Introduction

- At least 20% of breast cancers are "triple-negative" (TNBC). TNBC is often associated with poor prognosis and high metastasis.
- Inflammatory breast cancer (IBC), another highly aggressive breast cancer, accounts for 1-5% of all breast cancers, but causes about 8-10% of U.S. breast cancer deaths.
- Approximately one-third of cases of IBC are also TNBC.
- Patients with TN-IBC are treated with the standard-of-care multimodality therapy, but thus far resulted in poor outcomes.
- MELK has been shown to be overexpressed in various cancer types, including TNBC.

Hatzis, Subtypes

- Our previous studies have shown that Knockdown of MELK in TNBC cells reduced the CSC phenotype, reversed epithelial-mesenchymal transition (EMT), and blocked invasion and metastasis.

Hypothesis


Methods and Materials

- The use of standard assays included cell proliferation, colony formation, soft agar, migration, flow cytometry, and western blotting.

Results

1. Inhibition of MELK decreases cell proliferation

- We show that treating cells with a novel selective MELK inhibitor resulted in significant reduction in colony forming ability, migratory capacity and stemness.
- Our findings highlight the therapeutic potential for MELK-in-30e, a second-generation MELK-specific inhibitor as an approach for TN-IBC targeted therapy.
- Future studies will determine the molecular mechanisms of MELK-In-30e and its therapeutic efficacy in a TN-IBC xenograft mouse model to pave the way for this promising target to be translated for clinical use.

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References

- American Cancer Society. 2021