The influence of the magnetic field on the entry of nanodrugs into cells

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Magnetic nanoparticles are very interesting materials in various fields. In medicine they can be used as contrast in diagnostic imaging, drug carriers and in magnetic hyperthermia. Their advantage is the possibility of attaching various drugs to the surface. These can be for example chemotherapeutics or antioxidants. Both of them play a big role in medical therapy. Antioxidants, as free radicals scavengers, are very important because most diseases, including cancer, are associated with uncontrolled radical processes taking place in the body. However, there is always the question of whether and how nanoparticles enter cells. A method which can be used to study both the properties of functionalized magnetic nanoparticles and their interactions with cells is electron spin resonance (ESR). As a result two sources of information are given: about the core and the surface. The second signal informs about the interaction with the external environment, for example cells. Several factors are believed to affect the permeability of the cell membrane, such as electric, magnetic fields and ultrasounds. In this work it will be shown how the magnetic field in various configurations can affect the process of entering nanodrugs based on magnetic nanoparticles into cells.

References:

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