

LEAD INVENTORS

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UNMET NEED

Triple Negative Breast Cancer (TNBC) has the highest mortality rate among all breast cancers due to shorter time to develop metastases and high recurrence rates¹. Most deaths occur within less than 5 years following diagnosis². Due to lack of targetable receptors within that cancer subtype, a cocktail of toxic indiscriminate systemic chemotherapies is currently offered to the TNBC patient population. Non-selective cancer chemotherapy destroys everything in its path and can cause severe long term side effects such as cardiotoxicity, leukemia and neurotoxicity leading to cognitive impairment^{3,4}. Clinicians are forced to deliver sub-optimal dosage of chemotherapy to TNBC patients due to these off target life-threatening side effects, thus leaving resilient TNBC cells lurking and ready to recur at any time. These ineffective treatments have lethal consequences.

OPPORTUNITY

An ideal chemotherapeutic agent for TNBC would be one that selectively targets (kills) TNBC cancer cells while sparing normal surrounding cells. This selective compound would allow the delivery of higher dosage in patients to kill robust TNBC cells while sparing vital normal cells important for daily functions and quality of life.

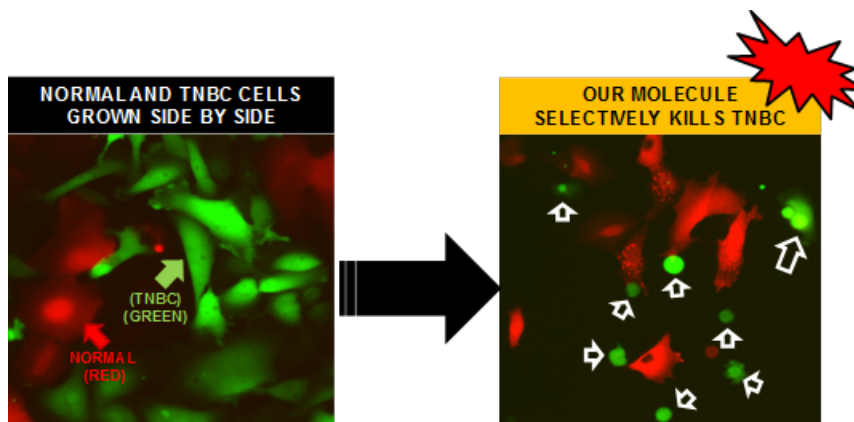


Figure 1. Left panel shows TNBC cells (green) grown side by side with normal mammary cells (red) in a mixed co-culture. Right panel demonstrates that following the treatment of the mixed co-culture, our small molecule prefers killing TNBC (dead rounded green) while completely sparing neighboring normal mammary cells (healthy flat red). Empty white arrows point toward dead rounded TNBC cells.

UNIQUE ATTRIBUTES

- The inventors have uncovered a small molecule that exhibits selectivity toward TNBC cells while sparing normal surrounding cells (see Figure 1).
- The team's small molecule attacks and kills TNBC cells without the need of any additional treatments or conjugation molecules while keeping surrounding non-cancerous normal cells alive.
- Scale-up and commercial production of the molecule are feasible.

CLINICAL APPLICATIONS

By selectively killing TNBC cells and sparing normal cells, this small molecule could be delivered in high amounts to patients, if necessary, thus attacking resilient TNBC cells, preventing recurrence, and maintaining quality of life through less unwanted side effects.

STAGE OF DEVELOPMENT

Preclinical Studies: Solid in vitro data. Synthetic route outlined and immediately scale-able. In vivo studies are on-going and there are some grant applications along those lines. Studying the mechanism(s) of action as well as designing follow-on compounds.

INTELLECTUAL PROPERTY

Provisional patent in force.

COLLABORATION OR LICENSING OPPORTUNITY

Enthusiastically in quest of out-license and / or seeking funds to advance the molecule to the clinic. Clinical studies could begin within 14 months.

REFERENCES

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