

### The effect of magnetic force on cell viability

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Magnetic Nanoparticles(MNPs) with an average diameter of 79nm were synthesized via thermal decomposition of iron(III) acetylacetonate in a mixture composed of oleic acid and benzyl ether. Obtained MNPs were prepared by coating polyethylene glycol-phospholipid onto ferrimagnetic iron oxide nanocubes. The experiments were performed to identify the differences between the cell's states in a magnetic field before and after the treatment on the macrophage THP-1 with MNPs. The experiment data was achieved by changing the concentration, magnetic force, and time of magnetic force exposure. Consequently, the cell vitality tends to be decreased at higher concentration of particles, stronger magnetic force, and longer exposure time to magnetic force.

Also, up to 10ug/mL of particle concentration, less than 10% of total cell number was decreased and decreasing less than 10% is considered as acceptable range of decrease. However, if the particle concentration is higher than 25ug/mL the vitality of cells tends to be decreased gradually by increasing the cell concentration.