

**Table S1. Kinetics of percentage of CFSE<sup>+</sup> cells in the peripheral blood of mice**

Mouse n <sup>o</sup>	DAYS POST INJECTION			
	Day 1	Day 2	Day 3	Day 5
M1	0.28	1.5	0.87	0.01
M2	0.64	3.4	2.02	nd
M3	2.4	18.6	20.4	1.08
M4	1.53	5.7	5.52	0.02

Results are expressed in terms of percentage of CFSE cells.

**Table S2. Extrapolation calculations at day 3 post-injection in the mouse M3**

	<b>M3</b>
CFSE <sup>+</sup> cells (%) ( (a), see table 1)	20.4%
CD71 <sup>+</sup> cells among CFSE+ cells (%) (b) (see Figure 1B in the main text)	8.5%
CD71neg cells among CFSE+ cells (%) (c)	91.5%
Nb of CFSE <sup>+</sup> cells circulating in M3 (d)	1.22x10 <sup>9</sup>
Nb of CD71neg cells circulating in M3 (e)	1.12x10 <sup>9</sup>

We injected  $5 \times 10^9$  cRBC per mouse containing 95% CD71<sup>+</sup> cells (i.e. 5% CD71neg cells). Consequently,  $2.5 \times 10^8$  CD71negative cells were injected per mouse. For calculations, we considered that the total volume of blood in the animal was 1.3 mL composed by  $6 \times 10^9$  RBC.

The calculations were made as followed:

(a) and (b): determined by flow cytometry

(c): 100% - (b)

(d): by multiplying  $6 \times 10^9$  (number of circulating RBC per mouse) per (a)

(e): by multiplying (c) per (d)

Consequently, the number of CD71neg cells increased *in vivo*, traducing the maturation of the injected cells.

**Table S3. *In vitro* determination of the chromium elution rate \* from native RBC according their origin**

	<b>Peripheral blood**</b>	<b>Cord blood*</b>
Exp 1	1.25	
Exp 2	2.44	
Exp 3	1.89	
Exp 4	1.93	
Exp 5		2.64
Exp 6		1.92
Exp 7		2.57
<u>Mean ± SEM</u>	<u>1.88 ± 0.49</u>	<u>2.38 ± 0.40</u>

\*Results are expressed in percentage per day.

\*\* From normal donors.

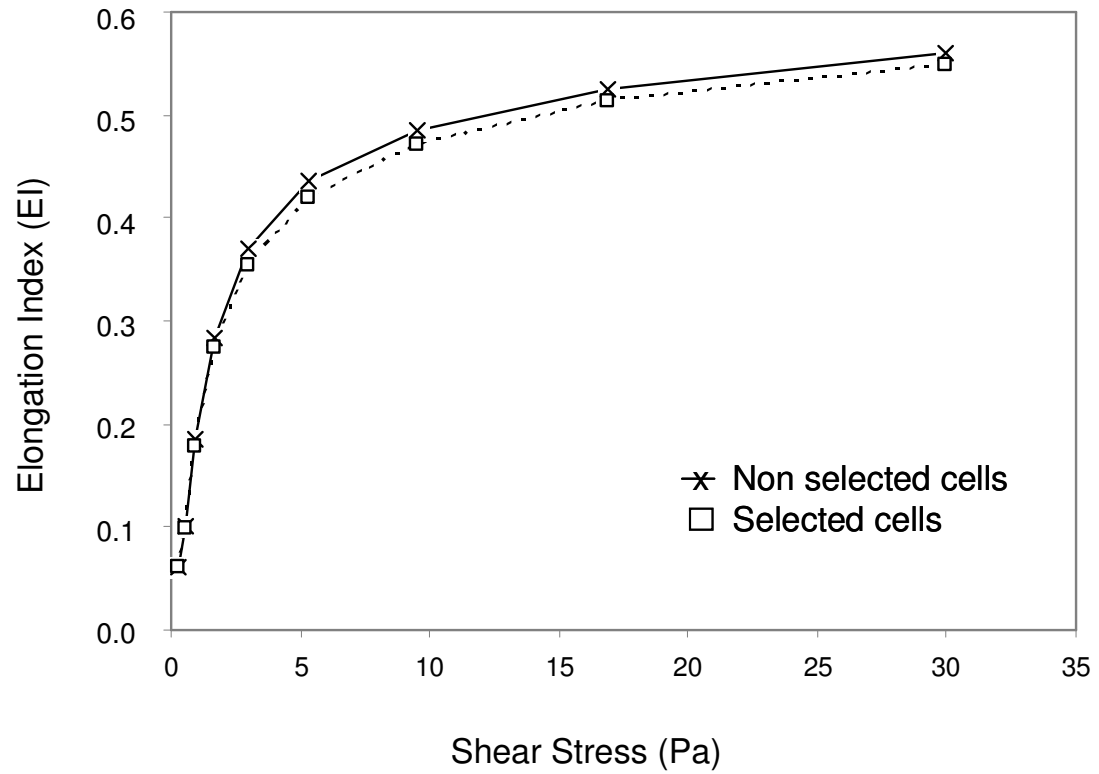
### **Figure S1. Impact of immunomagnetic selection on cell deformability**

The deformability of a cRBC suspension was evaluated by LORCA before and after immunomagnetic selection with anti-CD71 microbeads. A cRBC suspension containing 92% CD71<sup>+</sup> cells was purified on a deleukocytting filter before carrying out the magnetic selection. Purification of reticulocytes by the immunomagnetic method induced a 2% decrease in EI<sub>ma</sub>

### **Figure S2. *In vitro* maturation of cRBC**

(A) Kinetics of total cell and cRBC recoveries from day 18 to day 32 of culture. The recoveries are expressed as the percentage with respect to day 18 and the number of experiments is indicated on each histogram. (B) Kinetics of CD71 expression. Flow cytometric analysis of one representative experiment from day 18 to day 32. Solid histograms represent relevant mAbs labeled with PE and open ones negative controls with irrelevant mAbs.

Figure S1



	El at 3 Pa	El at 30 Pa (El max)
Non selected cells	0.370	0.559
Selected cells	0.353	0.548

Figure S2

