Diagnostic Analyte to Enrich Line-1 and Detect Line-1 Driven Oncologic Disease

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Invention:

The present invention is a biomarker model, in which the biomarker detected can be used as a companion diagnostic or for screening and diagnosis of 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 affected cancer tissues and then quantifying the biomarkers separately from the blood. Exomes taken directly from tumor tissues provide 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

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