

Dexamethasone downregulates BCRP mRNA and protein expression in breast cancer cell lines

Elahian, F.^{ab}, Kalalinia, F.^{ab}, Behravan, J.^{ab}

^a Biotechnology Research Centre, Bu-Ali Research Institute, **Mashhad University of Medical Sciences, Mashhad, Iran**

^b Department of Pharmaceutical Biotechnology, School of Pharmacy, **Mashhad University of Medical Sciences, Mashhad, Iran**

[View references \(7\)](#)

Abstract

It is hypothesized that anti-inflammatory drugs regulate breast cancer resistance protein (BCRP) expression. Hence, we examined the effects of indomethacin and dexamethasone on BCRP expression in MCF cells. For evaluation of BCRP mRNA expression, relative quantitative PCR and comparative C_t method was exploited. BCRP protein expression was measured flow cytometrically with the monoclonal antibody (mAb) BXP-21. Dexamethasone showed a dose-independent and a time-dependent effect on decreasing the mRNA level of BCRP gene in comparison with control in MCF-7 and MCF-7/MX breast cancer cell lines, whereas no changes were noted in the presence of indomethacin. The level of BCRP protein, expressed as a ratio of the corresponding control, was decreased in dexamethasone-treated MCF-7/MX cells. These results could be of great importance when combination therapy protocols with cytotoxic agents and dexamethasone regimens are considered in breast cancer patients. Copyright © 2019 Cognizant Comm. Corp. All rights reserved.

Author keywords

BCRP; Breast cancer; Dexamethasone; Glucocorticoids; Indomethacin; Multidrug resistance

Indexed Keywords

EMTREE drug terms: breast cancer resistance protein; dexamethasone; indometacin; messenger RNA; monoclonal antibody; ABC transporter; ABCG2 protein, human; tumor protein

EMTREE medical terms: article; breast cancer; cancer cell culture; cell strain MCF 7; combination chemotherapy; controlled study; dose time effect relation; gene expression regulation; human; human cell; multidrug resistance; priority journal; protein expression; breast tumor; cell proliferation; down regulation; drug effect; female; flow cytometry; genetics; metabolism; pathology; polymerase chain reaction; tumor cell line

MeSH: ATP-Binding Cassette Transporters; Breast Neoplasms; Cell Line, Tumor; Cell Proliferation; Dexamethasone; Down-Regulation; Female; Flow Cytometry; Gene Expression Regulation, Neoplastic; Humans; Indomethacin; Neoplasm Proteins; Polymerase Chain Reaction; RNA, Messenger

Medline is the source for the MeSH terms of this document.

Chemicals and CAS Registry Numbers: dexamethasone, 0002-2; indometacin, 03-86-1, 74202-20-8, 7681-04-1; ABCG2 protein, human; ATP-Binding Cassette Transporters; Dexamethasone, 0002-2; Indomethacin, 03-86-1; Neoplasm Proteins; RNA, Messenger

Manufacturers:Drug manufacturer: Sigma, Germany.

ISSN: 0960-047 **CODEN:** ONREE **Source Type:** Journal **Original language:** English

DOI: 10.37277/0960-04789740674 **PubMed ID:** 19911699 **Document Type:** Article