

Combinations of platinum with phytochemicals towards overcoming drug resistance in ovarian tumour models

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Acquired drug resistance is a major problem in chemotherapy against various cancers including ovarian cancer. Combination therapy using drugs with different mechanisms of action can offer a means of overcoming drug resistance when the drugs act synergistically in combination. Phytochemicals having chemopreventive and cytotoxic attributes can be ideal candidates for combination to sensitize tumour cells to targeted therapy by modulating various cellular pathways responsible for chemoresistance. In this study, binary combinations of three platinum drugs: cisplatin (CS), carboplatine (CB) and oxaliplatin (OX) with six phytochemicals artemisinin (ART), oleanolic acid (OA), thymoquinone (TQ), curcumin (Cu), lupeol (LP) and ursolic acid (UA) have been applied to A2780, A2780CisR, and A2780^{ZD0473R} ovarian cancer cell lines using three different sequences of administration: 0/0 h, 0/4 h and 4/0 h. Cytotoxicity of platinum drugs alone or in combination with phytochemicals against ovarian cancer cell lines was determined using MTT assay. Combined drug actions from sequenced combinations of platinum and phytochemicals are found to vary from being highly synergistic to antagonistic.

Biography

Safiah I. Althurwi is an international student from Kingdom of Saudi Arabia. She is doing Ph.D research under the supervision of Professor Fazlul Huq in the Discipline of Biomedical Science at The Sydney Medical School, University of Sydney, Australia. She has been awarded King Abdullah Postgraduate Scholarship in 2012. Her research focuses on sequenced combinations of platinum drugs and tumour active phytochemicals applied to ovarian tumour models.

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