Construction of cancer-targeted nanosystem as payload of iron complexes to reverse cancer multidrug resistance

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Methods

To evaluate the *in vitro* cellular uptake of GAL/Bor@SeNPs, the nanoparticles containing a fluorescent dye coumarin-6, were prepared using a similar procedure. 40 μg of coumarin-6 was added to the reaction system after the addition of $Fe(PiP)_3$. The incorporated coumarin-6 acted as a probe for GAL/Bor@SeNPs and offered a sensitive method to determine its intracellular uptake and localization. The concentration of couramin-6 labeled on the nanoparticles was investigated using a standard curve method through a fluorescence microplate reader (ex/em wavelengths 430/485 nm).
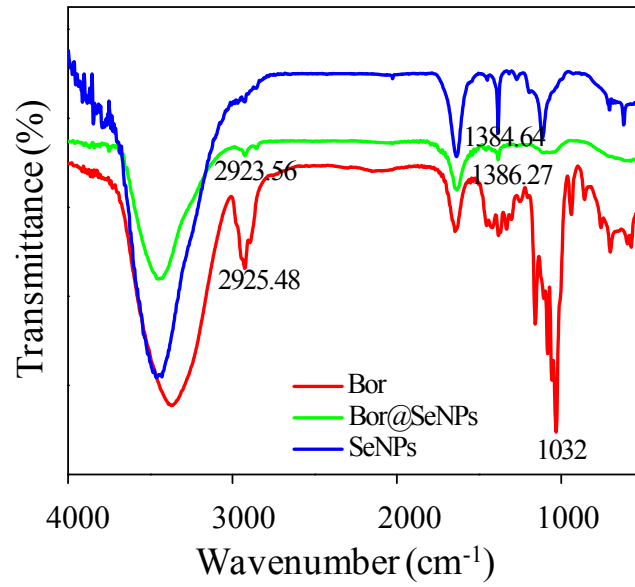
RESULTS

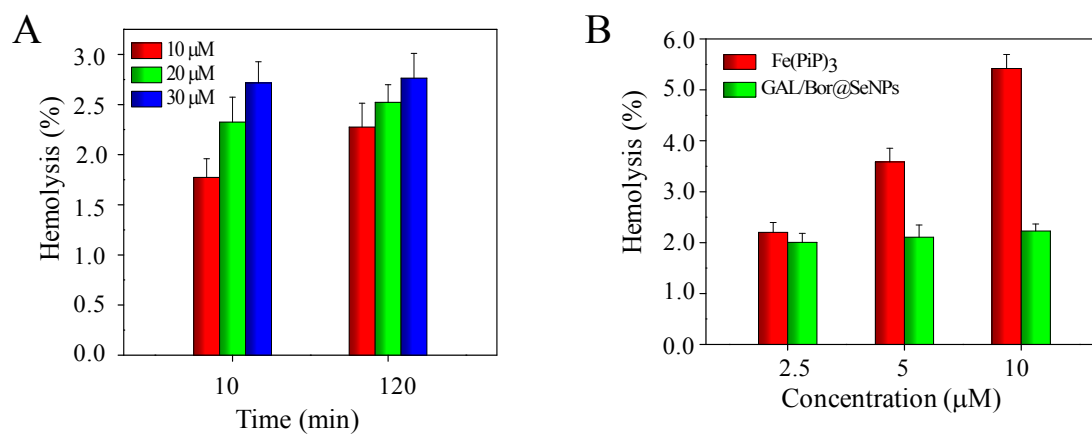**Fig. S1.** FT-IR spectra of Bor, Bor@SeNPs and SeNPs.

Fig. S2. (A) Percentage of RBCs hemolysis incubated by Bor@SeNPs for 10 min and 120 min. (B) Percentage of RBCs hemolysis incubated by different concentrations of Fe(PiP)$_3$ and GAL/Bor@SeNPs for 10 min. Values expressed were means ± SD of triplicate.
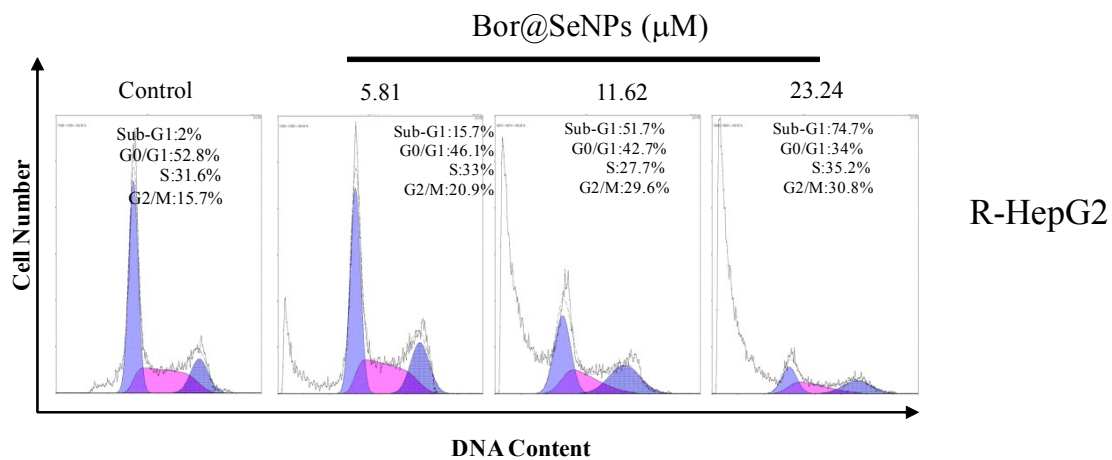
Fig. S3. Flow cytometric analysis of Bor@SeNPs-treated R-HepG2 cells for 72h.

Table S1. Pharmacokinetic parameters of Fe(PiP)$_3$ and GAL/Bor@SeNPs after iv injection at an equivalent dose of 5 mg Fe(PiP)$_3$ per kg of mouse body weight (n=3 per group).

Parameter	GAL/Bor@SeNPs	Fe(PiP)$_3$
$t_{1/2\beta}$ (h)	18.7	9.0
AUC$_{0-24\ h}$ (µg/L*h)	268238.4	51993.7
C$_{max}$ (µg/L)	46479.5	26105.9
Cl (mL/h)	3.72	19.2

$t_{1/2\beta}$ (h), elimination phase, half-life period of medicine.

AUC$_{0-24\ h}$, area under curve.

C$_{max,}$ maximun concertration observed.

Cl, clearance of medicine.