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BioMarker Wins SBIR NCI Grant to Develop Phosphoprotein-Based Companion Diagnostic

Phase 1 \$200,000 funding will support development of a live cell-derived profile to indicate response to ErbB pathway inhibitors.

BioMarker Strategies won a \$200,000 phase 1 SBIR contract from the NCI to support development of a pathway-based companion diagnostic for ErbB signal pathway inhibitors. The firm says it will be eligible to apply for another \$1.5 million in phase 2 funding if the phase I stage is successful.

BioMarker will use both the SBIR grant and \$2.3 million raised from investors during August to harness its automated SnapPath™ live tumor cell testing platform to generate phosphoprotein-based functional signaling profiles (FSP) as an aid to deciding on the best targeted drug therapies for individual cancer patients. The firm says this approach can't be used in dead, fixed tumor tissue.

"This additional funding will help us to expand our predictive test development pipeline," comments Douglas Clark, Ph.D., BioMarker's acting CEO. "This NCI award also signals the growing recognition that static, nucleic acid-based biomarkers will not be enough to predict patient response to drug therapies, and that new, pathway-based, approaches using living cells will be needed to enable personalized medicine for cancer."

The SnapPath platform, itself developed with SBIR funding from the NCI, is designed to enable the ex vivo induction of functional biomarkers that indicate how a patient's live tumor cells respond to pathway stimulants or inhibitors. The biopsy sample is loaded into a cartridge, which is then tested in the SnapPath platform within about 30 minutes.

The process first disaggregates solid tissue and removes nontumor cells. The enriched tumor cells are then passed into multiple test chambers and incubated with stimulators and inhibitors, evoking phosphoprotein-based FSPs that can be compared against an unstimulated sample. This comparison reveals information about signal transduction networks, including pathway activation and feedback loops, which can predict patient response to targeted drug therapy, BioMarker claims.

The startup states that in contrast with static biomarkers detected from FFPE-based tumor samples, the phosphoprotein markers evoked from live tumor cells represent a truer functional indication of cancer cell response and tumor cell biology, including signal transduction circuitry. The firm is developing a pipeline of ex vivo biomarker tests for use alongside targeted drug treatment selection (including combination therapies) for cancer patients with melanoma as well as breast, colon, lung, pancreatic and other solid tumors.