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Created: Sep 2023

Biosensors, detection instruments, microfluidic devices, and assay methods for cancer diagnostics, infectious disease detection, life science research, and environmental monitoring



Research Interests

- Ultrasensitive detection of ctDNA, miRNA, and proteins in bodily fluids
- Point of care diagnostics for self-testing and testing in clinical facilities
- Molecular detection to support personalized medicine and personalized nutrition

Current Projects

- Point of care detection of exosomal miRNA and plasma ctDNA for prostate cancer and lung cancer therapy selection
- Ultrasensitive detection of plasma miRNA for monitoring fetal health, maternal health, and mother-to-child transmission of genomic information
- Viral pathogen diagnostics for HIV, SARS-CoV-2, Zika, Dengue

Keywords

Biosensors, point of care diagnostics, cancer, infectious disease, molecular diagnostics, viral diagnostics, environmental monitoring, personalized medicine, personalized nutrition

Interest Areas for Collaboration/Future Work

Development of accurate and quantitative rapid tests to measure impact of nutrition, environment, exercise, and aging upon gene expression, stress biomarkers, and biomarkers for health/wellness.