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HIGHLY EMISSIVE HYBRID MESOPOROUS ORGANOMETALLO-SILICA NANOPARTICLES FOR BIOIMAGING

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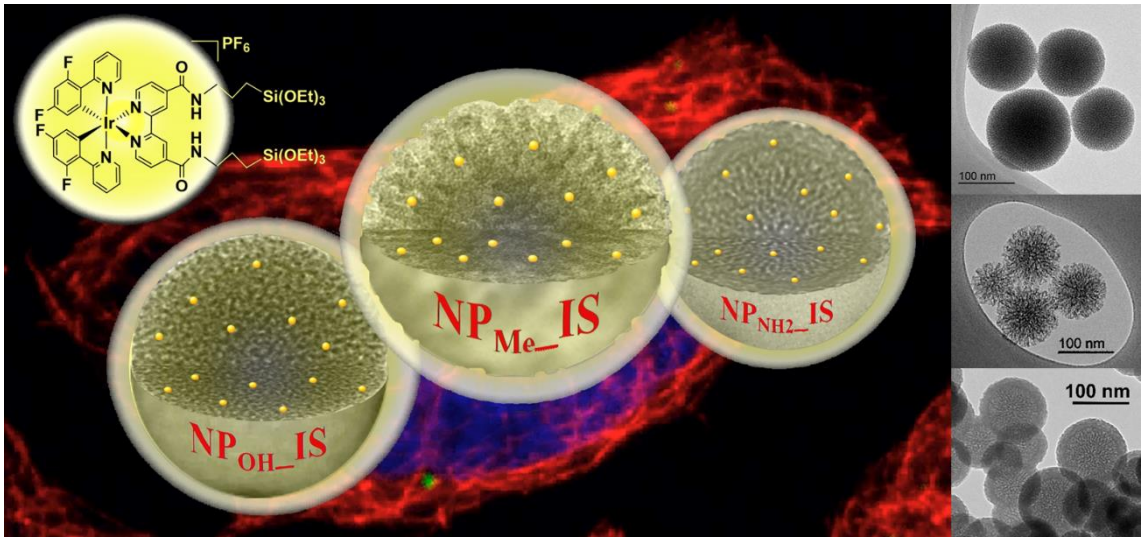
Production of Mesoporous Silica Nanoparticles (MSNs) with uniform textural characteristics and imaging properties on a large scale is still a challenge. Thus, the design of simple and scalable methods to obtain reproducible functionalized MSNs has become even more relevant.

In this communication, we describe an *in-situ* strategy for the synthesis and superficial functionalization of highly luminescent Mesoporous Organometallo-Silica Nanoparticles. Using the $[Ir(dfppy)_2(dasipy)]PF_6$ chromophore and TEOS as sol-gel precursors, and different capping agents, such as diethoxydimethylsilane (DMDES) or 3-aminopropyltriethoxysilane (APTES), three different emissive MSNs were prepared (**NP_{OH}_IS**, **NP_{Me}_IS** and **NP_{NH2}_IS**), each containing hydroxyl, methyl or amine groups on their surfaces, respectively. All three have been tested on human tumor A549 (lung carcinoma) and HeLa (cervix carcinoma) cell lines, showing intense and stable yellow phosphorescence, biocompatibility and efficient internalization. Moreover, these MSNs also present excellent textural properties with high superficial areas (up to 1000 $m^2 \cdot g^{-1}$), paving the road for their future use not only as phosphorescent biomarkers, but also in controlled intramolecular delivery.[1]



References

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