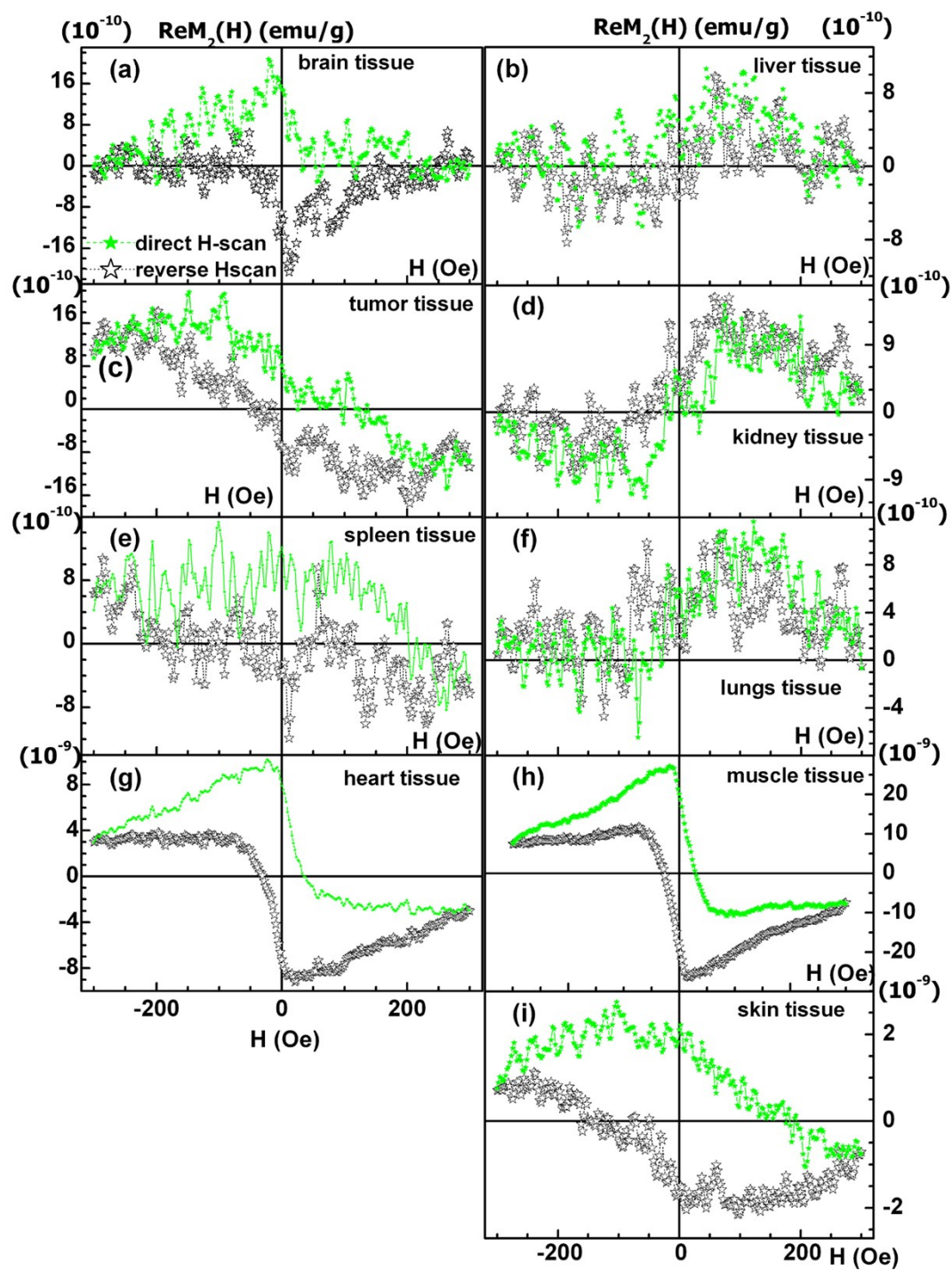


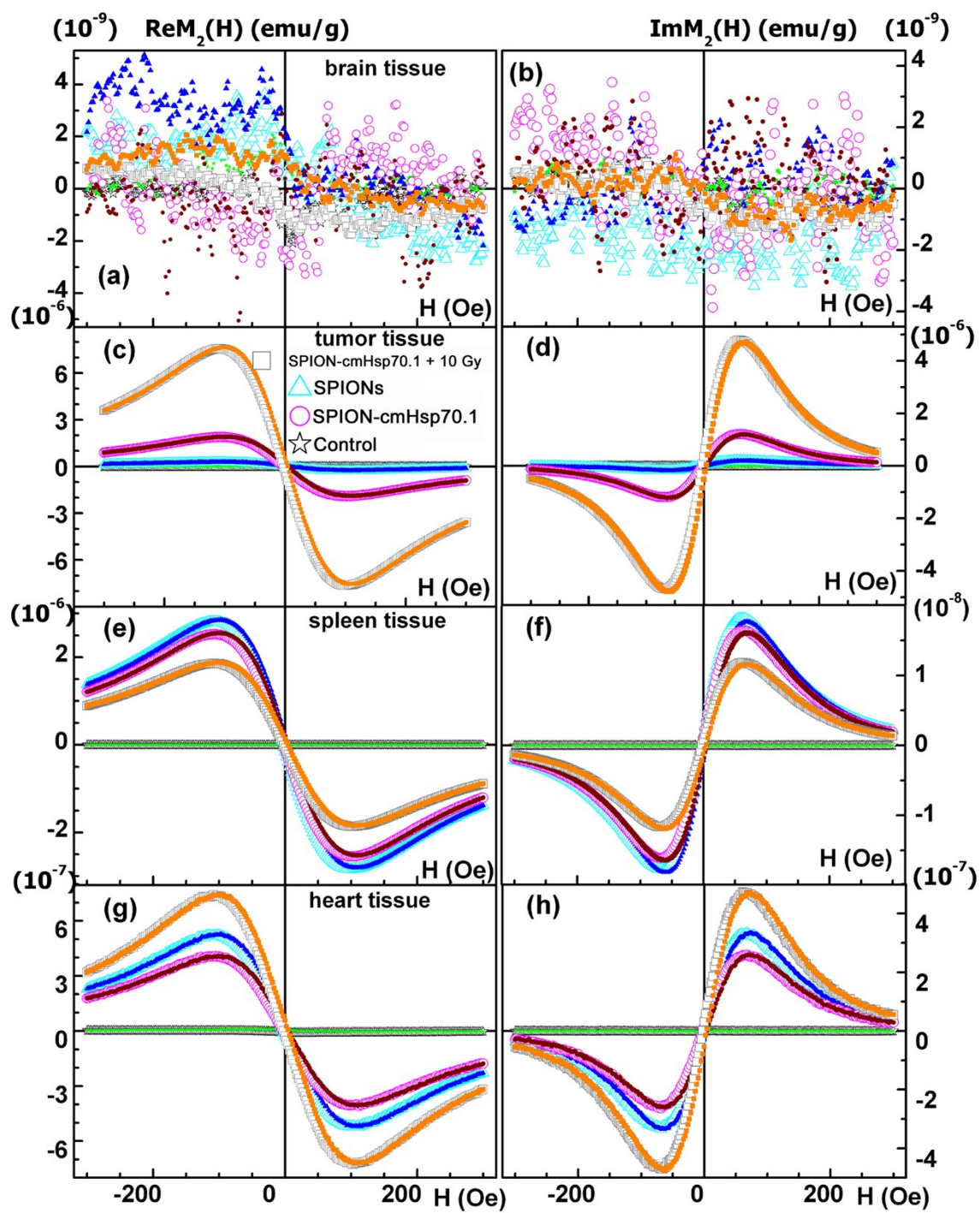
Supplementary material

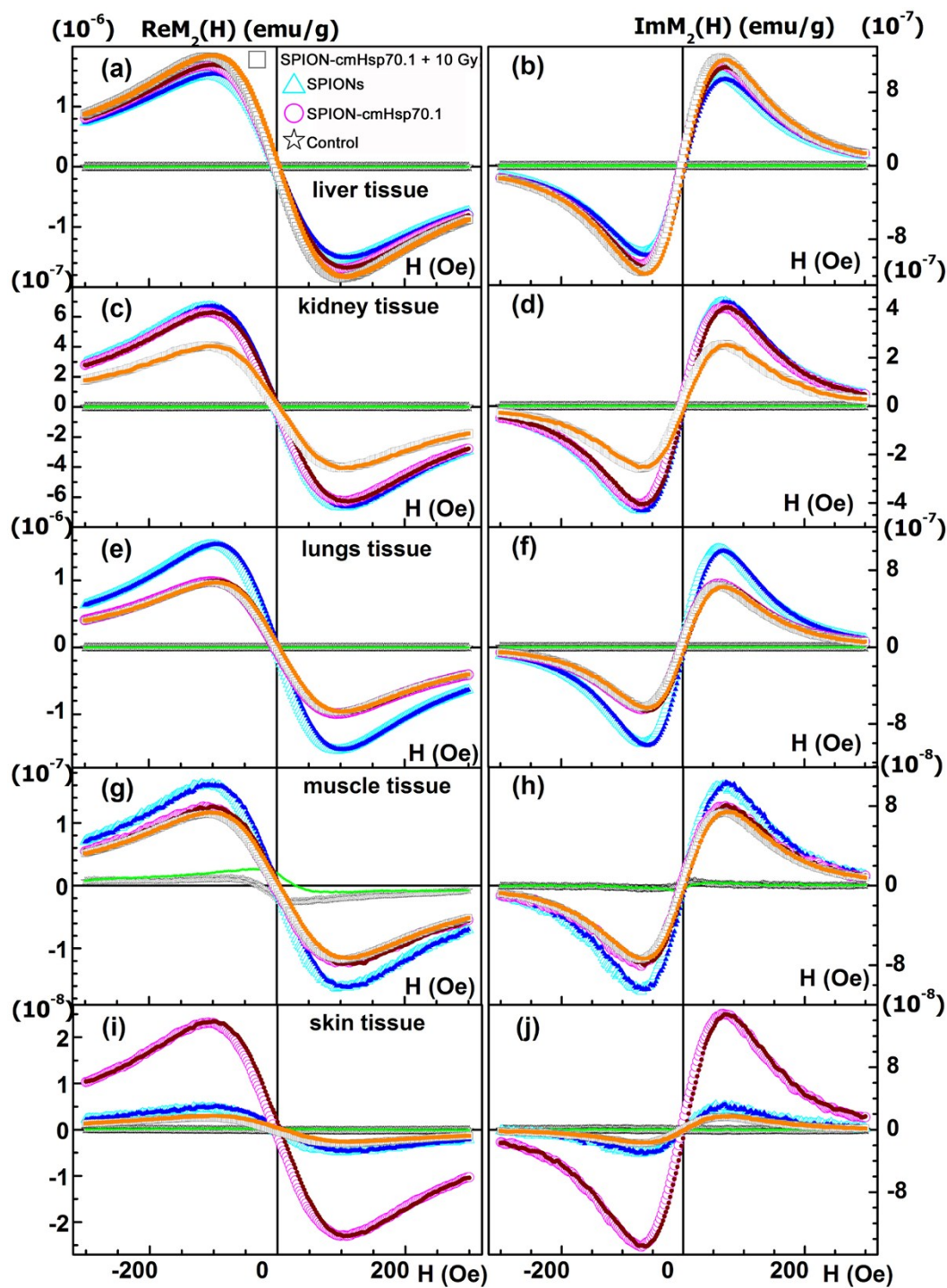
Supplementary Table 1. Mean (with standard deviation) of the T2 parameter for the following three cell lines: C6, K562, HeLa. There were four observations for each cell line-condition pairing.

	C6	K562	HeLa
Control	67.75 (3.30)	72.5 (5.20)	73.75 (6.75)
SPION	55.5 (2.89)	59.75 (3.77)	66 (4.08)
SPION-cmHsp70.1	29.75 (1.71)	41 (6.06)	42.25 (3.30)
SPION-cmHsp70.1 + 10 Gy	17.5 (2.08)	22.5 (3.87)	25.25 (2.75)



Supplementary Figure S1. $\text{Re}M_2(H)$ part of the second harmonic of magnetization from control tissues.





Supplementary Figure S2. Biodistribution of superparamagnetic nanoparticles in non-irradiated animals treated with SPIONs, SPION-cmHsp70.1 particles and irradiated rats (10Gy) treated with SPION-cmHsp70.1 characterized by NLR- M_2 measurements. (A) Second harmonic measurement for brain, tumor, spleen and heart tissues. (B) Second harmonic measurement for liver, kidney, lungs, muscle and skin tissues.