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1	SUPPLEMENTARY INFORMATION:		
2	Fluorescent magnetosomes for controlled and repetitive drug release		
3	under the application of an alternating magnetic field in conditions of		
4	limited temperature increase (< 2.5 °C).		
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SUPPLEMENTARY INFORMATION:

23 **SUPPLEMENTARY TABLE:**

Table S1: Percentage of heathy cells, measured with the FL1-H signal, and percentage of cells containing RhB, measured with the FL3-H signal, for MDA-MB-231 cells incubated with Ca, Ca and MC, or Ca and MCR400.

27 SUPPLEMENTARY FIGURES:

Figure S1: Optical microscopic images of magnetotactic bacteria cultivated in the absence of RhB, (a),
and in the presence of 400 µM of RhB, (b).

Figure S2: Histogram representing the distribution of magnetosome sizes for whole bacteria cultivated without RhB, (a), and magnetotactic bacteria cultivated in the presence of 400 μ M of RhB.

Figure S3: Transmission electron microscopic image of a magnetotactic bacterium cultivated without RhB showing MC, (a), and of magnetotactic bacteria cultivated in the presence of 400 μ M of RhB showing MCR400, (b).

Figure S4: (a), Fluorescence spectrum of a MCR400 suspension at 170 µg/mL dissolved at pH 0.84.
(b), Fluorescence spectrum of a solution of free RhB at 730 nM and pH 0.84. (c), Fluorescence intensity
of free RhB at pH 0.84 as a function of RhB concentration for an excitation at 405 nm and a detection at
576 nm.

Figure S5: (a), variation of the fluorescence intensity of RhB as a function of the quantity of RhB mixed with brain tissue in the same conditions as for MCR400. (b), variation of the fluorescence intensity of RhB as a function of the quantity of RhB introduced in a mouse brain in the same conditions as for MCR400.

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- 43 **Figure S6:** (a) Fluorescence spectrum of 10 ng of RhB mixed with brain tissue as a function of time.
- 44 (b), Fluorescence spectrum of 30 ng of RhB introduced in a mouse brain as a function of time.
- 45 **Figure S7:** For 20 μl and 200 μl of a MCR400 suspension at 20 mg/mL introduced in a mouse brain at
- a depth of 1, 2, or 3 mm, percentage of the magnetosomes in the injection volume as a function of the
- 47 injection depth, (a). $\Delta F/\delta t$, (b), $\Delta R/\delta t$, (c), and R_{600s} , (d), as a function of the percentage of MCR400 in
- 48 the injection volume.

Samples	Percentage of healthy cells (FL1-H)	Percentage of cells containing Rhodmaine B (FL3-H)
MDA-MB-231 + Ca	100 %	0 %
MDA-MB-231 + Ca + MC	98 %	5 %
MDA-MB-231 + Ca + MCR400	97 %	99 %

Suppl. Table 1



Figure S1







Figure S3



Figure S4



Figure S5



Figure S6



Figure S7