Title: Antagonistic effect of combination therapy Trichostatin A and Etoposide on lung cancer H1299 cell line

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Abstract: Introduction: Etoposide is used as chemotherapy for lung cancer. Whereas it has been largely unsuccessful in preventing relapse. Trichostatin A (TSA) as a histone deacetylase inhibitors have been extensively studied as potential candidates for treatment of various malignancies. The aim of this study was to investigate the combination effect of TSA on Etoposide-induced cytotoxicity in lung cancer H1299 cell line.

Material and Methods: H1299 cells were cultured; viability and cytotoxicity were assessed by Trypan blue and MTT assay. H1299 cell line was treated with 800nM Etoposide and 700nM TSA alone or combination of different dilution (4x, 2x, x, 1/2x, 1/4x) of them in time period of 72h. After addition of MTT solution on cells, OD wells were read using a spectrophotometer at 570nm wavelength.

Result: According to MTT assay results, treated of H1299 cells with TSA or Etoposide alone significantly induced cytotoxicity. But combination of these drugs did not show cytotoxic effect on cells (CI<1).

Conclusion: Despite the positive effects of the mentioned drugs alone on cytotoxicity, not only in the combination of TSA and Etoposide was not observed cytotoxic effects on H1299 cell line but also antagonistic effects of them was seen. Therefore, it is suggested that probably TSA has different effect on different cancers and more studies should be carried out to elucidate the exact effects of TSA on in vitro models cancer.