Invitro toxicity test and searching the possibility of cancer cell line extermination by magnetic heating with using Fe_3O_4 magnetic fluid

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Abstract: A Fe_3O_4 based magnetic fluid with different concentrations ranged between 0.15 ng/cell to 10 ng/cell (nano gram/cell) was used in the in vitro toxicity test on several cancer cell lines, Sarcoma 180, HeLa and H358. It shows that the fluid with a concentration of Fe_3O_4 below 1.2 ng/cell is completely non-toxic for these cell lines. Even through in the presence of the highest concentration of 10 ng/cell, the cell viability still reaches more than 60%. The magnetic fluid with Fe_3O_4 concentration of about 0.1 ng/cell was also used to search ex-vivo the possibility of Sarcoma 180 extermination by magnetic heating with an AC field of 120Oe and 184 KHz. The result shows that after a heat treatment for 30 min., 40% of Sarcoma 180 cells was killed. ?? 2009 IOP Publishing Ltd.

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