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SINEENART KASLUNGKA : CYTOTOXICITY AND APOPTOSIS OF OVARIAN CANCER AND BREAST CANCER CELL LINES INDUCED BY OVS1 MONOCLONAL ANTIBODY AND PACLITAXEL. THESIS ADVISORS: PRIMCHANIEN MOONGKARNDI, Dr.rer.nat., NEELOBOL NEUNGTON, M.D. 154 p. ISBN 974-663-074-1

OVS1 monoclonal antibody (MAb) produced against ovarian cancer is currently used to identify mucinous cystadenocarcinoma antigen as a tumor marker secreted in serum. The potential of OVS1 MAb in ovarian cancer treatment was studied by evaluating the induction of the cytotoxicity and apoptosis of OVS1 MAb on SKOV3 ovarian cancer and BT549 breast cancer cell lines. Paclitaxel, an antitumor drug, was used as positive control and applied as a combined drug together with OVS1 MAb.

OVS1 MAb and paclitaxel were found to induce cytotoxicity by MTT assay against both cell lines. The ED_{50} of OVS1 MAb were 26.25 and 25.00 μg/ml and ED_{50} of paclitaxel were 21.88 and 9.20 nM against SKOV3 and BT549 cell lines, respectively. The quantitative cell numbers by fluorimetric assay was correlated to the result from MTT assay. Combined application of OVS1 MAb and paclitaxel on these two cell lines resulted in greater cytotoxicity than observed with either agent alone. OVS1 MAb and paclitaxel treated against both cell lines at 24 h exhibited a nuclear morphology characteristic of apoptosis by DNA staining with two color fluorescence dyes; Ho 33342 and propidium iodide. Combined the two substances enhanced the rate of apoptosis compared with either OVS1 MAb or paclitaxel given alone. DNA fragmentation was detected in agarose gel electrophoresis after treating cells with OVS1 MAb and paclitaxel at 24 h. These findings on the cytotoxicity and apoptosis induction of OVS1 MAb in cancer cell lines have implications and potential application of OVS1 MAb for clinical therapy.