Title: Diagnostic Analyte to Enrich LINE-1 and Detect LINE-1 Driven Oncologic Disease

Invention: The present invention is a companion diagnostic model for certain biomarkers found in a variety of cancers. The model includes a novel liquid biopsy process that accurately measures biomarkers from blood samples by enriching for cell-derived vesicles shed directly from affected tissues. The data will eventually guide the use of tailored cancer therapies. LINE-1 has been studied as a cancer biomarker for several years; however, it is currently not a reliable biomarker in blood samples. This technique, greatly increases the accuracy and reliability of using LINE-1 as a blood biomarker.

Background: Companion diagnostics are increasingly being used in precision drug therapies where patients can have differential disease pathways. By measuring various biomarkers, clinicians can build a picture of an individual’s cancer and treatment plan. Blood is an effective source of biomarkers for a particular cancer but is easily drowned out by noise from other molecules in the sample. Here, researchers have developed a fluid biopsy method that acts by enriching for molecules shed directly from effected cancer tissues and then quantifying the biomarkers separately from the blood. This process provides a more accurate expression of biomarkers.

Applications:

• Assays and biomarkers for early cancer detection
• Screening technologies for lung and liver cancers
• Cancer treatments and prevention

Advantages:

• More accurate
• Enhanced personalized medicine capabilities
• Uses blood, no need for tissue biopsy
• Cancer screening and prevention
• Overcomes challenges of current LINE-1 blood testing

**Licensing Manager:**
Kaitlyn Norman-Powers
KaitlynN@tla.arizona.edu
520-621-9907

**Inventors**

Brian Mckay
Associate Professor, Ophthalmology & Vision Science

Patrick Silva
Executive Director, Sr. VP Health Sciences

Emma Bowers
Postdoctoral Research Associate I, Medicine

Kenneth Ramos
Associate VP, Precision Health Sciences, Medicine