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

Supporting information

One-pot synthesis of magnesium nanoparticles embedded in chitosan microparticles: a highly biocompatible tool for in vivo cancer treatment

R. C. Martin,[a] Erica Locatelli,[b] Y. Li,[a] Paolo Matteini,[c] Ilaria Monaco,[b] G. Cui,[a] S. Li,[a] Martina Banchelli,[c] Roberto Pini[c] and Mauro Comes Franchini[b*]

a. Division of Surgical Oncology, Department of Surgery, University of Louisville. Louisville, KY 40202 USA.

b. Department of Industrial Chemsitry "TosoMontanari", Universty of Bologna. Via Risorgimento, 40136, Bologna Italy.

c. Institute of Applied Physics "NelloCarrara", National Research Council of Italy, via Madonna del Piano 10, I-50019 Sesto Fiorentino, Italy

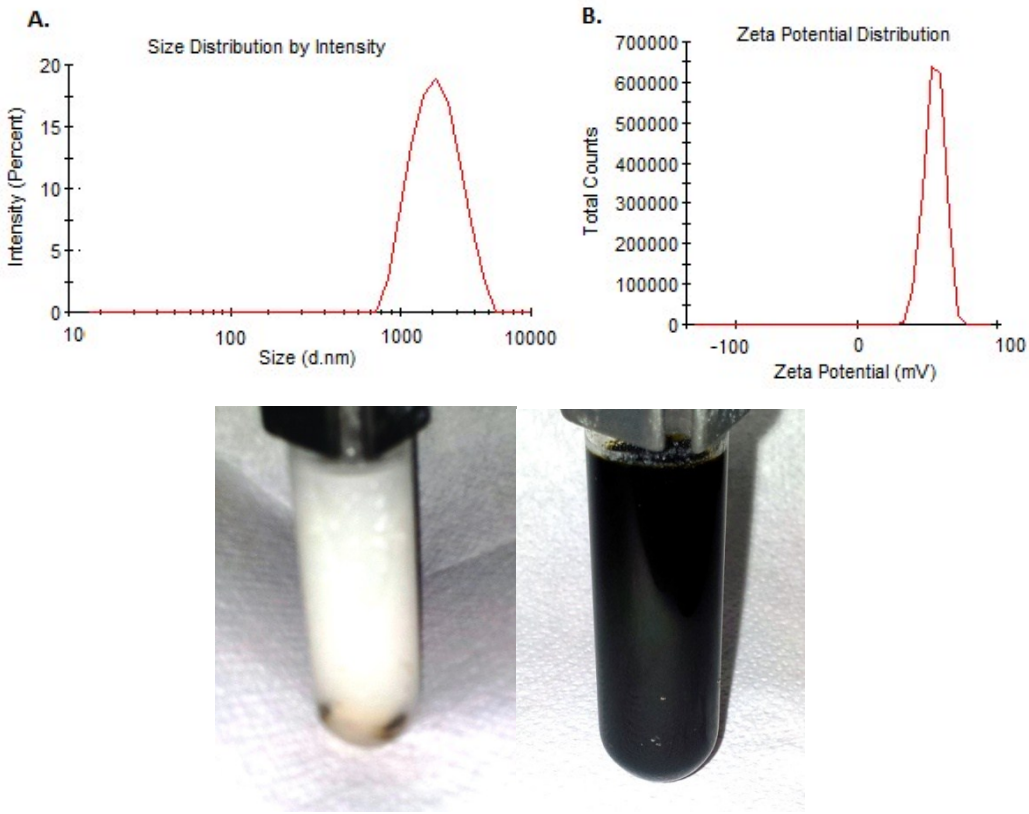

Figure S1: Upper: DLS analysis of Chit-Mg MPs: size (A) and Z-potential (B) distribution. Bottom: pictures of schlenck taken before (left site) and after (right site) the beginning of the formation of MgNPs.

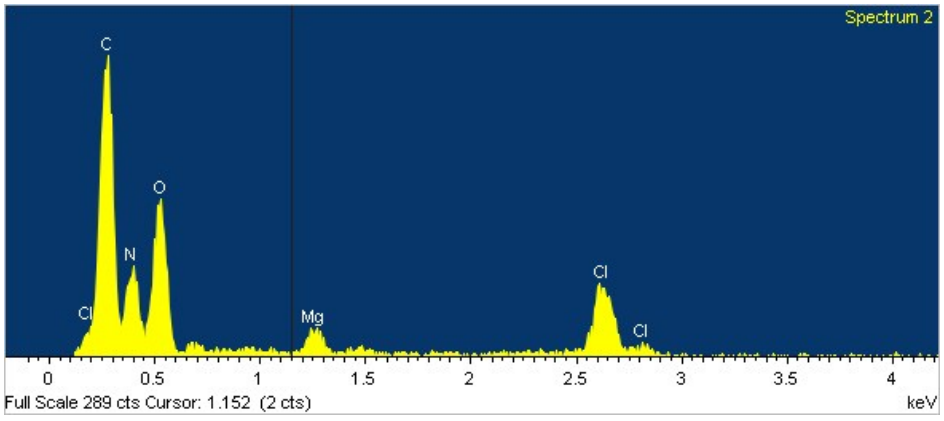

Figure S2: EDX analysis of Chit-Mg MPs

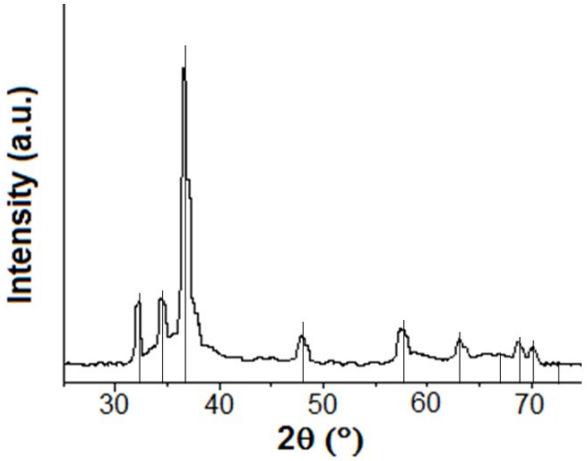

Figure S3: XRD analysis of Mg@Chit MPs

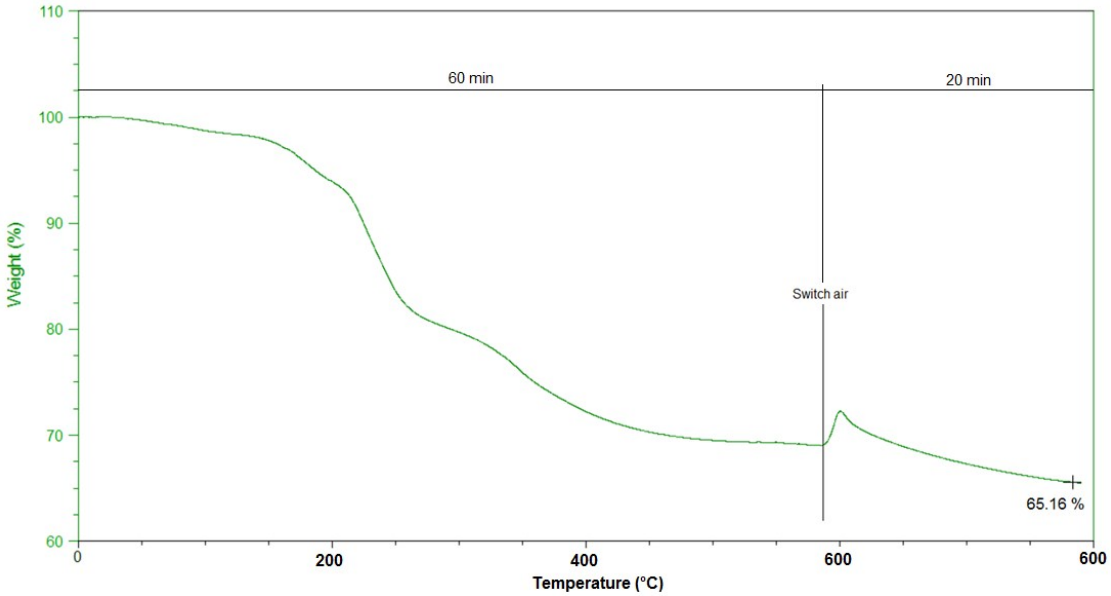

Figure S4: TGA of Mg@Chit MPs (from r.t. to 600 °C in 60 min in nitrogen flow, then isotherm at600 °C for 10 minutes in air)

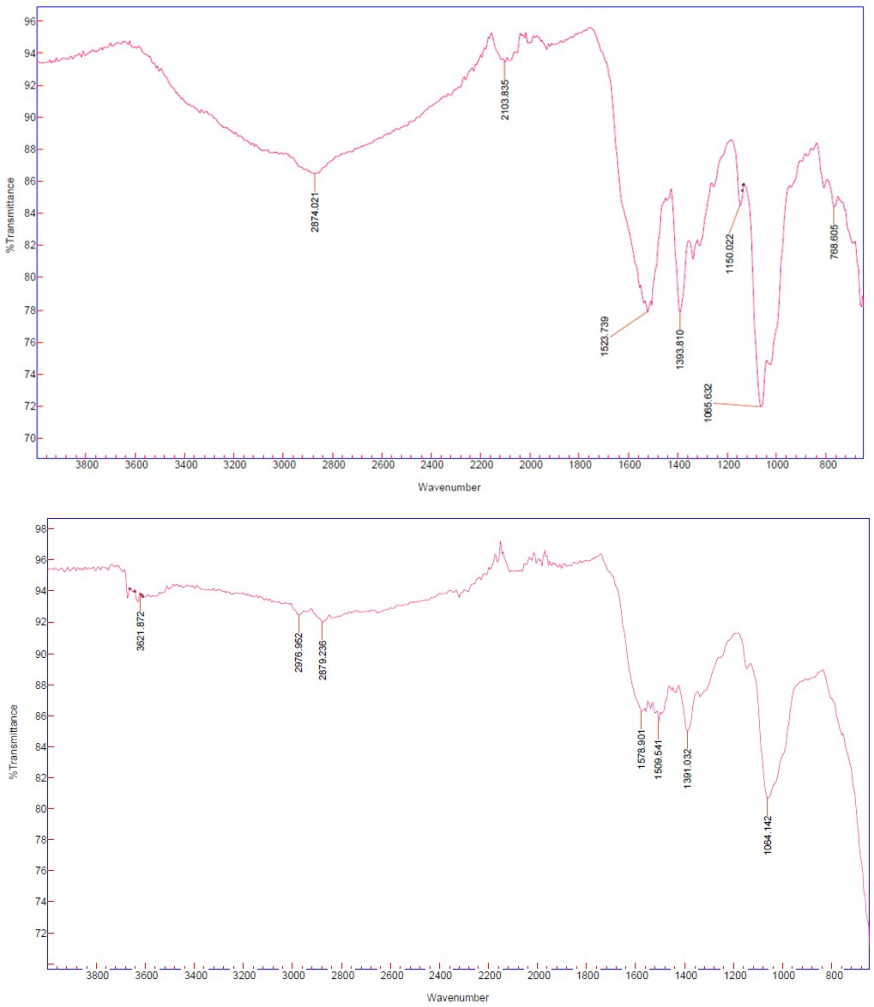

Figure S5: FTIR of Chitosan(top) and Mg@Chit MPs (bottom).

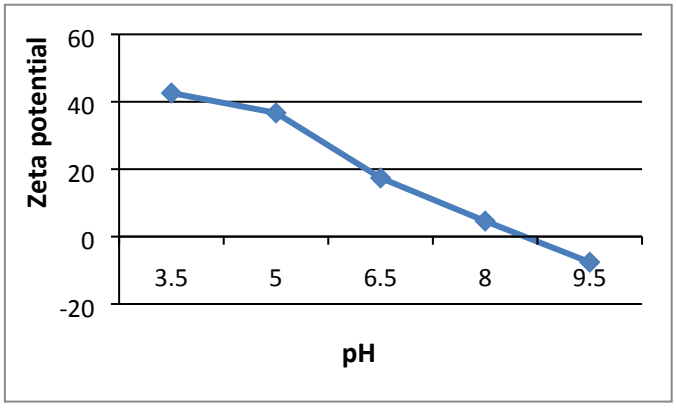

Figure S6: Zeta potential of Mg@Chit MPs at different pH of the solution

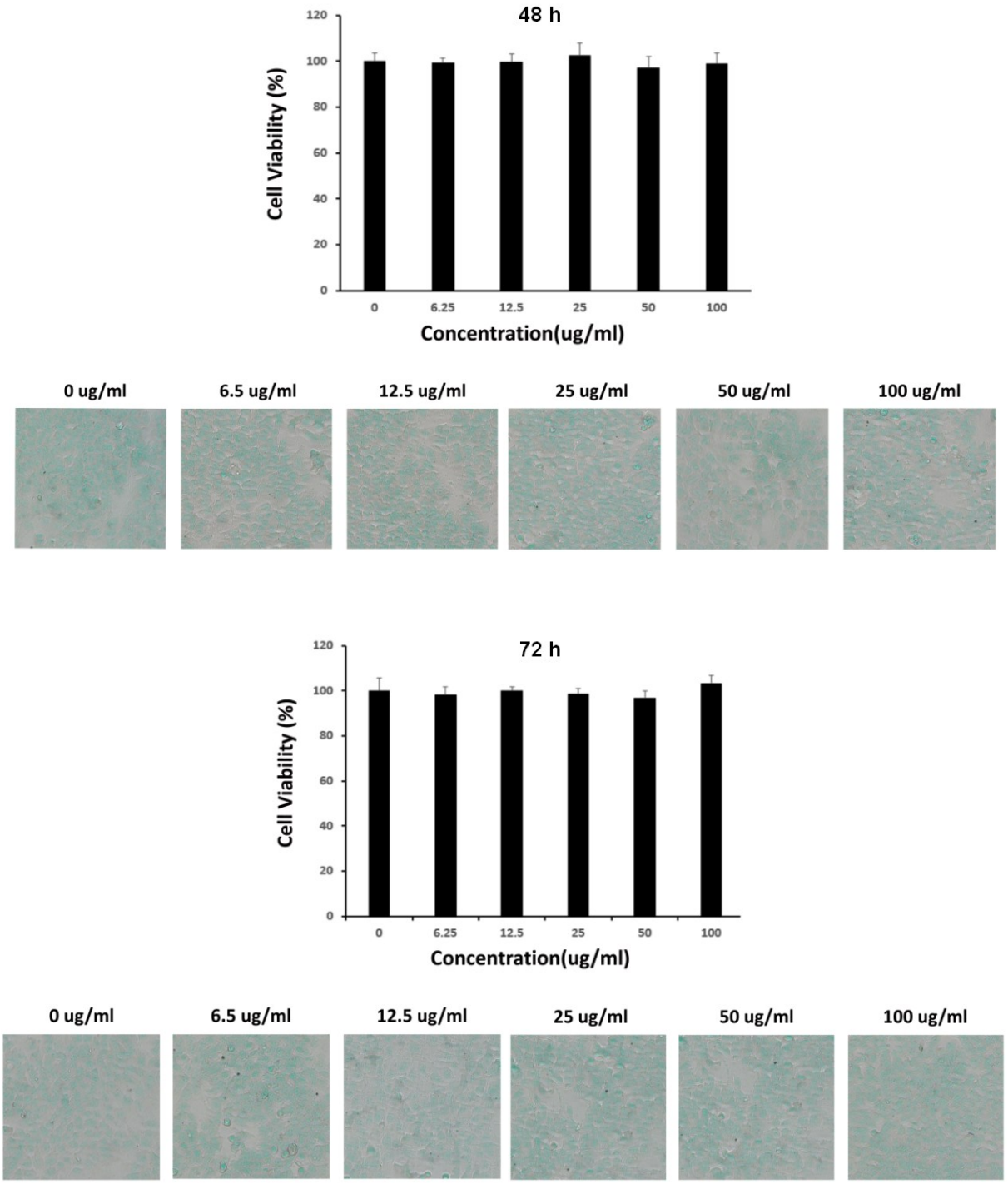

Figure S7: MTT test on hepa1-6 cell lines exposed to Mg@Chit MPs at different concentration for 48 and 72 hours respectively. Representative pictures of cells after exposure at each concentration and time point are also reported.

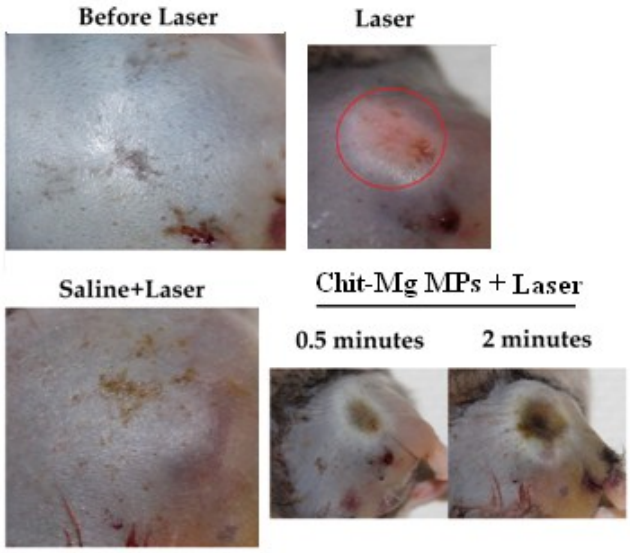

Figure S8. Gross observation of tumor with Chit-Mg MPs and laser exposure. Top left: the subcutaneous tumor before laser exposure. Top right: laser exposure was ongoing, the spot of laser exposure showed on tumor site. Bottom left: saline administration after laser exposure. Bottom right: Chit-Mg MPs administration 0.5 minute and 2 minutes after laser exposure.