Docket #: S18-549

Molecular vibrational spectroscopy method for early ovarian cancer detection

Early detection of ovarian cancer is crucial, with a 5-year survival rate exceeding 90%. Once this early window has been missed, the 5-year survival rate precipitously drops below 50%. Due to the current lack of effective screening modalities targeting early ovarian carcinomas, only ~15% are detected during the early stage--these lucky few cases are usually detected incidentally, during an imaging procedure carried out for unrelated reasons. If a rapid, cheap, easily accessible screening modality for early ovarian cancer were to be created, patient outcomes would drastically improve. Dr. Blankenberg and colleagues at Stanford invented a detection method using exosomes - small vesicles that are prolifically shed into the blood by tumor cells with molecular characteristics of their parent cells. Using vibrational spectroscopy in the mid-infrared region, the inventors distinguished ovarian carcinoma cells from normal controls. No other comparable screening technology exists, as current methods rely on prior knowledge of a specific protein or have difficulty imaging. This invention provides a rapid, label-free, and non-destructive method of screening for ovarian carcinomas based on exosomes isolated from patient blood samples that is also compatible with other exosome-based technologies.

Applications

- Cancer screening
- Cellular and tissue imaging
- High-throughput sequencing

Advantages

- Rapid, label-free, and non-destructive screening method
- Detects photon absorbance for better signal to noise ratio
- Compatible with existing exosome-based screening methods

Patents

- Published Application: 20210156862
- Issued: 11,774,451 (USA)

Innovators

- Derek Holman
- Francis Blankenberg

Licensing Contact

Mona Wan

Senior Licensing Manager for Special Projects

Email