnose neurodegenerative diseases (NDDs) and cancer, given delays in medical diagnosis and rising rates of disease incidence, prevalence, and mortality worldwide. Development of NDDs and cancer has been linked to environmental toxins. Ensuing epigenetic changes may serve as helpful biomarkers to diagnose amyotrophic lateral sclerosis (ALS), Parkinson’s Disease (PD), and Alzheimer’s Disease (AD) as well as various cancers sooner and more accurately. This dissertation tabulates and evaluates a spectrum of diagnostic matrixes (i.e., soil, sewage sludge, blood) and markers of disease to inform disease surveillance and draws attention to sewage sludge as a currently underutilized proxy matrix for assessing toxic human exposures and further identified a spectrum of particularly attractive, non-invasive biomarkers for future diagnostic use to promote early detection, survivability, and quality of life of individuals at risk of NDDs and cancer.

For virtual attendees:
https://asu.zoom.us/j/81486626467?pwd=QWNxU0FrUVJ0NEdzTG10Wkdvd2M3UT09

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Biodesign Center for Environmental Health Engineering Defense
October 24, 2023
10:00 AM
Biodesign Institute C
BDB CL1-21