

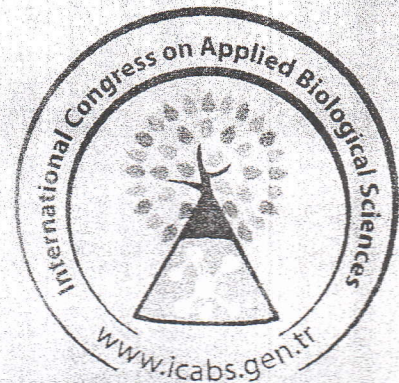


2018

4th INTERNATIONAL CONGRESS ON APPLIED BIOLOGICAL SCIENCES

Abstract Book

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Investigation of the Effects of Combination Drug Treatment with Trastuzumab and 5-Fluorouracil on A549 Human Lung Cancer Cell Line

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Abstract

Lung cancer is one of the most common malignancies in the world and the leading cause of cancer-related death. Trastuzumab is a recombinant, humanized monoclonal antibody, targeting the extracellular domain of the oncogenic factor HER-2/neu. 5-fluorouracil is an antimetabolite drug that exerts its anti-cancer effects through inhibition of thymidylate synthase and incorporation of its metabolites into RNA, DNA. In this study, we aim to investigate the effects of combining trastuzumab and 5-FU on the HER-2-positive human NSCLC cell line A549.

A549 was cultured in RPMI medium with 10% FBS, 1% penicillin/streptomycin, at 37°C in 5% CO₂ incubator. MTT assay was performed to evaluate the effects of various concentrations of trastuzumab, 5-FU and combination for 24h-48h. To determine the cytotoxic effect of drugs combination were used in survival assay for every 24h(24h-144h). The effect of Trastuzumab, 5-FU and combination were investigated by wound healing assay for 24h-96h. We observed that IC₅₀ values for trastuzumab, 5-FU and combination by MTT assay 70µM, 75µM and 30µM-30µM respectively. Survival analysis showed that combination therapy with trastuzumab 5-Fluorouracil for 24h-144h significantly reduced cell viability. Incubation of A549 cells with trastuzumab, 5-Fluorouracil and combination for 48-96h were inhibited migration into the scratched area as compared to untreated cells.

Keywords: Trastuzumab, 5-Fluorouracil, A549



Investigation of Effects Combined Treatment with Caffeic Acid Phenethyl Ester and Propranolol on MDA-MB-231 Breast Cancer Cell Line

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Abstract

Caffeic acid phenethyl ester (CAPE) is one of the active components of propolis with anti-cancer effects. Propranolol has been shown to be a protective effect in the development of cancer due to its anti-angiogenesis and β -adrenergic receptor suppression. Recently, drug combination studies have been widely used in the treatment of many fetal diseases such as cancer. Combined treatment can prefer both benefit and reduce side effects of patient. The aim of this study is to find the migration analysis of MDA-MB-231 breast cancer cell line with combined treatment of CAPE and Propranolol. In this study cell viability was measured by MTT assay. For Wound healing, the MDA-MB-231 cell line was cultured to be 10^5 cells in 100 μ L in a 6-well culture plate. After 90% confluency, we applied 30 μ M CAPE, 150 μ M Propranolol and combined treatment at 15 μ M CAPE and 75 μ M Propranolol. We observed width of scar 0, 24, 48 and 72 hours with inverted microscope. When the data about wound closure rates were evaluated, it was observed that combined therapy inhibited migration of cancer cells compared to untreated cells and singly therapy.

Keywords: Breast Cancer, CAPE, Propranolol, Wound Healing