



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP180181

Project Title:
Targeting neutrophil elastase as a novel therapy for metastatic breast cancer

Award Mechanism:
Individual Investigator

Principal Investigator:
Watowich, Stephanie

Entity:
The University of Texas M.D. Anderson Cancer Center

Lay Summary:

This project will investigate a novel approach to treating metastatic breast cancer using new information about how the body's immune system interacts with the cancer. The project will test the effectiveness of an FDA-approved drug (AZD9668, Alvelestat), which has been developed for chronic obstructive pulmonary disease, in treating metastatic breast cancer using pre-clinical experimental systems. Moreover, the project will examine the efficacy of combination treatment with AZD9668 and an agent (anti-PD-1) that corresponds to additional FDA-approved drug (Pembrolizumab), which is known as an immune checkpoint inhibitor. This combination has the power to unleash the immune system to more effectively destroy primary and metastatic tumors, similar to how it would target and obliterate invading pathogens or infected tissue. The major significance of this project is its potential to treat metastatic disease, which is the primary cause of cancer-related deaths among breast cancer patients. The project takes advantage of a unique collaboration between Dr. Watowich, an expert in immunology, and Dr. Keyomarsi, an expert in cancer biology and cancer therapeutics. The successful completion of the project will address fundamental gaps in knowledge and therefore significantly advance our understanding of how breast cancer metastatic disease develops and progresses. Importantly, the project will also provide the necessary data to design clinical trials in human breast cancer patients using novel intervention of the immune system. This has potential to be practice-changing, provide lasting and durable responses to therapy in breast cancer patients.