METAvivor 2020 Early Career Investigator Award
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Lay/Public abstract

Genomic testing of metastatic biopsies is critical to the delivery of high-quality care to patients with metastatic breast cancer (MBC). With an expanding array of targeted therapies for MBC on the horizon, guidelines mandate that every eligible patient should undergo biopsy at first metastatic recurrence to ensure benefit from all potential therapies for their specific tumor.

Unfortunately, many patients with MBC are left behind. About 15% of metastatic breast cancer patients have bone-only disease. Many of these patients do not undergo a diagnostic biopsy. When they do, obtaining usable tissue samples from bone biopsy for standard diagnostic testing is difficult, as the processing methods for extracting tumor from bone destroy the proteins and DNA needed for testing.

We propose to develop an alternative based on a “liquid biopsy” assay developed by our University of Washington (UW) Genetics and Solid Tumors laboratory, which uses a simple blood sample instead of a bone biopsy. These methods rely on the fact that some tumors will shed DNA that can be captured and analyzed in the blood. While the amount of this DNA is very low, studies from other tumor types show that liquid biopsy can detect this DNA at a high level in patients with bone-only metastatic disease, and results from our own molecular pathology lab show that UW’s liquid assay can detect and characterize tumor mutations in samples for patients with prostate cancer metastatic primarily to bone. To do this, we will establish a collection and assessment procedure for liquid biopsy, opening the door for these patients to potentially life-extending therapies, and perhaps even eliminating many instances of costly and problematic bone biopsy.