

Supplementary data to:

Magnetic nanoparticle hyperthermia induced cytosine deaminase expression in microencapsulated *E. coli* for enzyme-prodrug therapy.

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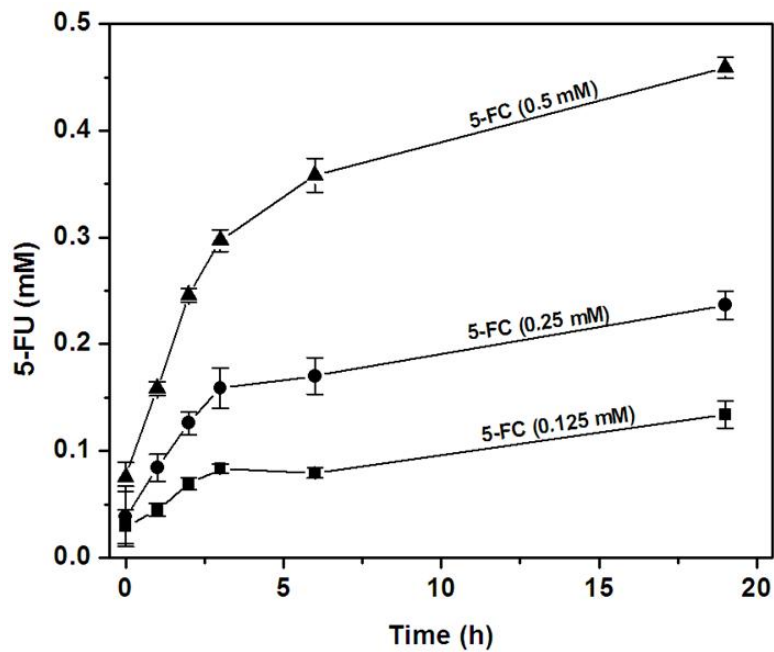
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Supplementary Figure S1

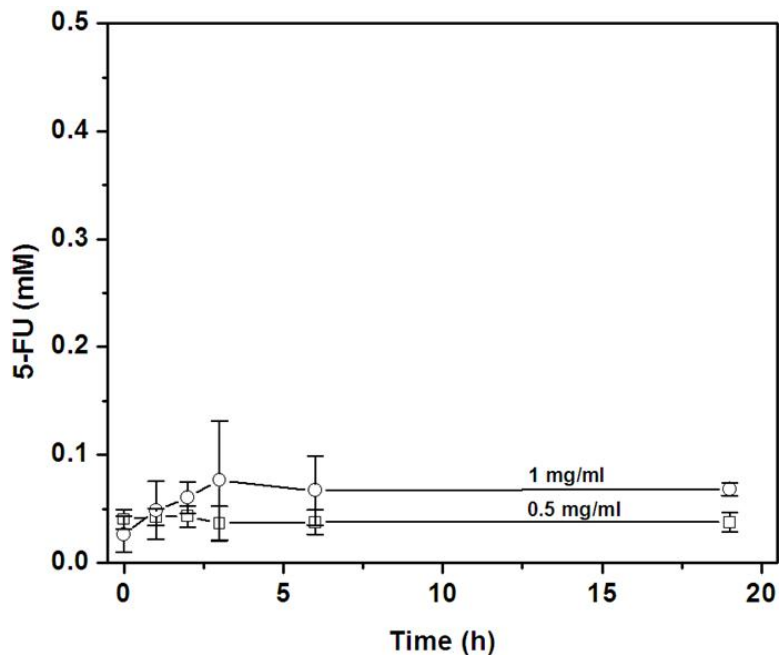
Heat induced expression of cytosine deaminase in engineered NM522 cells results in efficient conversion of 5-FC to 5-FU.



Supplementary Fig. S1: Engineered NM522 *E. coli* cells efficiently convert 5-FC to 5-FU when cultured at 42 °C but not at 30 °C. NM522 cells cultured at 42 °C (0.5 mg/ml) were incubated with 0.25 mM (■) and 0.5 mM (●) 5-FC in Tris-HCl buffer (50 mM, pH 7.4). The conversion of 5-FC to 5-FU was evaluated by UV-visible spectrophotometry.

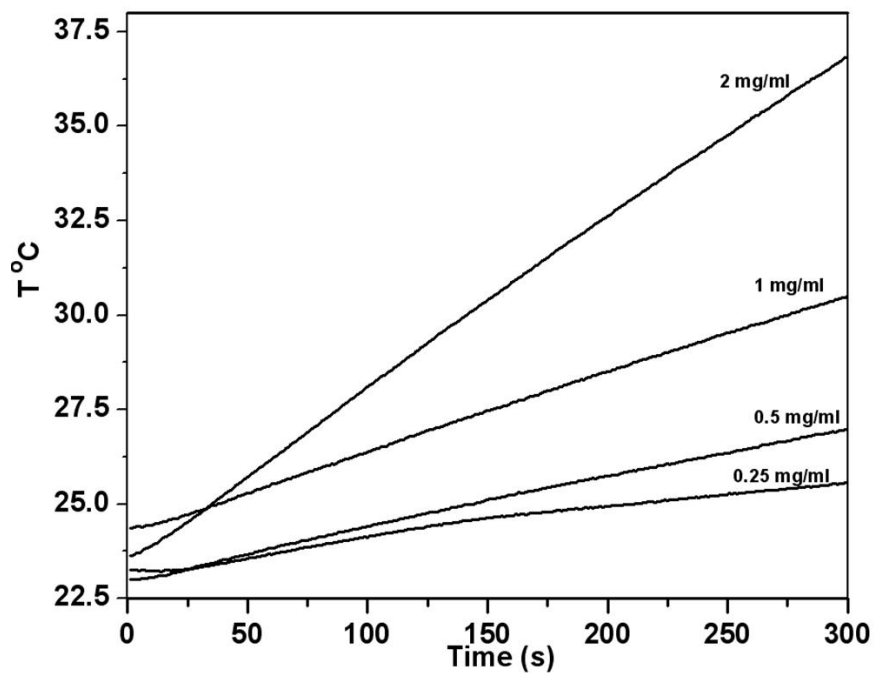
Supplementary Figure S2

Basal level expression of cytosine deaminase is minimal in engineered NM522 cells.



Supplementary Fig. S2: Basal expression of cytosine deaminase in engineered NM522 cells is minimal at 30 °C resulting in little to no conversion of 5-FC to 5-FU. NM522 cells cultured at 30 °C (□, 0.5 mg/ml and ○, 1 mg/ml) were incubated with 5-FC (0.5 mM) in Tris-HCl buffer (50 mM, pH 7.4). The conversion of 5-FC to 5-FU was evaluated using UV-visible spectrophotometry.

AMF induced heating rate in alginate microcapsules is dependent on MNP concentration.



Supplementary Fig. S3: AMF induced magnetic nanoparticle hyperthermia in alginate microcapsules containing MNP. Four different concentrations of MNP; 0.25, 0.5, 1.0 and 2.0 mg/ml were encapsulated in alginate microcapsules and subjected to an AMF of 400 Oe. Efficient heating was observed in microcapsules containing 2 mg/ml of iron oxide.