**Lay Summary of Outcomes:**

Results published

Oncogenic TRIM37 links chemoresistance and metastatic fate in triple negative breast cancer. Przanowski P, Lou S, Mondal T, Djiake R, Conlan C, Shivange G, Xing K, Morris B, Lehmann-Che J, Mayo M, Tushir-Singh J\* and Bhatnagar S. Cancer Res. 2020 Nov 1;80(21):4791-4804. PMID: PMC7731897

Patent filed

Oncogenic TRIM37 is a targetable epigenetic driver of metastasis in triple negative breast cancer. Bhatnagar S and Tushir-Singh J. U.S. Provisional Patent Application Serial No. 62/963,883

Summary of important findings

Cancer, once thought to be only a genetic disease, is now considered to be at the crossroads of genetic and epigenetic perturbations. A transformed cell has a profoundly altered epigenetic landscape, mainly dictated by covalent DNA and histone modifications. These abnormalities may arise from mutations in/or altered expressions of chromatin modifiers. We previously identified and characterized a novel epigenetic regulator called TRIM37 that is involved in Polycomb complex-mediated epigenetic repression of tumor suppressor genes in breast cancer. These findings suggested a novel TRIM37-directed mechanism of cellular transformation. Because inhibition of TRIM37 activity selectively prevents the growth of tumors without affecting normal cells, it is an attractive target for therapeutic intervention. We recently discovered a new function of TRIM37 in TNBC metastasis. We provide strong evidence that oncogenic TRIM37 is a novel molecular link for cancer chemoresistance and metastasis. Further, we have now developed a highly innovative therapeutic strategy using antisense oligonucleotide technology, immunotherapy and a clinical investigational antibody-conjugated nanoparticle.