

Public Abstract

Metastatic breast cancer (MBC) is the leading cause of breast cancer-related deaths, particularly affecting patients with triple-negative breast cancer (TNBC) or postpartum breast cancer (PPBC), who experience the most challenging outcomes. These patients urgently require new treatment options. Our research team has identified a protein called Semaphorin 7A (SEMA7A), which contributes to cancer growth, spread, and resistance to existing therapies. We have developed a new antibody drug that targets SEMA7A, and laboratory models have shown that it can slow or halt cancer progression. Furthermore, when we combine this new drug with another treatment that disrupts the cancer's survival pathway, we observe significant tumor shrinkage and prolonged remission. This project aims to study SEMA7A in patient tumors and continue testing this combined treatment strategy. Our ultimate goal is to develop a breakthrough therapy for TNBC and PPBC that could significantly improve survival rates, similar to the impact trastuzumab has had for HER2-positive breast cancer.