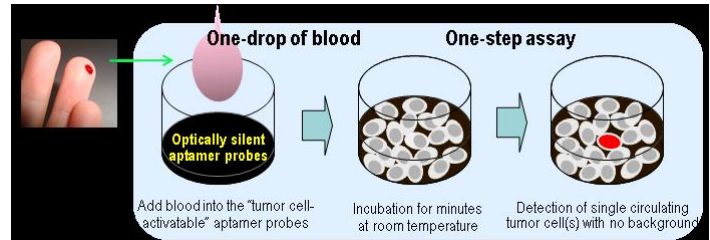


HOUSTON METHODIST INVENTION: ODOSA - ONE-DROP, ONE-STEP ASSAY FOR CIRCULATING TUMOR CELL DETECTION

Invention

The invention is a cell-specific, intracellularly-activated, one step assay for the detection of circulating tumor cells (CTC) in a single drop of blood. The invention is based on cell-specific aptamers linked to fluorophores and quenchers.

Lysosomal degradation leads to release of quenching and switches on a strong fluorescent signal in CTC's.



Background

When a tumor metastasizes, it sheds cells into the blood stream and these tumor cells are known as CTCs. The presence of CTCs is a strong predictor of prognosis and can also be used to monitor the effectiveness of treatment. Currently there is only one FDA approved platform for detecting CTCs in patient blood samples – the CELLSEARCH® CTC platform from Veridex, Llc. This system requires the use of 7.5 mL of blood and consists of a time-consuming, multi-step, only semi-automated process. A new assay in development, the CytoTrack assay from CytoTrack ApS, is also a multi-step assay that is not amenable to high-throughput screening and uses large sample volumes.

Advantages

ODOSA's advantages over current assays are:

- Highly sensitive - can detect a single CTC in one drop of blood.
- Highly specific - uses aptamers to target specific tumor cell ligands. Aptamers are more specific than antibodies.
- Multiplex capability – Can detect multiple different tumor biomarkers in a single well.
- Rapid - one step assay since no sample preparation or washing is required.
- Cheap - the aptamer is synthetic and so cheaper to produce than antibodies and simpler to modify.
- No background - the probe is not fluorescent until activated inside the specific tumor cell.
- Uses less patient sample, just a drop of blood.
- Can use RNA aptamers or more stable single stranded DNA aptamers.
- Uses an optical detection system and can easily be used in a high throughput screening platform.

For more information, contact the Office of Technology Transfer by e-mail at OTT@HoustonMethodist.org.



About Houston Methodist

Houston Methodist is comprised of a leading academic medical center in the Texas Medical Center® and four community hospitals serving the greater Houston area. Houston Methodist Hospital, the system's flagship, is consistently listed among U.S. News & World Report's best hospitals and we extend that same level of quality care across the system. Houston Methodist Research Institute is home to some of the world's brightest physician-scientists, working in a collaborative environment on more than 700 clinical trials. The Research Institute is making strides in the new 440,000-square-foot facility, bringing us even closer to medical breakthroughs in cardiovascular disease, cancer, infectious disease, neurosciences, diabetes and more.

No warranty: This summary is intended for marketing purposes only, however Houston Methodist does not warrant its accuracy or completeness for that purpose or any other, and Houston Methodist specifically disclaims all warranties, whether express or implied by law, including any warranty of fitness for particular purpose and any warranty of noninfringement.