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Abstract

The Effects of Paclitaxel and Metformin and Combined Treatments on TLR Signaling Pathway on MDA-MB-231 Breast Cancer Cell Lines †

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Abstract: The aim of this study was to determine the effects of Paclitaxel, Metformin and combined treatments on human breast cancer cell line MDA-MB-231 via TLR signaling pathway using immunocytochemical technique. MDA-MB-231 breast cancer cells were cultured in RPMI-1640 medium containing 10% FBS, 1% L-glutamine and 1% penicillin/streptomycin. Anti-TLR2, anti-TLR4, anti-MyD88, anti-NFkB, anti-IL-6 and anti-ERK primary antibodies were used for indirect immunohistochemistry after 24 h administrations of Paclitaxel, Metformin and combination of them. The mean values of the staining intensities (mild, moderate, strong and very strong) and percentage of positively stained cells were calculated using H-Score. The results showed that the immunoreactivities of TLR-2, TLR-4, MyD88, NFkB and ERK is increased after the drug treatments while the immunoreactivity of IL-6 has not changed between control and treated groups. To conclude that paclitaxel, metformin and combined therapies on breast cancer cells caused the activation of the TLR-MyD88-ERK signaling pathway which mediates tumor growth and progression, metastasis and drug resistance.

Keywords: breat cancer cell line; paclitaxel; metformin; TLR