ABSTRACT

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Title : Generation of cisplatin-resistance Hela cell

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Cisplatin is one of the most commonly used platinum-based treatments for chemotherapy in various types of cancer. However, high incidence of chemo-resistance has become one of the main limitation of cisplatin as anticancer drug thus new anticancer drugs will be needed in the future. Yet the mechanism of cisplatin resistance is still poorly understood. The objective of this study is to generate cisplatin-resistance Hela cell line to be used for screening for cytotoxic drugs and drugs that may reverse cisplatin-resistance to become cisplatin-sensitive cell lines, as well as investigating the mechanism and pathways involved in resistance and its reversal. Parental wildtype Hela cell line were treated with increasing concentration of cisplatin within a period of time before being analyzed with MTT assay and trypan blue exclusion dye assay. Cisplatin-resistance Hela cell line showed 2.4-fold resistancy to cisplatin compared to parental wildtype Hela cell line according to trypan blue exclusion dye assay, which was contradicted with the MTT assay result that showed lower resistancy to cisplatin in cisplatin-resistance Hela cell line compared to parental wildtype Hela cell line. Quantitative reverse transcriptase polymerase chain reaction (qRT-PCR) was used to quantify TNFAIP8 and ATP7A expression in Hela cells adapted in cisplatin treatments and Hela cells that were treated briefly with cisplatin. It showed that TNFAIP8 and ATP7A expression in adapted cells to be increased compare to control. The same results also showed in cells that were treated briefly with cisplatin. These results showed that TNFAIP8 and ATP7A expressions were higher in cells that were initially given cisplatin and let the cells adapt to their new environment compared to cells that were only briefly treated

with cisplatin. Further study is still needed to confirm the results of this study as well as more advanced study on TNFAIP8 and ATP7A expression in cancer cells resistance to platinum drugs as TNFAIP8 showed promise as a target for cancer therapy.