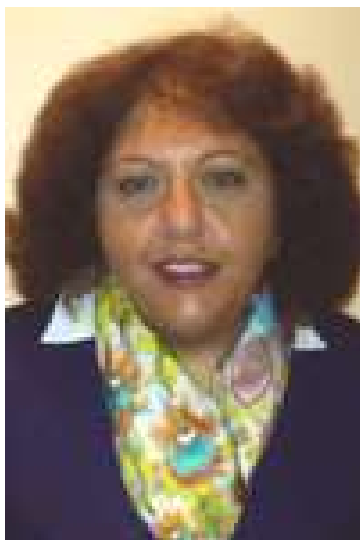


Meet the Network and Community Leadership
Network: Translational & Precision Medicine (TPM)
Community: Pharmacometabolomics (PM)



Community Past Chair:
Rima Kaddurah-Daouk
PhD
Duke University

Dr. Kaddurah-Daouk has been a seminal force in the development and evolution of the field known as metabolomics. She co-founded the Metabolomics Society, served as its founding president and for over five years organized national and international meetings and workshops to establish foundations and community for metabolomics research. Over her tenure, she brought membership of this society to over 500. Also cofounded a leading biotechnology company devoted to metabolomics applications and is an inventor on key patents in the field. Seven years ago, with funding from NIH, not for profit and for profit organizations and in partnership with the Pharmacogenomics Research Network (PGRN) she established and leads the Pharmacometabolomics Research Network where metabolomics tools are used for global biochemical mapping of drug effects and for defining molecular basis for variation in response. This network set foundation for a new field – “pharmacometabolomics” – that parallels and informs pharmacogenomics. The Network has provided totally new insights about mechanism of variation of response to commonly used therapies including antidepressants SSRIs, statins, antihypertensives and antiplatelet therapies. In addition it provided insights about molecular basis for gender and ethnic variation of response and a role for the gut microbiome in response to drugs like statins.

Dr. Kaddurah-Daouk has built a comprehensive metabolomics program at Duke for the study of neuropsychiatric diseases mapping perturbations in metabolic pathways and networks defining unique and common mechanisms of disease. Totally new insights have been derived that are starting to transform our understanding of molecular basis of psychiatric diseases. Findings from her Alzheimer’s disease (AD) program have led to the creation of Alzheimer’s Disease Metabolomics Consortium funded by NIA as a partnership with the national Alzheimer’s Disease Neuroimaging Initiative (ADNI). This consortium is implementing a systems approach for the study of AD and its treatment aiming to define novel targets for drug design and biomarkers for disease and progression and where there is integration of metabolomics genetic and imaging data. She participated in Alzheimer’s Summits of 2012 and 2015 and President Obama challenge to treat or prevent Alzheimer by 2025 and contributed to vision for a new path for prevention and treatment of AD. Here program is one of six consortia under the national AMP- AD accelerated treatment for AD program.

Earlier work carried by Dr. Kaddurah Daouk implicated the creatine kinase system and energy impairment in mechanisms of neuronal cell death. That has led to the development of creatine as a potential combination therapy for treating neurodegenerative diseases. Tens of clinical studies have been conducted and some still ongoing (phase II/III) to evaluate the therapeutic benefit of creatine for patients with Huntington, Parkinson and motor neuron disease. In presymptomatic HD patients high-dose treatment with creatine was shown to be safe and well tolerated by most study participants and neuroimaging showed a treatment-associated slowing of regional brain atrophy, evidence that creatine might slow the progression of disease.