

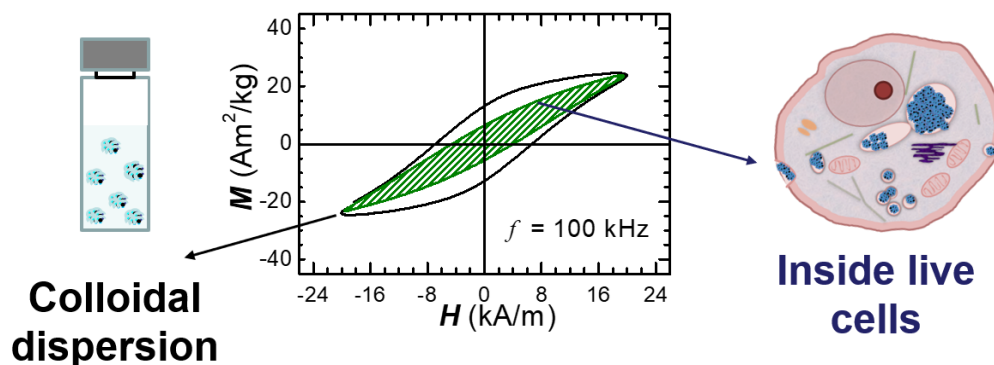
# Probing interactions between magnetic nanoparticles and biological entities by AC magnetometry

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Nowadays, the progress of nanoparticle engineering enables the synthesis of magnetic nanocrystals with customized physical, chemical, and/or biological properties. Recent works underline the influence of biological entities on determining the magnetic response of magnetic nanoparticles under alternating magnetic fields. Here, I will present some examples showing the potential of AC magnetometry for probing the interactions between magnetic nanoparticles and biological molecules and cells. First, the elucidation of the colloidal stability of iron oxide nanoparticles under physiological conditions<sup>1,3</sup>. Second, the influence of cell internalization on the dynamical magnetic response of iron oxide nanoparticles.<sup>2</sup> Finally, the potential of using AC magnetometry as a powerful and useful tool for quick characterization of the distinct bioconjugation steps of magnetic nanoparticles with recognition ligands and drugs will be shown.



1.- A. Aires et al. *Chem.Nano.Mat* 2016 DOI: 10.1002/cnma.201600333

2.- D. Cabrera et al. *ACS Nano* 12(3), 2741 (2018)

3.- A. Aires et al. METHOD FOR DETECTION OF AN ANALYTE; Patent application: WO2019/092131