Docket #: S15-338

Biomarkers for Ovarian Cancer Diagnostics Prognostics as a Guide to Individualized Therapies

High-grade serous ovarian cancer (HG-SOC) is the most lethal gynecologic malignancy, in large part because most patients present with late-stage disease and receive the same therapeutic regimen despite significant heterogeneity in disease and clinical response. A team of Stanford researchers have recently applied the mass cytometry technology platform for the first time to characterize protein expression levels in single cells of freshly resected HG-SOC tumors at a level of detail not previously seen. The researchers have discovered a tumor cell subset which co-expresses two biomarkers that can reliably predict whether newly diagnosed HG-SOC patients will undergo early relapse (within 1 year). Information regarding the likelihood of a patient proceeding to early relapse has profound implications for their clinical management.

Stage of Research
The inventors have performed an in depth analysis by mass cytometry, a state of the art technology platform to distinguish tumors with poor prognosis. They found that patients with tumors harboring greater than 1% of cells with the biomarker signature were 13 times more likely to go into early relapse than patients whose tumors harbored less than 1% of these cells.

Applications

- **Ovarian cancer diagnostic and prognostic** - predict time to relapse with immunohistochemistry, immunofluorescent or multiplexed ion beam imaging assays for:
    - clinical management
    - treatment monitoring and planning

Advantages

- **Unmet medical need** - provides real-time information for ovarian cancer. Test can provide additional prognostic information that can facilitate clinical decisions regarding management and treatment.
- **Simple** assay design adaptable to a variety of clinically established platforms.

Publications

- Gonzalez et al., 2018, Commonly Occurring Cell Subsets in High-Grade Serous Ovarian Tumors Identified by Single-Cell Mass Cytometry Cell Reports 22, 1875–1888 February 13, 2018

Patents

- Published Application: 20170082628

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