**Title:** Effects of Inhibition of Cytoplasmic Citrate Related Enzymes on Breast Cancer Cells

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**Category:** II – Clinical Care, Treatments and Processing

**Subcategory:** C3 – Targeted or Biological Therapy

**Objectives:**

Metabolic changes are one of the main characteristics of cancer. Recent studies suggest that the activity of citrate lyase (CL) increases in cancer and CL inhibitors also inhibit tumor growth. In this study we aimed to investigate the importance of CTP and ATP-citrate lyase (ACLY) for breast cancer cells.

**Methods:**

The effects of genetic silencing of CTP and ACLY on breast cancer cells were evaluated to determine the importance of CTP for breast cancer cells. For that purpose, the effects of CTP and ACLY inhibitions on cell viability was investigated by crystal violet method. The apoptosis was detected by flow cytometer using BD Annexin-V:FITC Apoptosis Detection Kit.

**Results:**

According to viability test results, CTP siRNA application caused 25 % and 20 % viability inhibition in MCF-7 and MDA-MB-231 cells respectively. In addition, ACLY siRNA inhibition caused 35 % viability inhibition in both cell lines. Similarly, ACLY silencing has been more effective in viability inhibition compared to CTP silencing. A variable apoptotic response was detected in MCF-7 cells. However, results obtained from MDA-MB-231 cells shows that both CTP and ACLY inhibition caused partial apoptotic response. Apoptosis were more profound in ACLY silenced cells compared to CTP silencing.

**Conclusion:**

Data which obtained might reveals the potential of CTP and ACLY inhibition as a novel strategy in breast cancer therapy.