

ELECTRONIC SUPPLEMENTARY INFORMATION

In situ synthesis of Prussian blue nanoparticles within a biocompatible reverse micellar system for *in vivo* Cs⁺ uptake

Cyril Lavaud,^{a, b} Marilyn Kajdan,^a Elsa Compte,^b Jean-Claude Maurel,^b Joséphine Lai Kee Him,^c Patrick Bron,^c Erwan Oliviero,^{a,d} Jérôme Long,^a Joulia Larionova,^a and Yannick Guari,^{a*}

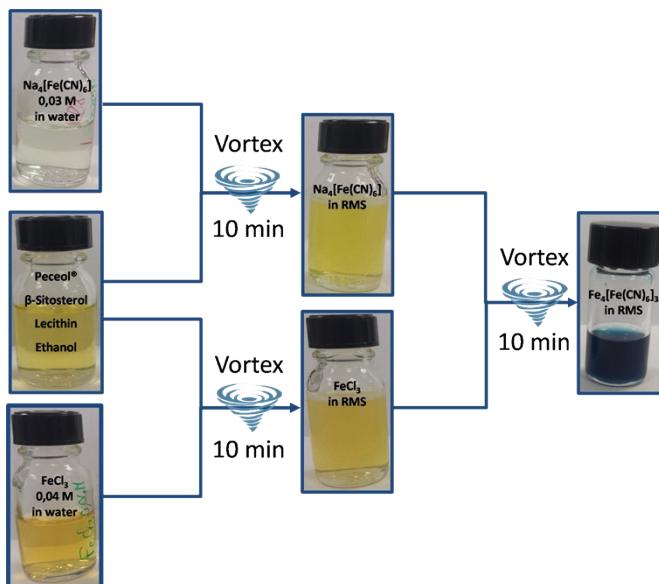


Fig. 1S Schematic representation of the elaboration of the Prussian blue-lecithin based reverse micellar system.

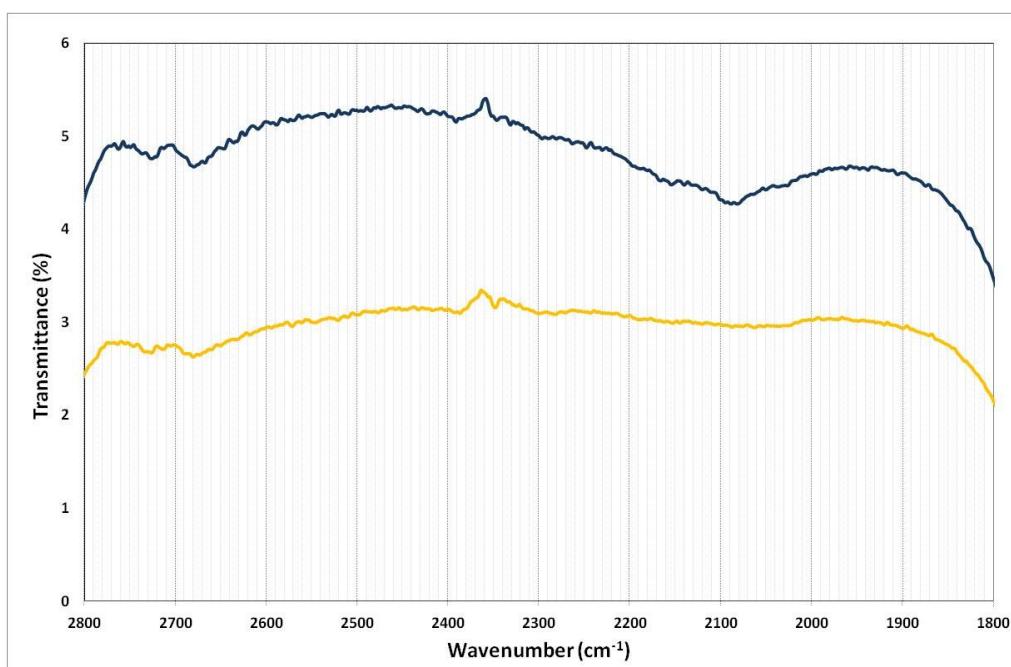


Fig. 2S Infrared spectrum of PB@Aony's® 1 (blue) compared to the PB-free Aony's® 1 (yellow)

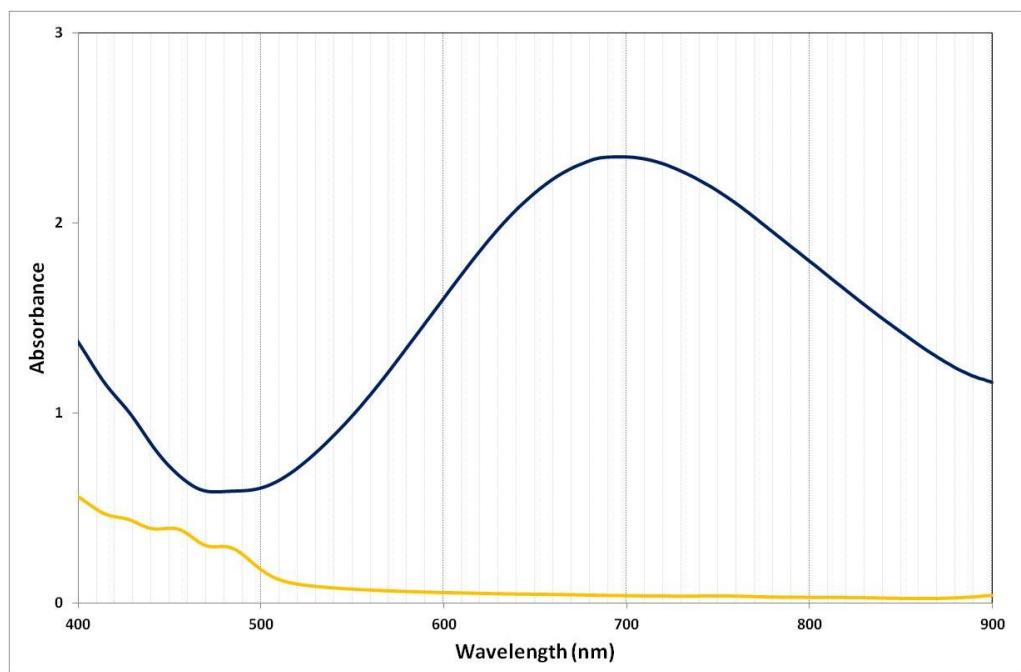


Fig. 3S UV-Visible spectrum of PB@Aonyx® **1** (blue) compared to the PB-free Aonyx® **1** (yellow)

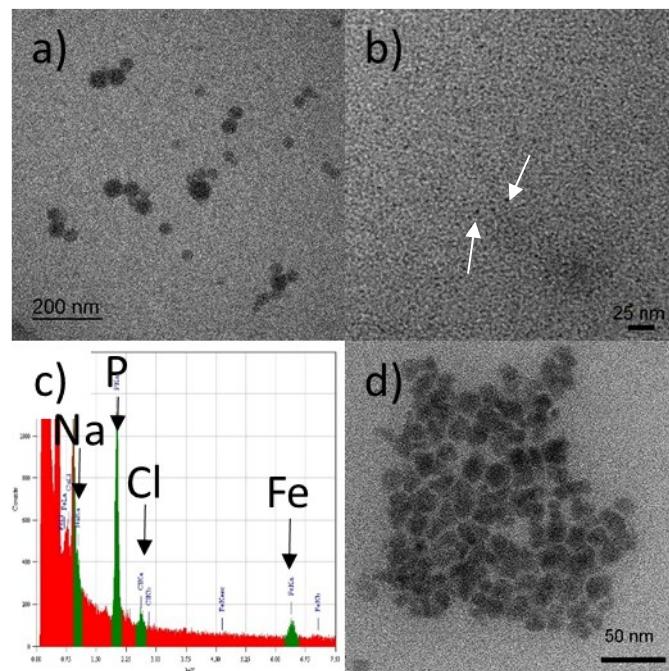


Fig. 4S a) Cryo-EM, b) TEM and c) STEM-EDS of **1**; d) TEM of **3**. White arrows are guided for the eyes showing ultra-small PB nanoparticles.

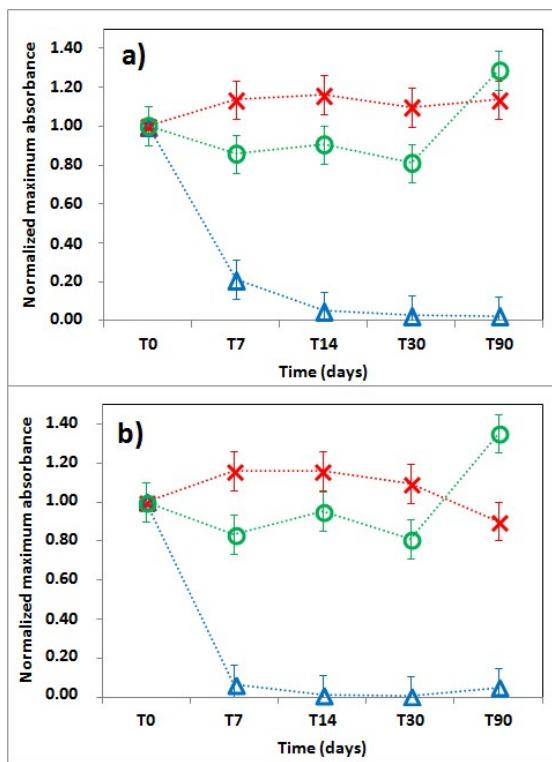


Fig. 5S Stability study of **1** (green circles), **2** (red crosses) and **3** (blue triangles) showing the maximum absorbance intensity of the Fe²⁺ to Fe³⁺ intervalence band with time at: a) 23 °C and b) 40 °C. The maximum absorbance was normalized to 1 at day 0.

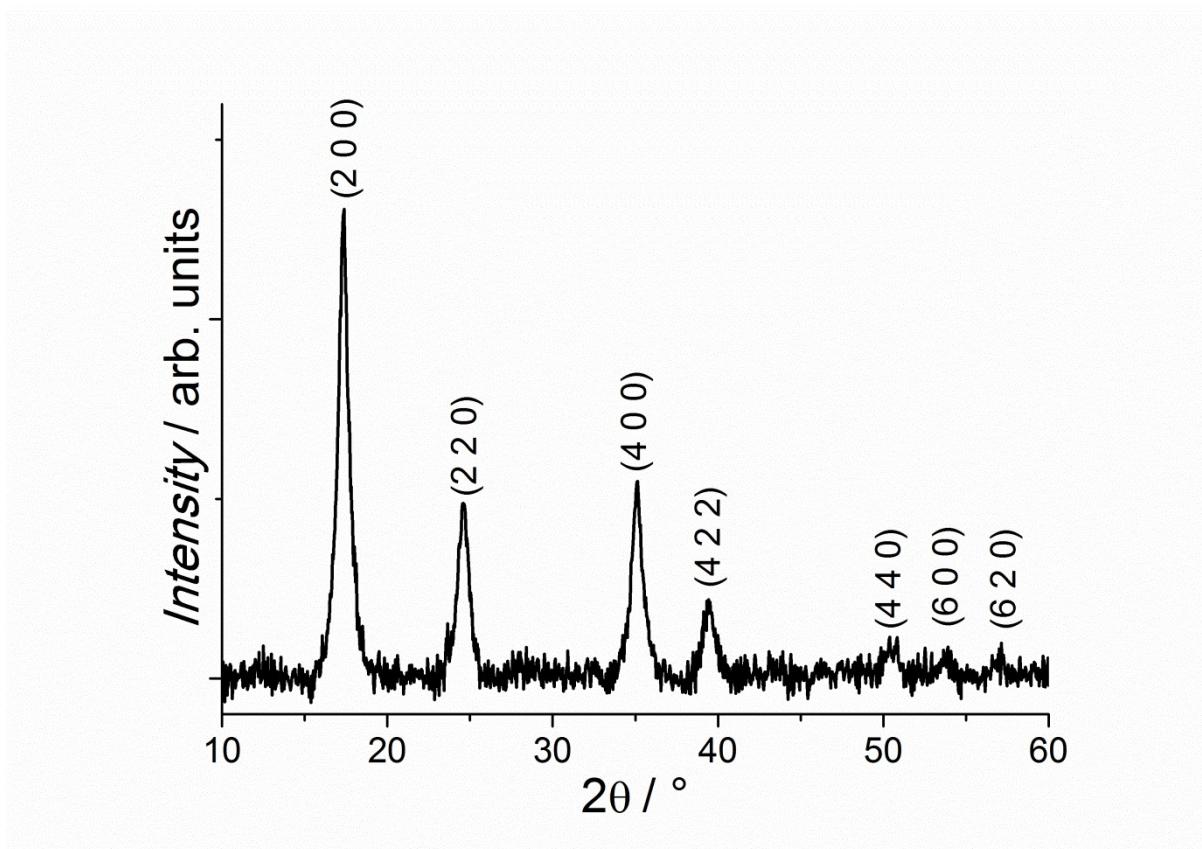


Fig. 6S X-Ray Diffractogram of PB precipitated from PB@Aonyx® 3

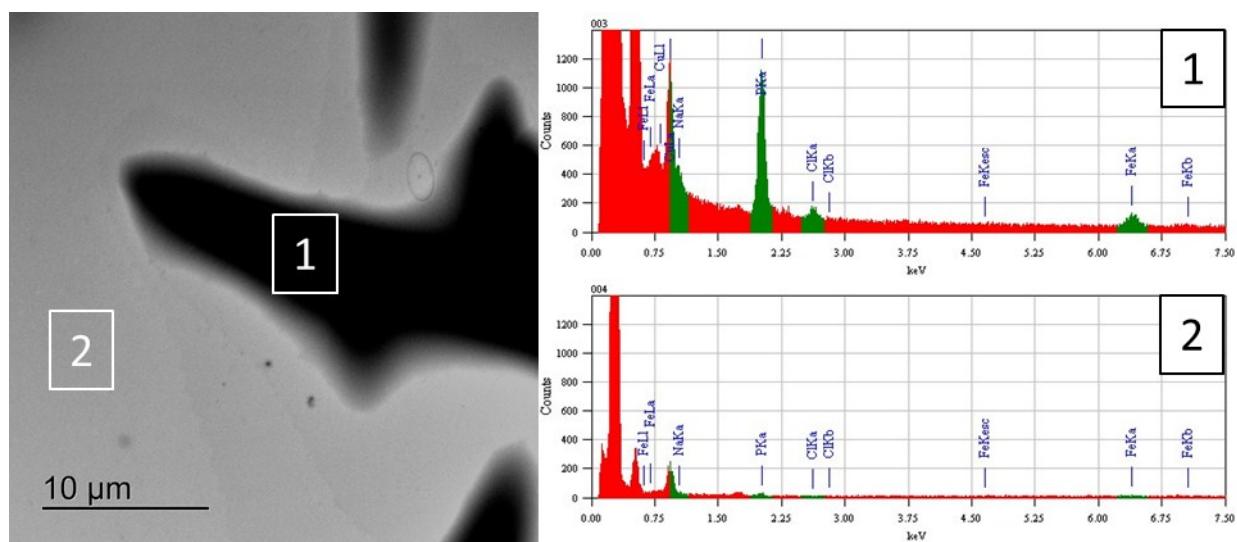


Fig. 7S left) TEM image of PB@Aonyx® 1 prepared by cryo-ultracryomicrotomy and right) the corresponding STEM-EDX spectra obtained on (1) and off (2) the PB reverse micellar system.

Table 1S Percentage of Cs⁺ elimination in excreta for control groups A and B for the rats treated with water or Aonyx without PB after Cs⁺ contamination.

Treatment groups	Group A	Group B
Urine (0 – 48 h ; 0 – 96 h)	26.5 % ; 38.5 %	26.7 % ; 39.6 %
Faeces (0 – 48 h ; 0 – 96 h)	2.7 % ; 4.6 %	3.3 % ; 5.8 %
Total (0 – 48 h ; 0 – 96 h)	29.2 % ; 43.1 %	30 % ; 45.4 %

Table 2S Percentage of Cs⁺ elimination in excreta for all the PB-suspension treated groups.

Treatment groups	Group C	Group D	Group E	Group F
Urine (0 – 48 h ; 0 – 96 h)	23.4 % ; 34.6 %	23.2 % ; 34.6 %	25.4 % ; 37 %	23.3 % ; 32.8 %
Faeces (0 – 48 h ; 0 – 96 h)	7.0 % ; 11.1 %	8.6 % ; 13.3 %	8.7 % ; 14.4 %	9.5 % ; 14.8 %
Total (0 – 48 h ; 0 – 96 h)	33.4 % ; 45.7 %	31.8 % ; 47.9 %	34.1 % ; 51.4 %	32.8 % ; 47.6 %

Table 3S Percentage of Cs elimination in excreta for all the PB@Aonyx® treated groups

Treatment groups	Group G	Group H	Group I
Urine (0-48 h – 0-96 h)	19.2 % ; 26.1 %	18.4 % ; 25.3 %	15.9 % ; 21.4 %
Faeces (0-48 h – 0-96 h)	24.3 % ; 34.9 %	32.8 % ; 46.6 %	39.0 % ; 51.7 %
Total (0-48 h – 0-96 h)	43.5 % ; 61.0 %	51.2 % ; 71.9 %	54.9 % ; 73.1 %