Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Electronic Supplementary Information

Synthesis, characterization and *in vitro* validation of a magnetic zeolite nanocomposite with T_2-MRI properties towards theranostic applications

Natália Vilaça,[a] Juan Gallo,[b] Rui Fernandes,[c] Francisco Figueiredo,[c] António M. Fonseca[a,d], Fátima Baltazar,[e,f] Isabel C. Neves*[a,d] and Manuel Bañobre-López*[b]

[a]*Centre of Chemistry, Chemistry Department, University of Minho, Campus de Gualtar, 4710-057 Braga, Portugal - *E-mail: (ineves@quimica.uminho.pt)*

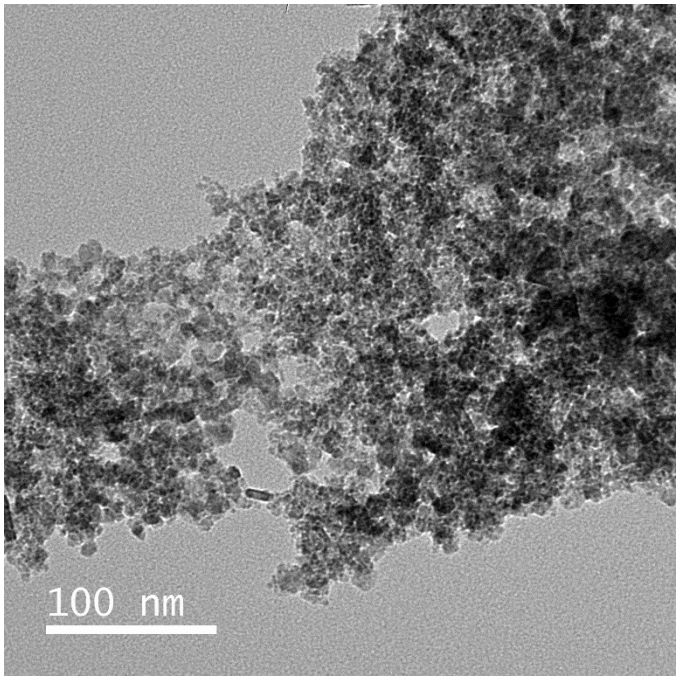
[b]*INL – Advanced (magnetic) Theranostic Nanostructures Lab, Life Sciences Department, International Iberian Nanotechnology Laboratory, Avenida Mestre José Veiga, Braga, Portugal – *E-mail: (manuel.banobre@inl.int)*

[c]*i3S - Instituto de Investigação e Inovação em Saúde and HEMS / IBMC - Histology and Electron Microscopy Service, Universidade do Porto, 4200-135 Porto, Portugal*

[d]*CEB - Centre of Biological Engineering, University of Minho, 4710-057 Braga, Portugal.*

[e]*Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Campus de Gualtar, Braga, Portugal*

[f]*ICVS/3B's - PT Government Associate Laboratory, Braga/Guimarães, Portugal*



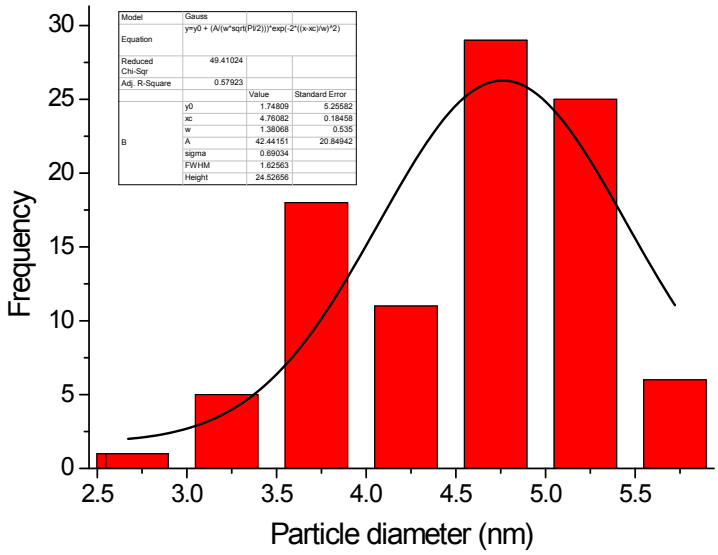


Figure S1: (Upper) TEM micrograph of the as-synthesized magnetite nanoparticles; (lower) Particle size distribution obtained from the TEM picture above and fitted to a Gaussian function.

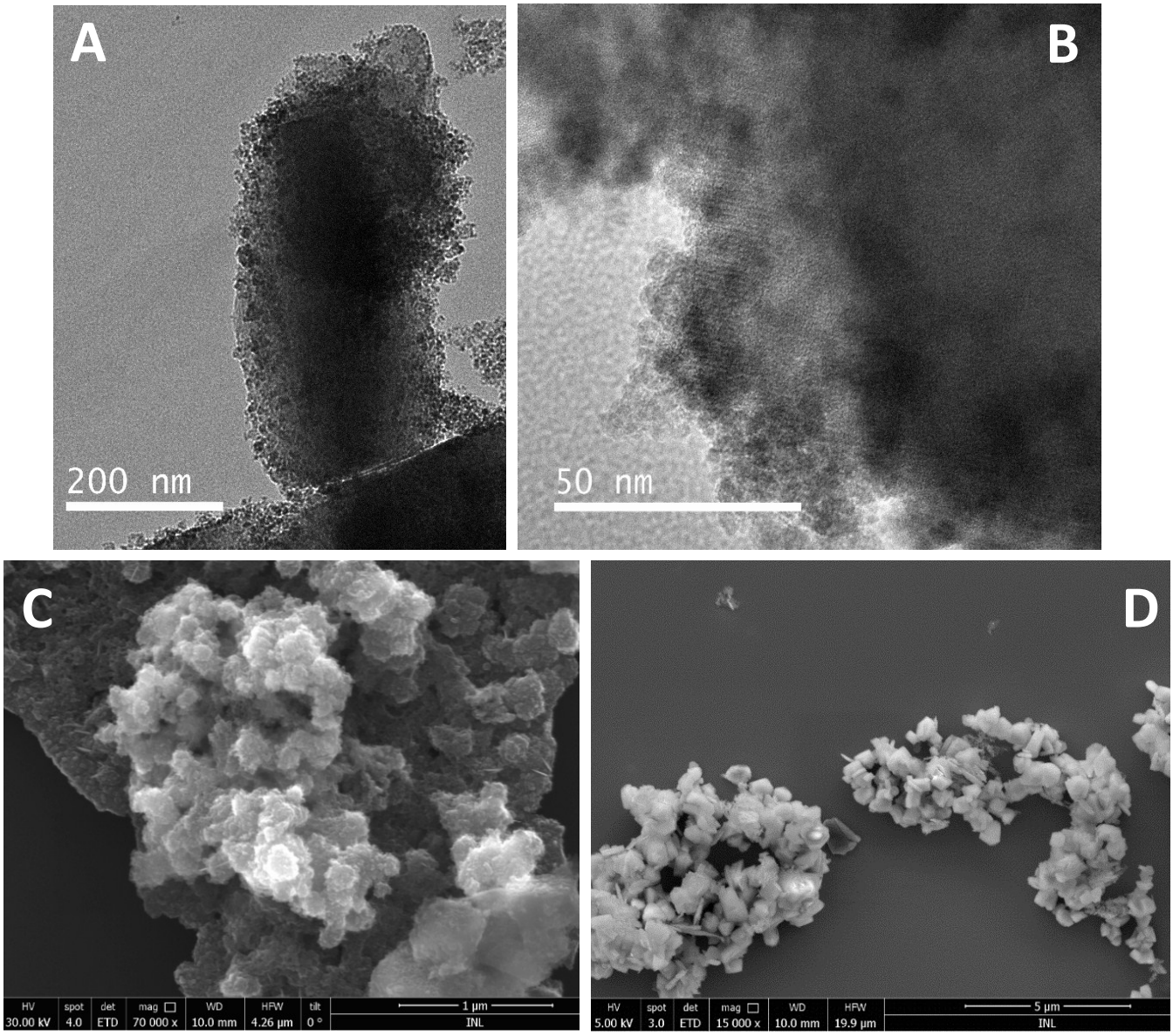


Figure S2: A) TEM image an individual MZNC; B) TEM image of a MZNC crystal in which the porous structure is clearly observed. In both TEM images Fe_3O_4 NPs are found to be grafted to the zeolite crystal surface; C) SEM image of MZNC crystals; D) SEM image of parent NaY zeolite crystals.

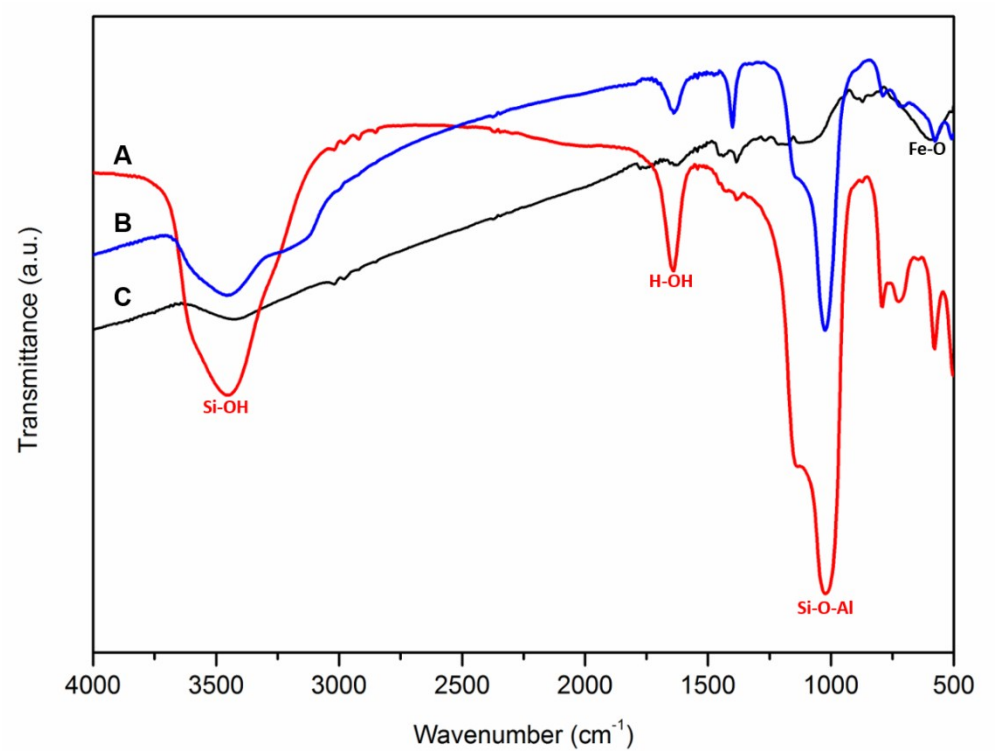


Figure S3: FTIR spectrum of Fe_3O_4 nanoparticles (black), parent NaY zeolite (blue) and MZNC (red). The IR-active chemical groups attributed to the main bands are indicated.

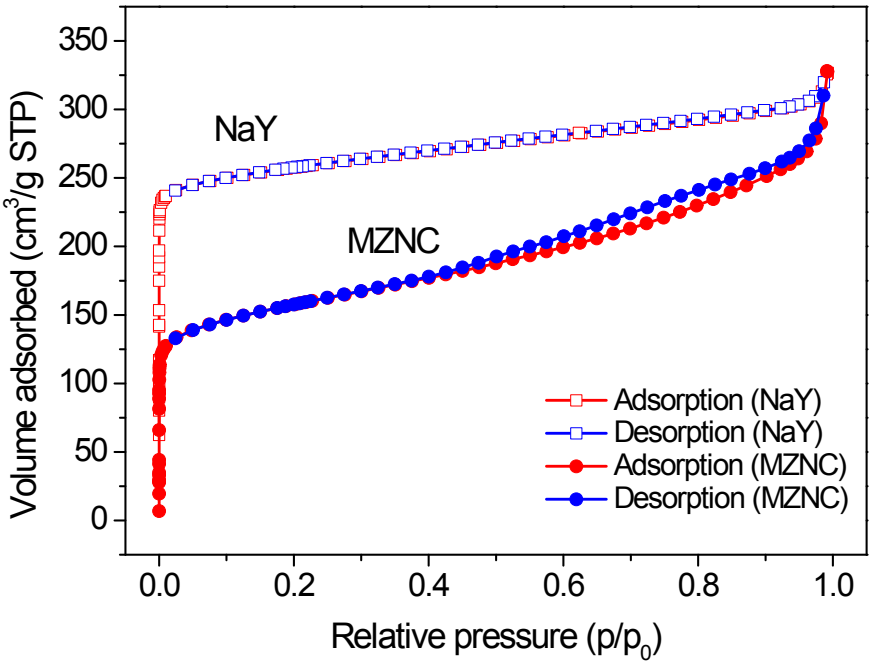


Figure S4: N_2 adsorption-desorption isotherms of parent NaY zeolite (open symbols) and MZNC (closed symbols) particles.

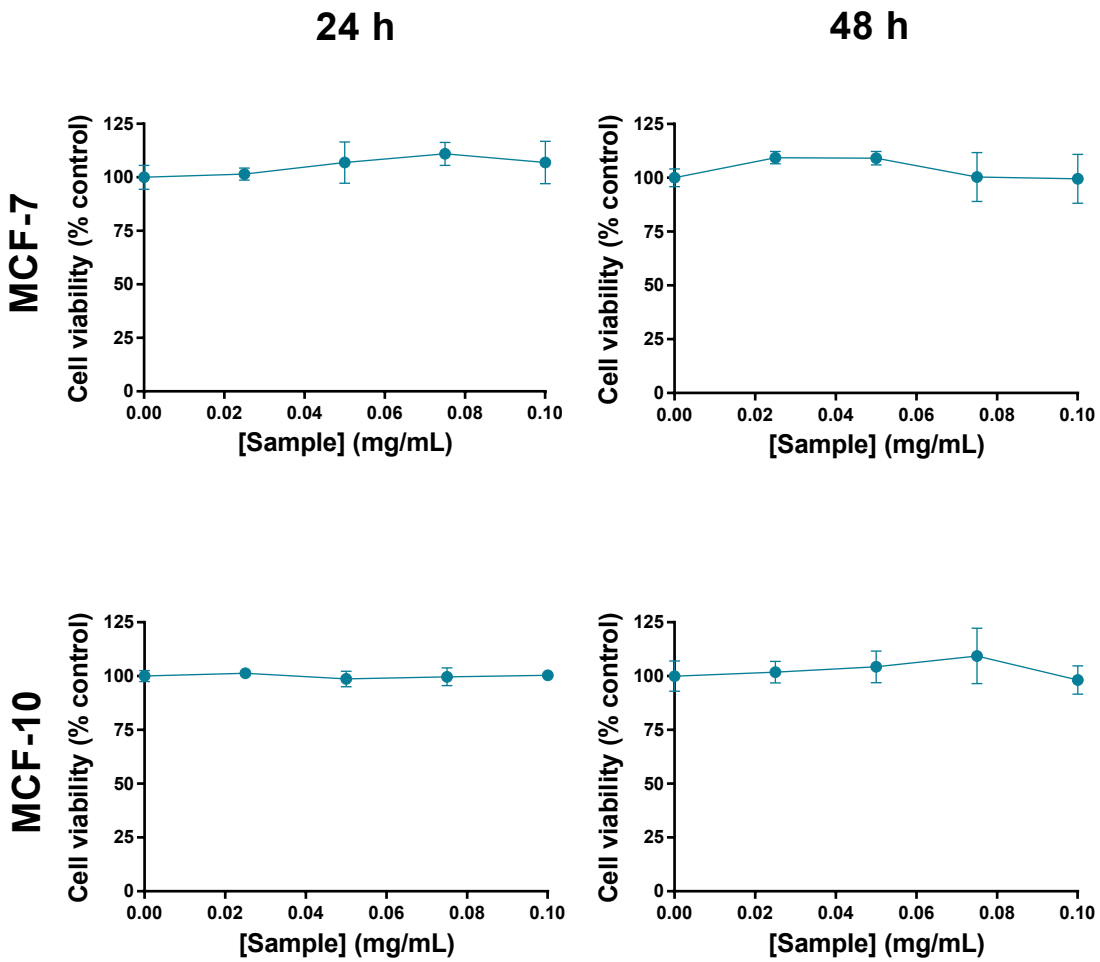


Figure S5: MCF-7 and MCF-10 cell viability after incubation with control magnetite (Fe3O4) nanoparticles at 24 and 48 h of incubation. The data are given as mean ± SD (n=3).