

VITAMIN D AND BREAST CANCER

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OBJECTIVES

The anticancer action of vitamin D is currently considered one of its main properties. The main actions of vitamin D are related to the regulation of calcium levels and the normal function of the musculoskeletal system. However, its anticancer action is currently in

the focus of research interests.

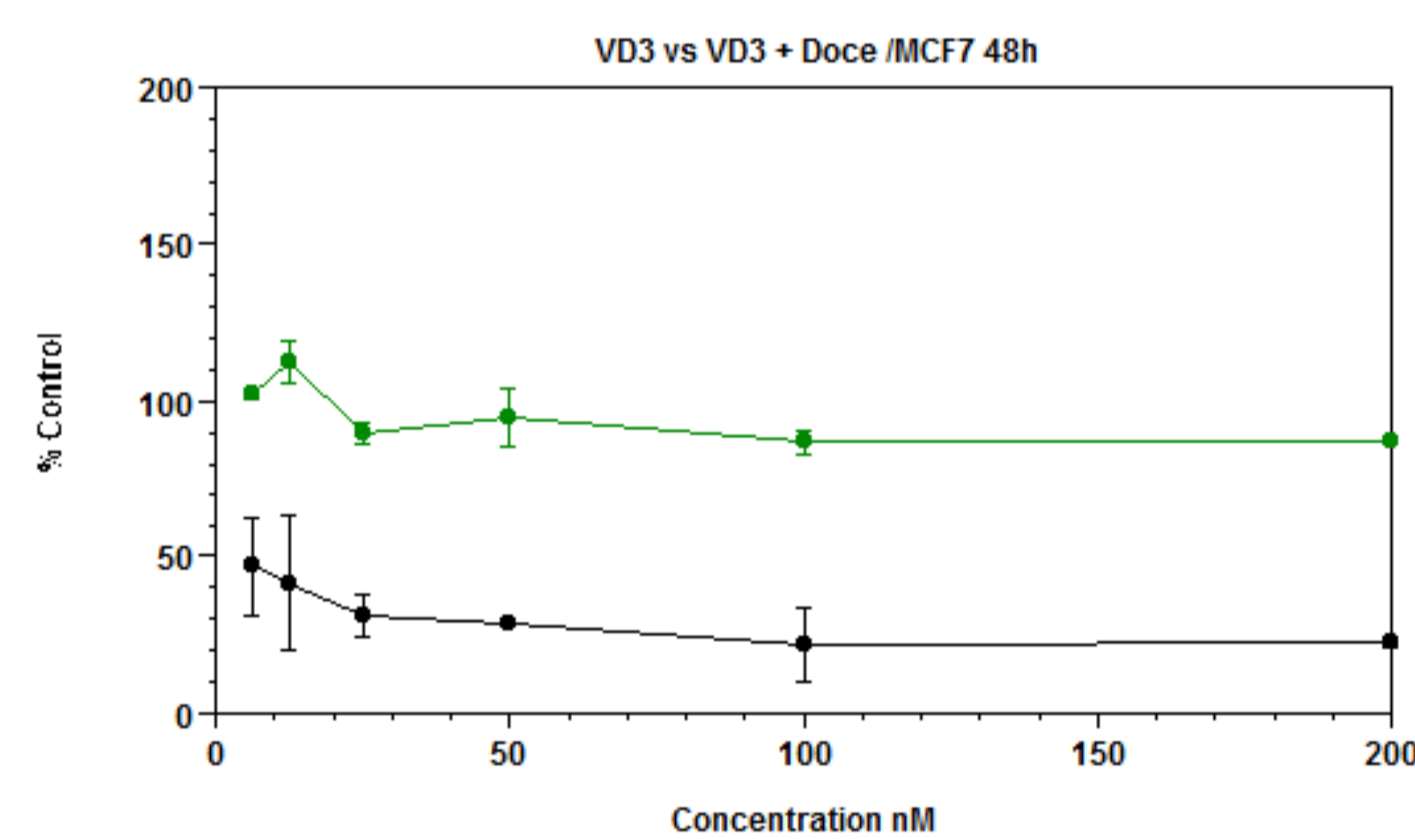
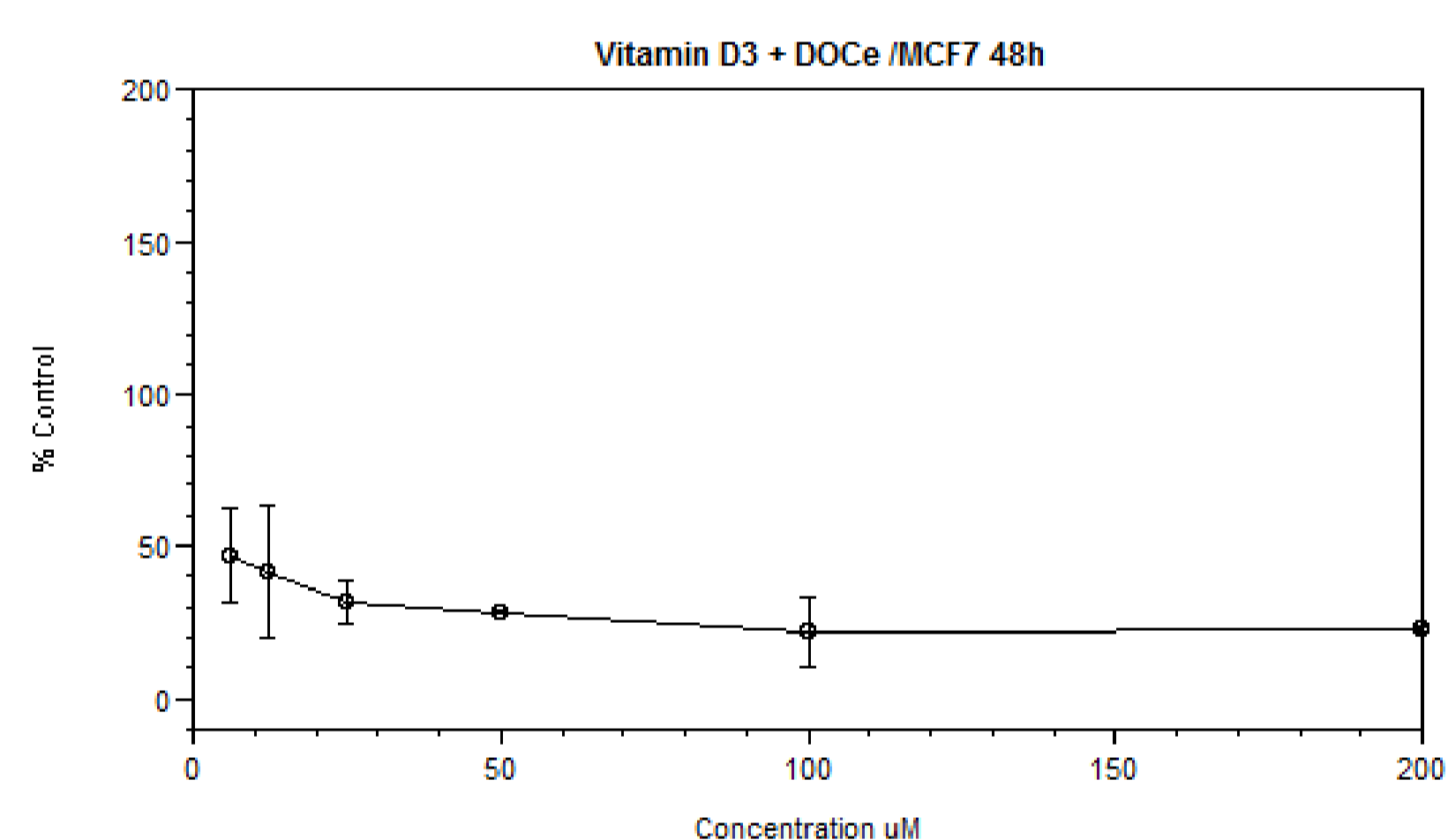
The aim was to study the effect of vitamin D on MCF-7 human breast cancer cells *in vitro*.

METHODS

The effect of 1,25(OH)₂D₃ (Sigma-Aldrich) at an initial concentration of 200 nM on MCF-7 human breast cancer cells was studied *in vitro*. MCF-7 human breast cancer cells were incubated for 48h at a temperature of 37°C with progressively decreasing concentrations of 1,25(OH)₂D₃. MCF-7 cells were also incubated with progressively decreasing concentrations of 1,25(OH)₂D₃ (the initial concentration of 1,25(OH)₂D₃ being 200 nM) in the presence of the antimitotic agent docetaxel 50 nM.

RESULTS

A mild inhibition of the proliferation of human breast cancer cells MCF-7 was observed after 48h incubation with 1,25(OH)₂D₃. After simultaneous incubation with 1,25(OH)₂D₃ and docetaxel intense inhibition of the proliferation of MCF-7 breast cancer cells was observed.



CONCLUSIONS

In conclusion, a mild inhibitory effect of 1,25(OH)₂D₃ on the proliferation of MCF-7 human breast cancer cells was observed, while the antimitotic agent docetaxel had intense inhibitory effect on their proliferation. These findings are in agreement with the expression of VDR (Alimirah et al, Mol Cell Biochem 2010), the vitamin D receptor, in breast cancer cells.

References

Alimirah F, Vaishnav A, McCormick M, Echchgadda I, Chatterjee B, Mehta RG, Peng X. Functionality of unliganded VDR in breast cancer cells: repressive action on CYP24 basal transcription. Mol Cell Biochem 2010; 342(1-2):143-50

