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**Title: Fluorescence imaging of cancer cells by application of novel fluorescent dendro-nized magnetic nanoparticles**

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**Abstract:**

$0$ **Introduction:** The combination of medical and nanotechnology associated with production of composite material is clearly on the rise. Excitement over these themes has triggered a tumult of activity in nanomaterial design and development as diagnosis and therapeutic agent to boost the clinical benefits of nanomedicine.<o:p></o:p>

$0$ **Method:** In this study, we described the synthesis of poly(amidoamine)(PAMAM) dendrimer coated superparamagnetic iron oxide nanoparticles (SPIONS) and then functionalized them with fluorescein isothiocyanate (FITC) with a particular application for fluorescence imaging. The nanocomposites are characterized by UV-vis spectroscopy, FTIR, XRD, TEM and VSM.<o:p></o:p>

**Results:** The FTIR results confirmed the functionalized surfaces of magnetite nanoparticles with PAMAM dendrimer and FITC terminal groups. Based on the XRD results, the reflection peak at $2\theta = 35.60^\circ$ corresponds to the spinel phase of $\text{Fe}_3\text{O}_4$. In addition, TEM results showed that the diameter of SPIONS and final products were 10 nm and 14 nm, respectively. A possible fluorescence imaging of MCF-7 cells using magnetic nanocomposites and based on laser-induced fluorescence is demonstrated. In our case, the synthesized fluorescent nanocomposites can successfully distinguish the position of cancer cells with aggregation into them or on cell membranes in confocal microscopy imaging results.<o:p></o:p>

**Conclusions:** These findings are promising for potential application of fluorescent dendro-nized magnetic nanoparticles in nanomedicine with respect to their other unique characteristics such as high amount of magnetization saturation ($\text{Ms}=52 \text{ emu/g}$).<o:p></o:p>

**Presentation: Poster**