Plasma metabolomic profiles: Insights into cognitive function

Howard J Federoff
University of California, USA

Our group has studied a longitudinal cohort of seniors, >75 years, to discover and internally validate peripheral blood measures that can accurately predict, which cognitively normal subjects will progress to amnestic Mild Cognitive Impairment (aMCI) or Alzheimer disease (AD) within less than three years. We initially reported on plasma metabolites that were accurate as a diagnostic technique for preclinical AD. We have extended these observations on plasma metabolomics and have discovered and validated a panel of 24 analytes that predict phenoconversion to Alzheimer's disease with accuracy of >96%. This discovery and internal validation work has now been externally validated. Finally, we described a subpopulation with superior neurocognitive function and discovered a plasma metabolomic signature that distinguishes this group from normal. I will discuss the implications of this body of work regarding cognitive function and its potential implications for dementia. Plasma metabolomics signatures correlate with cognitive status and discriminate between at-risk for AD, MCI/AD manifest disease, and separately identify individuals with superior cognition.

Speaker Biography

Howard J Federoff is a Vice Chancellor for Health Affairs and CEO of UC Irvine Health. He oversees the clinical, health education, and research missions. He investigates gene therapy and neurodegenerative diseases. He has published greater than 250 articles and serves on the Editorial Boards of five journals. He has chaired the NIH Recombinant DNA Advisory Committee and the Gene Therapy Resource Program for NHLBI. He was President of the American Society for Experimental Neurotherapeutics. He has received his MS, PhD, and MD degrees from the Albert Einstein College of Medicine, internship, residency, and clinical and research fellowships at Massachusetts General Hospital/Harvard Medical School. He is a Fellow of the AAAS, National Academy of Inventors and American Neurological Association.

e: federoff@uci.edu

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