Supplementary Information:

Magnetic activated carbon particles as stimuli-responsive vehicles for methotrexate

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1. Size obtained by DLS

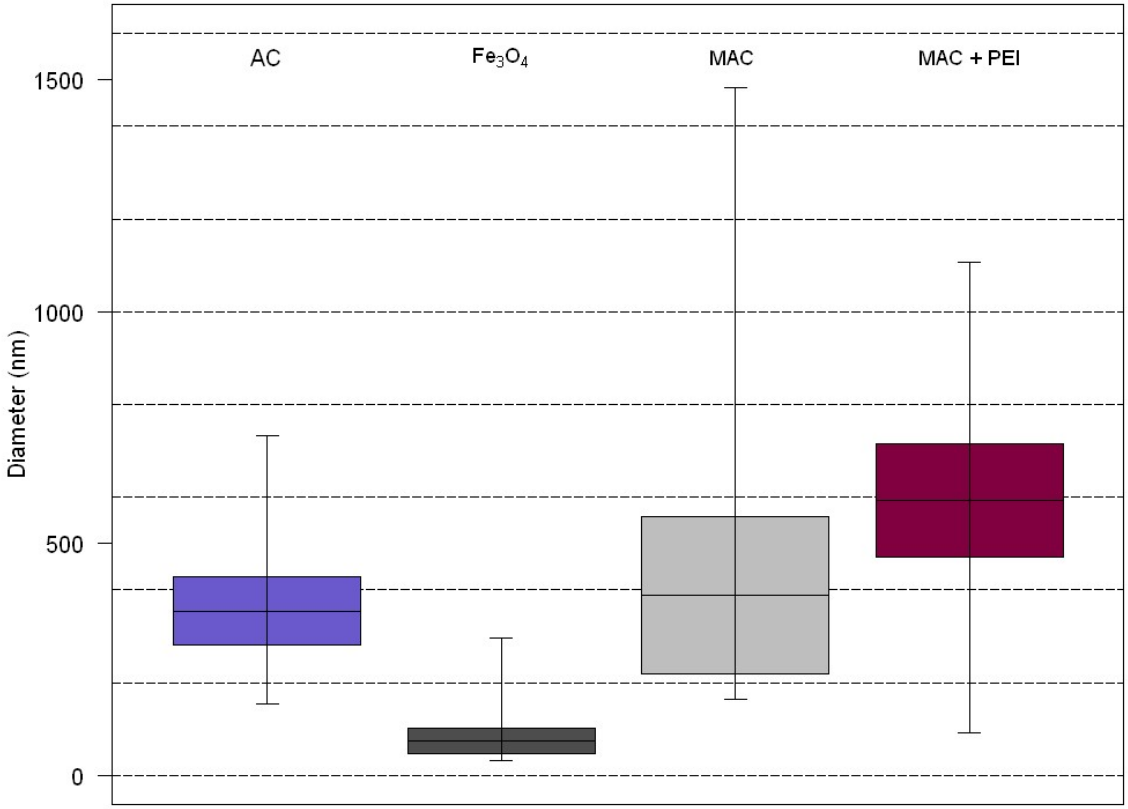

Fig. S1. Boxplot of size determinations using DLS technique of bare magnetite (MAG), activated carbon (AC), magnetic activated carbon naked (MAC) and polymer coated sample (PEI-MAC).

2. Photothermia characterization for drug release

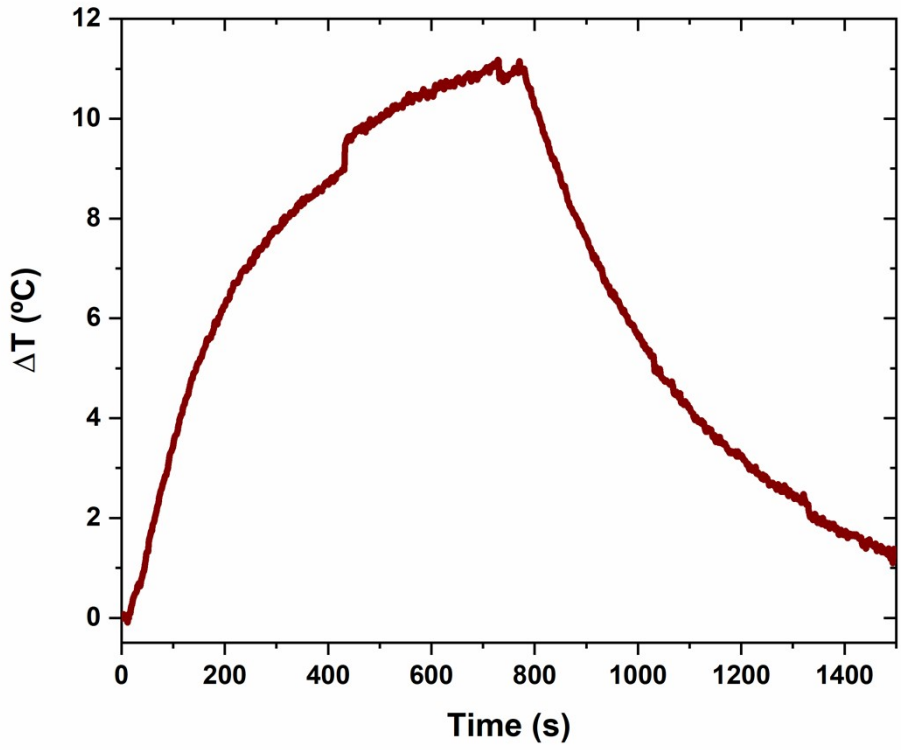

Fig. S2. Photothermia experiment performed by irradiating with 850 nm for 15 minutes at 1.5 W/cm^2 the MAC-PEI sample at 5 mg/mL (1.5 mL).

3. Calibration of MTX concentrations

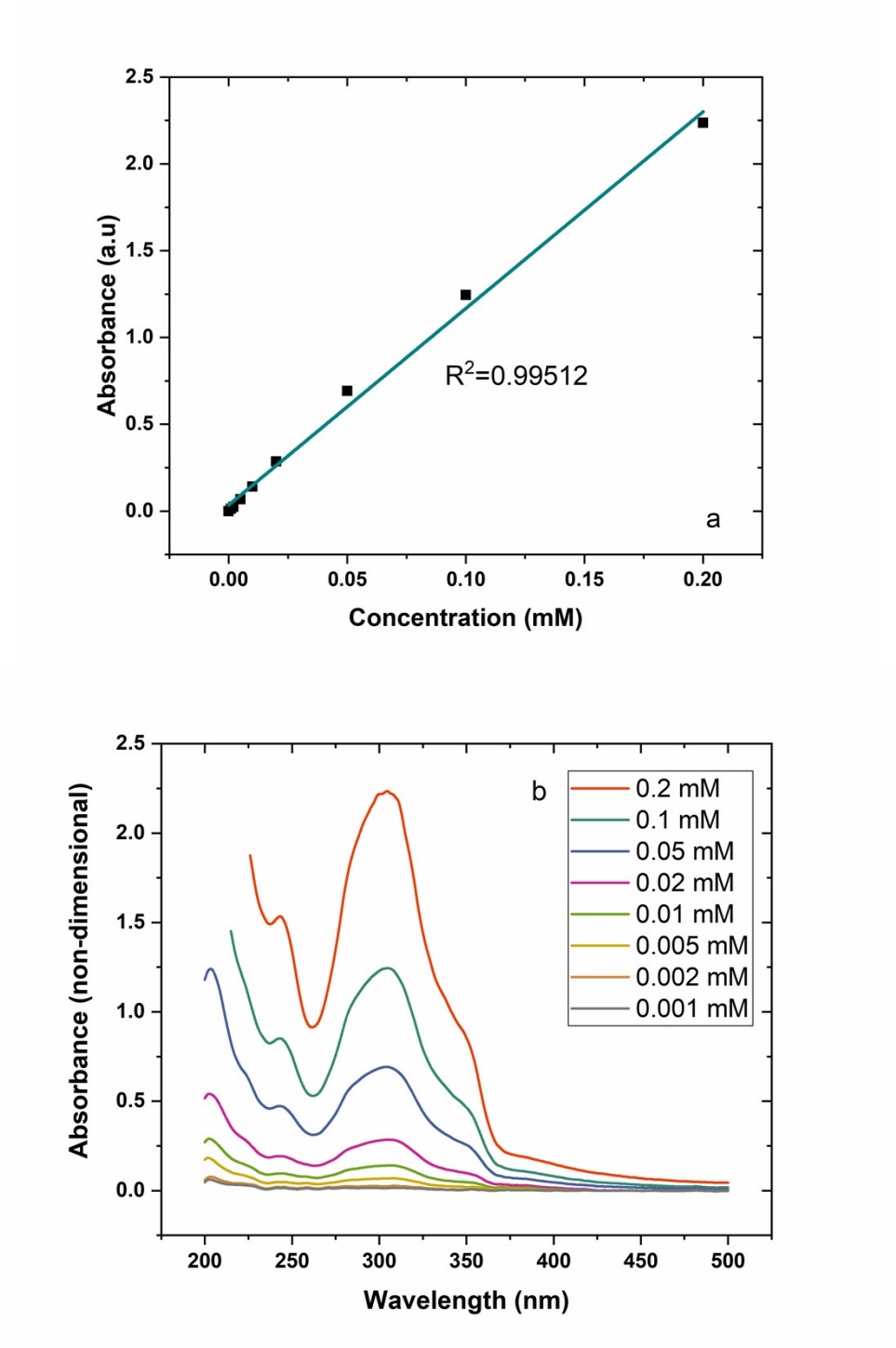

Fig. S3. Calibration of MTX concentrations performed at 305 nm (a) Calibration line (b) MTX adsorption peaks.

4. Adsorption kinetics experiments

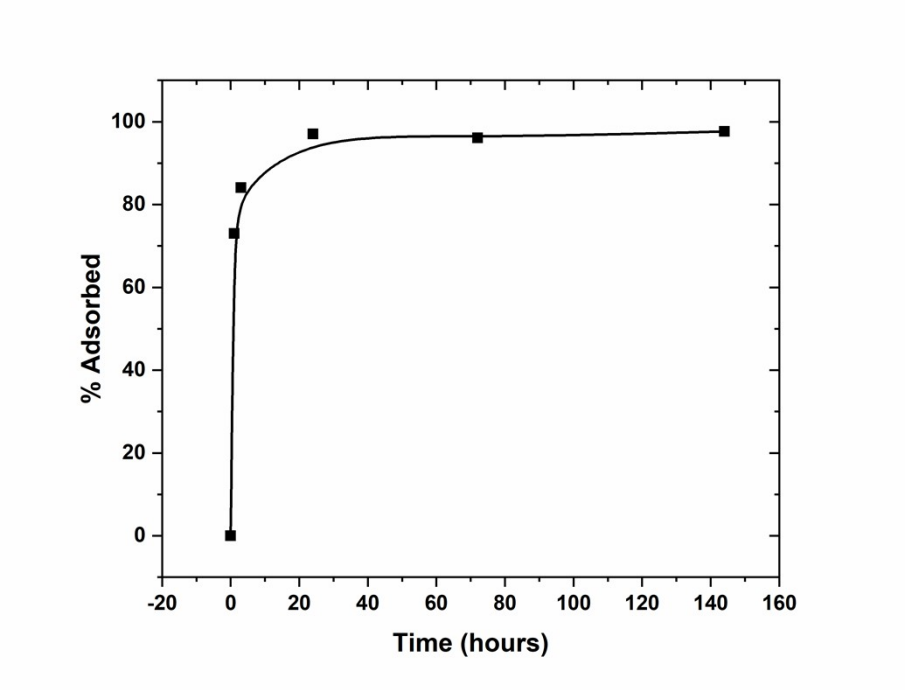

Fig. S4. Adsorption of MTX (0.6 mM, 1.5 mL) on the MAC-PEI (6 mg/mL) sample over time.

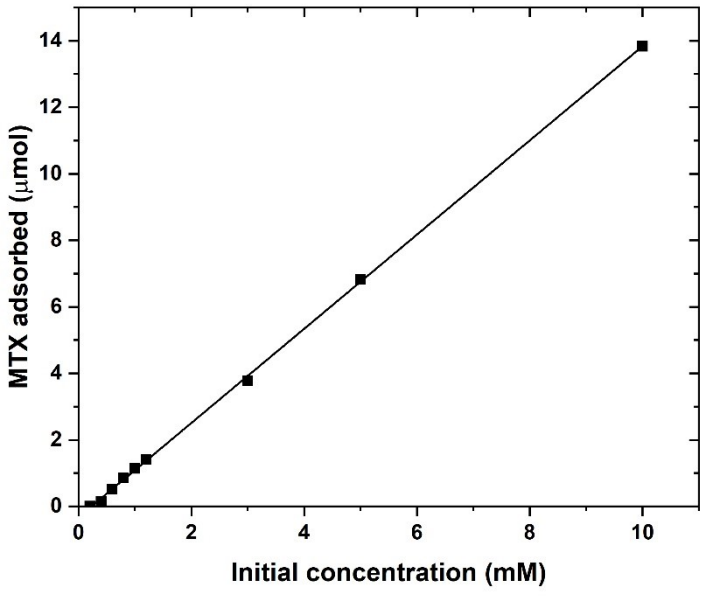

Fig. S5. Adsorption of MTX from solutions (1.5 mL) of the indicated concentrations after 24 h in contact with PEI-MAC particles (6 mg/mL). on the PEI coated MAC sample after 24 hours in contact.

5. MTX release at pH

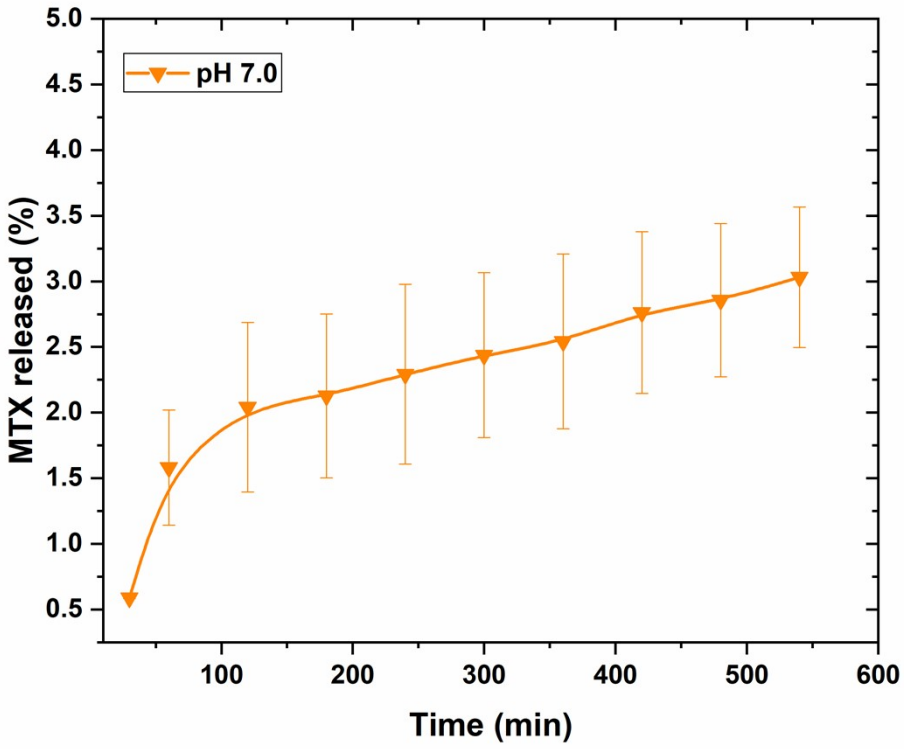

Fig. S6. MTX release without stimuli application in phosphate buffer at pH 7.4.