

METAvivor Research Award
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A New Approach to Identifying Effective Therapeutic Strategies That Eliminate De Novo and Recurrent Stage IV Triple-Negative Breast Cancer

Public Abstract

Metastatic breast cancer (MBC) claims over 40,000 lives each year in the U.S. alone. MCB arises when cells escape the primary breast tumor, enter into the circulation, spread to other organs, and grow into tumors in those organs. Many patients suffer recurrence of their breast cancer in the form of MBC years after their initial diagnosis, while some patients already have evidence of MBC when they are first diagnosed with breast cancer.

In the cancer clinic, treatment decisions are based on molecular features of the primary breast tumor. However, clinical studies and laboratory research findings indicate that the molecular features of MBCs are very different from the features of the primary tumor from which they spread. Nevertheless, patients with MBC are often treated with therapies designed to treat their primary breast tumor. Unfortunately, therefore, most current treatments are ineffective against MBC. We content that successful strategies to treat MBC should be different from treatments used for primary breast tumors.

It is now well established that MBC tumors are formed from only a small number of cells that were present in the initial breast tumor, which is comprised of many different cells. However, we currently do not know the identity of the MBC cells or how to target them. We propose to use a new technology developed in our laboratory that enables us to identify the rare cells that form MBC tumors and to study those individual MBC cells in order to find their vulnerabilities. We intend to use our technology in laboratory models to study both types of MBC – those that appear at first diagnosis and those that recur after surgery and treatment for the primary breast tumor.

Success in our METAvivor grant proposal would provide a platform for identifying new therapeutic targets for MBC. We will draw on our experience in conducting studies that lead to clinical trials and consult with our team of collaborators, including clinical oncologists, breast pathologists, and patient advocates. Ultimately, our goal is to guide clinical decisions about new life-saving therapies that can be given to patients with MBC.