The genome copy number advantage: Exploring the translational potential of novel mitochondrial genome biomarkers

Gabriel D Dakubo
Lakehead University, Canada

The important utility of cancer biomarkers in companion diagnostics and personalized biotherapies is ushering in a new era of care. For several obvious reasons, including cost, comfort, acceptability and complete tumor representation, body fluids are ideal samples for measurement of cancer biomarkers. Successful clinical implementation of noninvasive cancer biomarkers requires among other considerations sensitive technologies that can specifically quantify the low abundant disease targets in body fluids. Such technologies will benefit even more from multiple copy number targets. An attractive molecule for such biomarkers is the “multi-copy” mitochondrial genome. We have discovered and analytically validated a class of novel mitochondrial molecules abundantly expressed by several solid tumors. Facile detection in body fluids has been demonstrated. Additionally, using cell lines we observed that these molecules modulate with disease progression. This class of novel mitochondrial biomolecules has companion diagnostic potential that await functional characterization and multicenter clinical validation.

Biography
Gabriel D Dakubo completed his honors BSc, and MBChB degrees from the University of Ghana, followed by a 4-year Postdoctoral training in molecular medicine at the Ottawa Hospital Research Institute. He is an independent scholar, proprietor of Mito-Onc, and faculty member in the Departments of Biology and Anthropology at Lakehead University. He has published over 20 papers in reputed journals, two book chapters, and two books: Mitochondrial Genetics and Cancer (Springer), Field Cancerization: Basic Science and Clinical Applications (Nova Science Publishers), and is currently working on another book, Cancer Biomarkers in Body Fluids (Springer).

gabrieldakubo@gmail.com