Determining anti-cancer potential of proprietary compound against triple-negative breast cancer

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Breast cancer is a disease that will affect 1 in 8 U.S. women over their lifetimes. The disease is caused by a growth of abnormal cells that originate in the tissues of the breast. Treatment options include chemotherapy, hormonal medication, radiation and surgery depending on the stage and subtype of breast cancer. The triple-negative breast cancer (TNBC) subtype accounts for 10-20% of those diagnosed in the U.S every year. TNBC is characterized by the lack of expression of hormone receptors Estrogen Receptor (ER) and Progesterone Receptor (PR), and are non-amplified for the growth factor receptor HER2. As a result, current treatments for breast cancer that target these receptors are ineffective in this subtype, leaving TNBC patients reliant on general chemotherapy, radiation, and surgery. A commercially available, proprietary compound (referred to here as compound E) has been identified as having potential anti-cancer activity. However, most of the evidence is anecdotal and somewhat controversial. Using standard, well-controlled in vitro assays, compound E was tested at a range of concentrations to determine its effects on two breast cancer cell lines (triple-negative: MDA-MB-231; ER positive: MCF7). The compound was found to be effective in concentrations as low as two percent across both cell lines, suggesting effectiveness in both triple-negative and estrogen receptor positive breast cancers. Future research will focus on understanding the mechanism of action of this compound, as well as further application against additional cell lines to determine if these effects hold true.