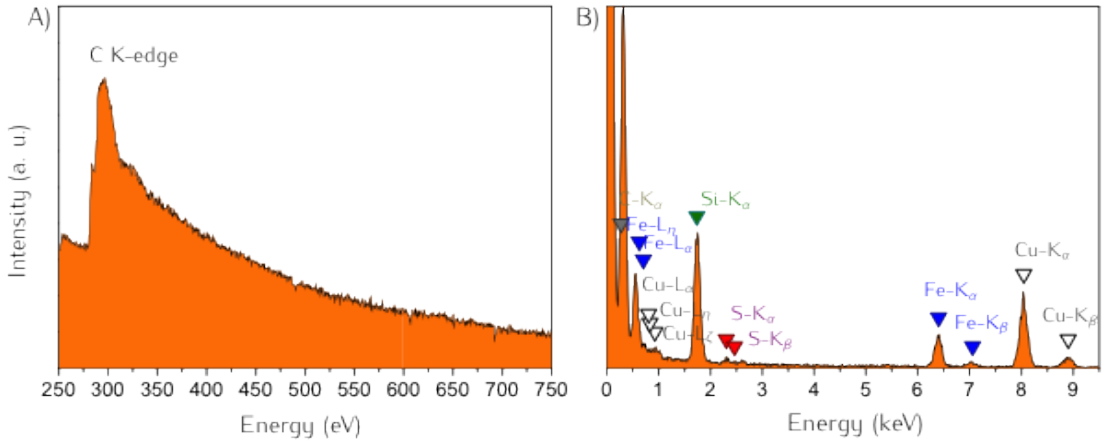
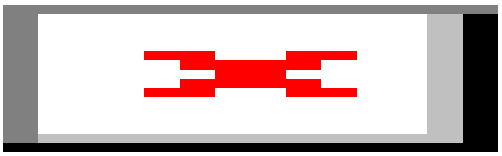
Supplementary information

A) EELS spectrum of Fe-C nanoparticles, no trace of oxygen was observed (O-Kalpha at 525 eV). The peak located at 284 eV corresponds to carbon K-absorption edge of the nanoparticles. B) EDX analysis of Fe-C nanoparticles. Iron and carbon elements from the composition of the nanoparticles were identified as well as other elements such as Si, S or Cu corresponded to the TEM grid or artefacts from the detector:



(A) Pictures of Fe-C@PVA NPs after sample preparation. Fe-C@PVA are well dispersed in water/ethanol mixture (50:50 v/v) at a nanoparticle concentration of 37 μg/ml. (B) Picture of Fe-C NPs immediately after being dispersed in water/ethanol mixture (50:50 v/v) at 37 μg/ml. Without the PVA coating nanoparticles rapidly sediment.



Results of the statistical analysis of the viability results for reduced data sets (excluding measurements at 24 hours or results for the samples with a PVA to NP mass ratio of r_{PVA}=576 respectively): estimated parameters β^{est} with their standard error Δ and their p-value as well as the estimated standard deviation of the random fluctuations σ^{est}, the estimated mean squared error of the predictions and the global p-value of the model:

	t < 24 h			**r_{PVA} < 576**		
	β_{est}	**Δ**	**p-value**	**β_{est}**	**Δ**	**p-value**
t [h]	1.6	0.2	3.5e-12	-	-	-
t*s [h]	-	-	-	0.16	0.02	2.5e-10
	σ^{est}	**R^2**	**p-value**	**σ^{est}**	**R^2**	**p-value**
global	3.7	0.4	3.5e-12	4.6	0.3	2.5e-10