

# Effect of variation in hemorheology between human and animal blood on the binding efficacy of vascular-targeted carriers:

## Supplementary Information

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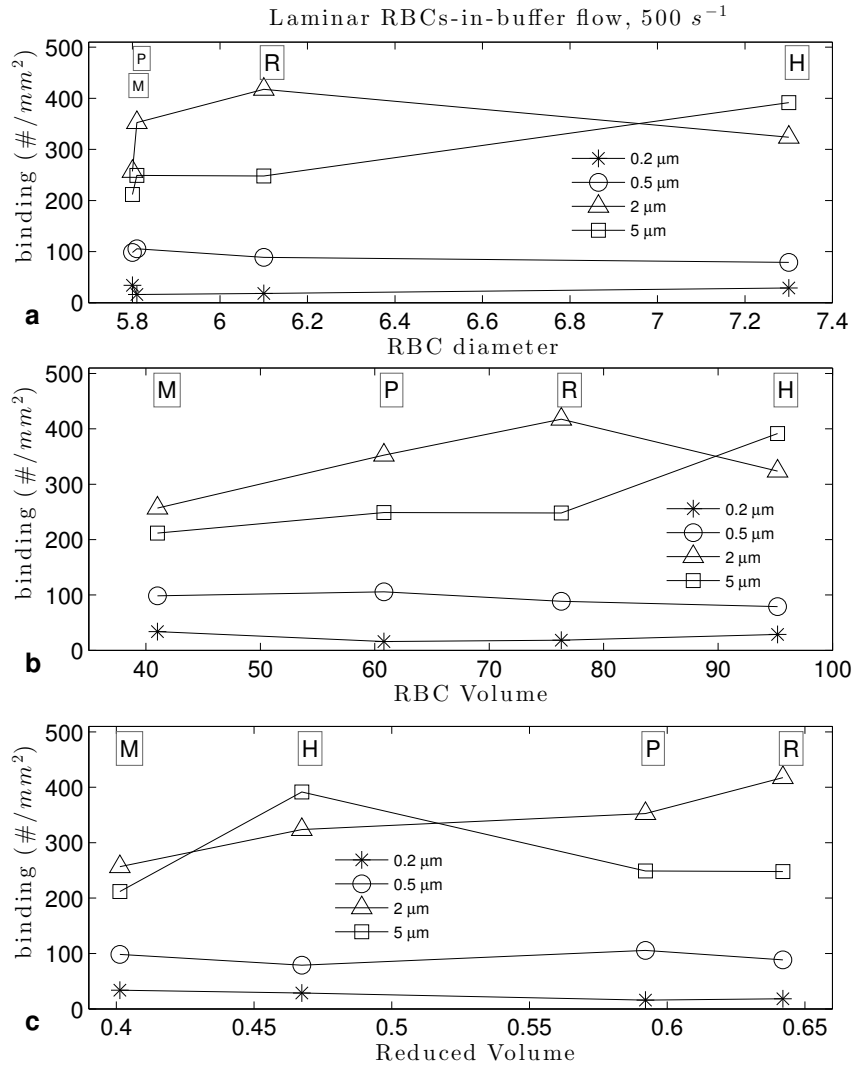


Figure S.1: Adhesion of  $sLe^A$ -particles in human, mouse, rabbit and pig laminar RBCs-in-buffer flow at  $500\text{s}^{-1}$  WSR (a) vs RBC diameter ( $d_{RBC}$ ), (b) vs RBC volume ( $V_{RBC}$ ) and (c) vs reduced volume  $\left(\frac{V_{RBC}}{\frac{4\pi}{3}\left(\frac{d_{RBC}}{2}\right)^3}\right)$ .

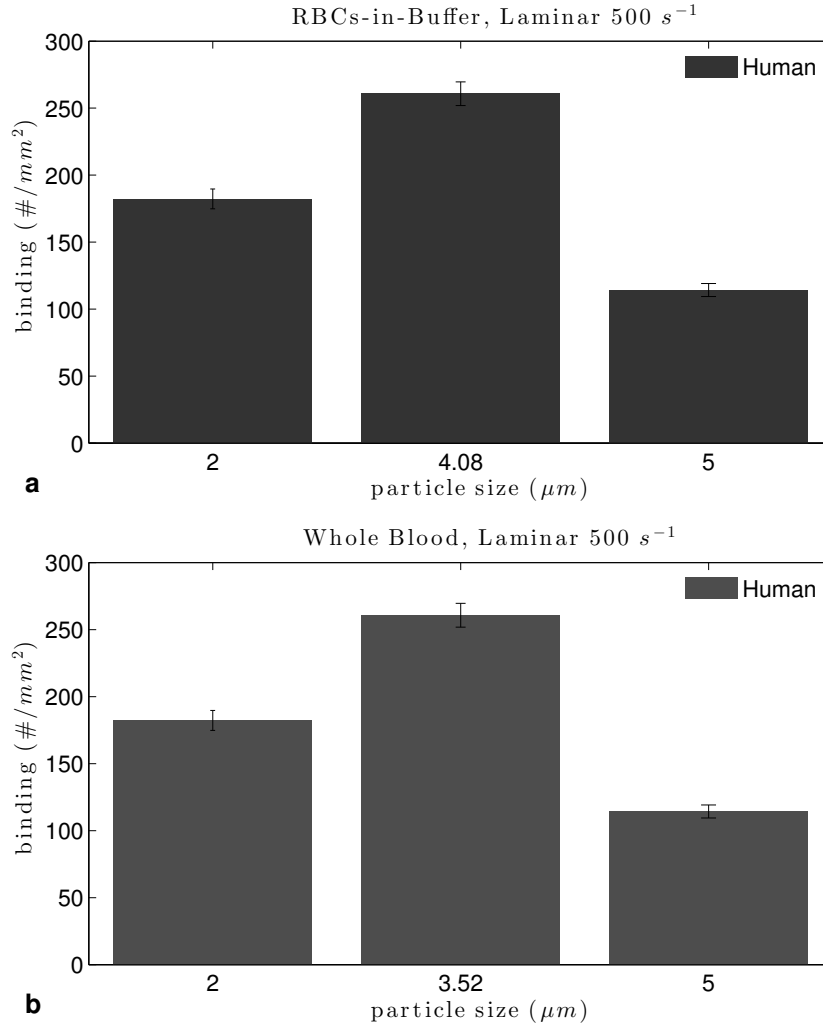


Figure S.2: Adhesion of  $sLe^A$ -particles in human laminar flow at 40% Hct,  $500\text{ s}^{-1}$  in the  $d_{opt}$  range (a) RBCs-in-buffer (b) whole blood.

Table S.1:  $p$ -value from balanced one-way ANOVA, only  $p > 0.01$  are shown.

Figure	Significance (ANOVA)
1	rabbit vs mouse $2\mu\text{m}$ $p = .05$ ; human vs rabbit $0.2\mu\text{m}$ $p = 0.3$ , $0.5\mu\text{m}$ $p = 0.018$
2	rabbit vs pig $0.2\mu\text{m}$ $p = 0.38$ , $0.5\mu\text{m}$ $p = 0.14$ , $5\mu\text{m}$ $p = 0.94$ ; rabbit vs human $0.5\mu\text{m}$ $p = 0.21$
3	rabbit, pig vs human $5\mu\text{m}$ $p = 0.015$ $2\mu\text{m}$ $p = 0.30$ , $0.5\mu\text{m}$ $p = 0.11$ ; human vs pig: $0.2\mu\text{m}$ $p = 0.033$ ; human vs rabbit $0.2\mu\text{m}$ $p = 0.012$
4	rabbit vs human $2\mu\text{m}$ $p = 0.3134$ , $5\mu\text{m}$ $p = 0.16$
S.5	human RBCs-in-buffer vs human Whole Blood $0.2\mu\text{m}$ $p = 0.48$ , $2\mu\text{m}$ $p = 0.067$ ; mouse RBCs-in-buffer vs mouse Whole Blood $5\mu\text{m}$ $p = 0.76$
6	human vs rabbit vs mouse $0.2\mu\text{m}$ $p = 0.084$ , $0.5\mu\text{m}$ $p = 0.14$

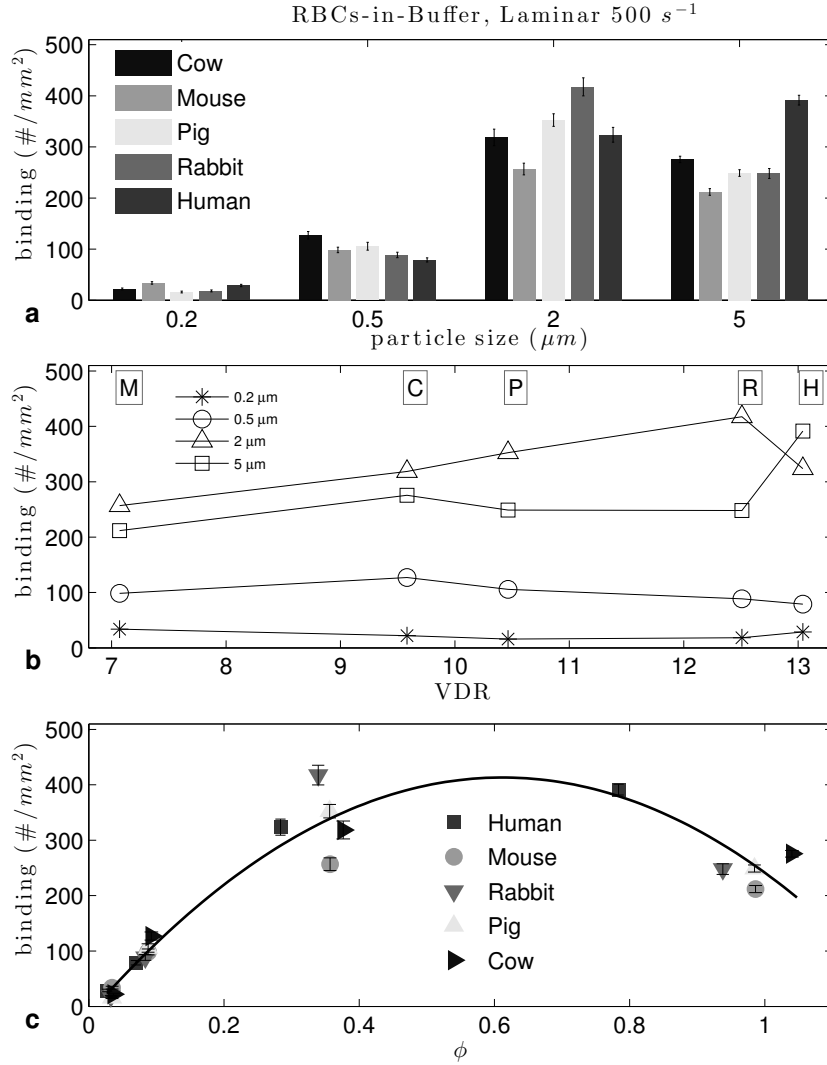


Figure S.3: Adhesion of sLe<sup>A</sup>-particles in human, mouse, rabbit, pig and cow laminar RBCs-in-buffer flow at  $500\text{ s}^{-1}$  WSR (a) histogram, (b) vs VDR and (c) ratio of particle diameter to RBC diameter,  $0.57 < \phi_{opt} < 0.65$  ( $\bar{R}^2 = 0.92$ ).

Table S.2: Optimal particle diameter ( $d_{opt}$ ) in different flows for each animal species.

RBCs-in-Buffer	Human	Mouse	Rabbit	Pig
Laminar $500\text{ s}^{-1}$	4.16–4.74 $\mu\text{m}$	3.31–3.77 $\mu\text{m}$	3.47–3.96 $\mu\text{m}$	3.31–3.77 $\mu\text{m}$
Pulsatile $10\text{--}500\text{ s}^{-1}$	3.43–3.94 $\mu\text{m}$	2.73–3.13 $\mu\text{m}$	2.87–3.29 $\mu\text{m}$	2.73–3.13 $\mu\text{m}$
Recirculating $500\text{ s}^{-1}$	5.40–6.21 $\mu\text{m}$	4.29–4.93 $\mu\text{m}$	4.51–5.19 $\mu\text{m}$	4.30–4.94 $\mu\text{m}$

Whole Blood	Human	Mouse	Rabbit
Laminar $500\text{ s}^{-1}$	3.36–3.87 $\mu\text{m}$	2.67–3.07 $\mu\text{m}$	2.81–3.23 $\mu\text{m}$
Pulsatile $10\text{--}500\text{ s}^{-1}$	3.29–3.80 $\mu\text{m}$	2.61–3.02 $\mu\text{m}$	2.75–3.17 $\mu\text{m}$
Recirculating $500\text{ s}^{-1}$	3.87–4.45 $\mu\text{m}$	3.07–3.54 $\mu\text{m}$	3.23–3.72 $\mu\text{m}$

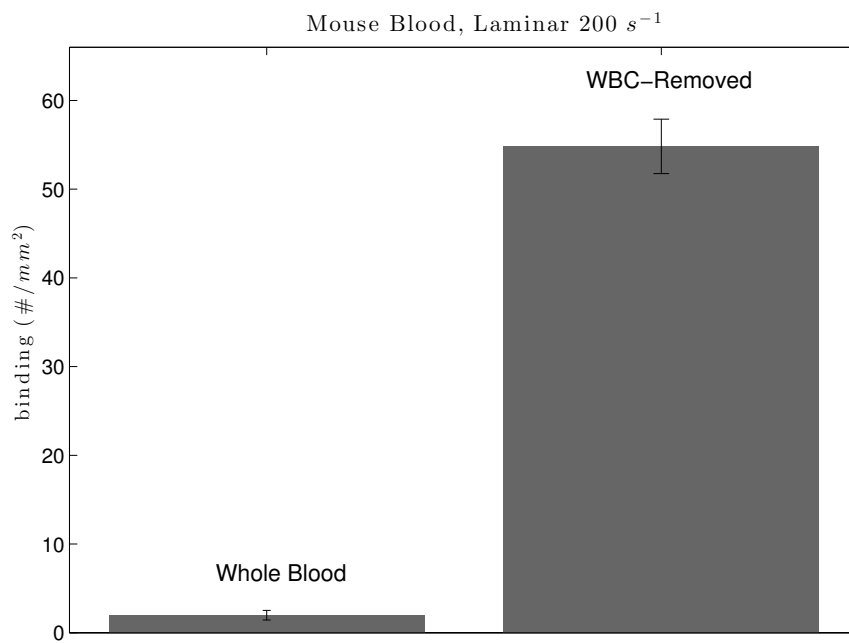


Figure S.4: Adhesion of  $2\mu m$ ,  $sLe^A$ -PLGA-particles in laminar flow  $200s^{-1}$  WSR, mouse blood.

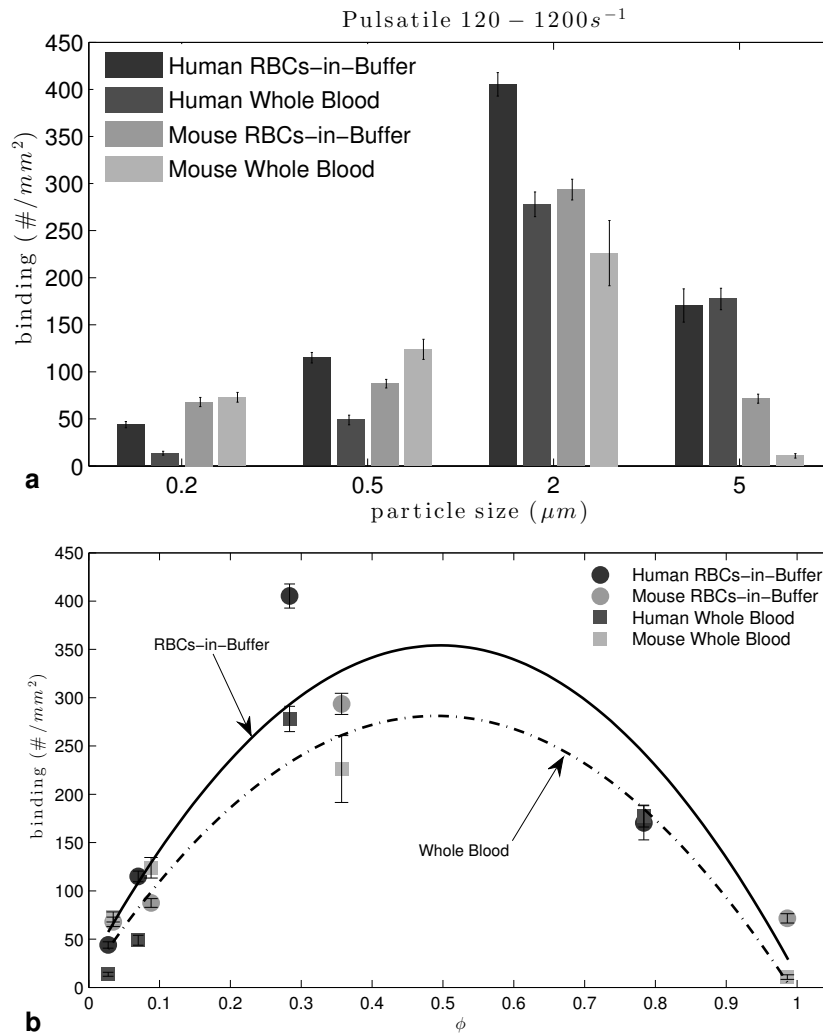


Figure S.5: Adhesion of  $sLe^A$ -particles in human and mouse in pulsatile RBCs-in-buffer and whole blood flow at 40% Hct,  $120-1200 s^{-1}$  WSR: (top) histogram, (bottom) particle to RBC ratio (RBCs-in-buffer  $0.46 < \phi_{opt} < 0.53$ ,  $\bar{R}^2 = 0.80$ ; Whole Blood  $0.46 < \phi_{opt} < 0.53$ ,  $\bar{R}^2 = 0.91$ ).

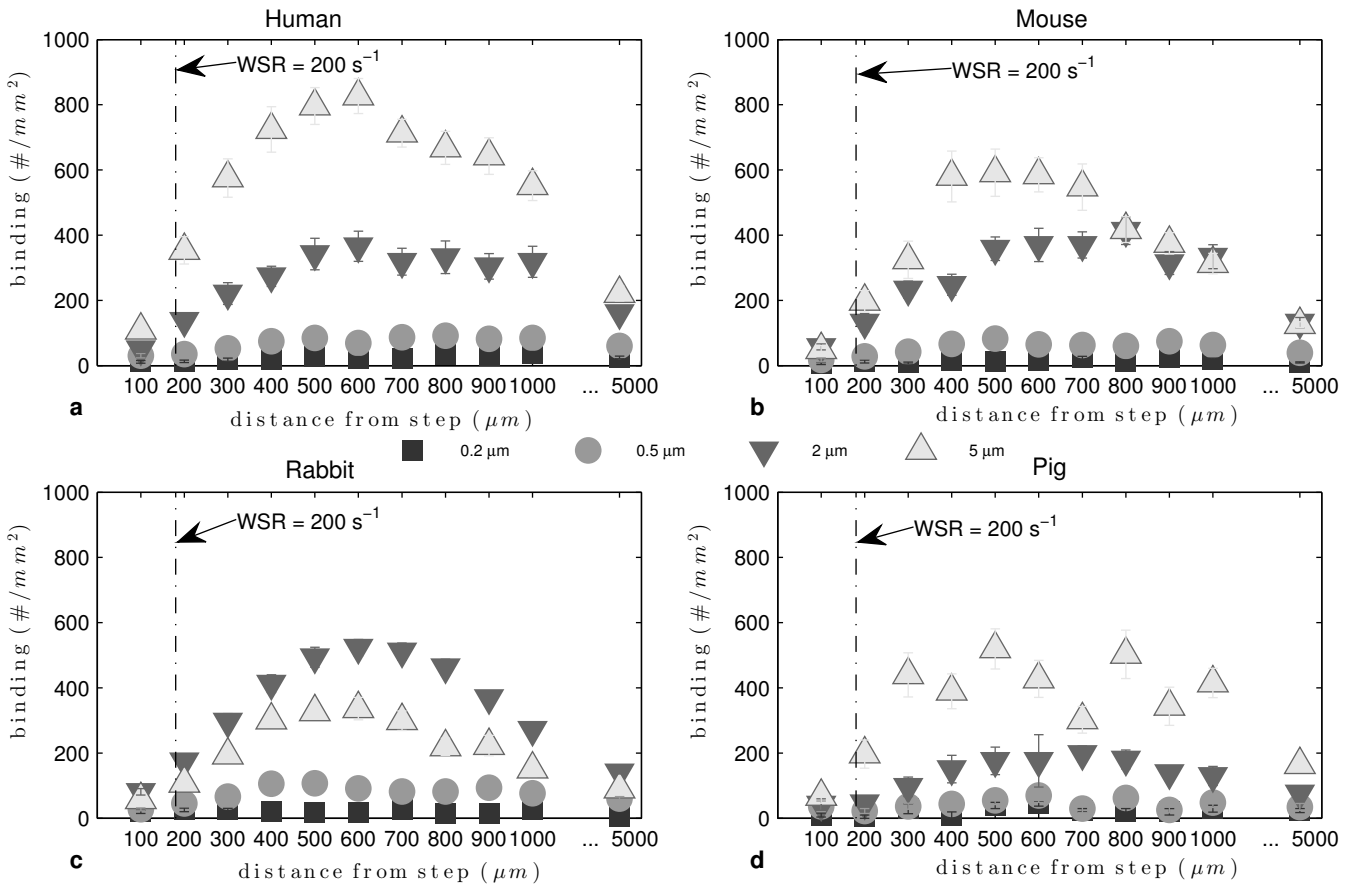


Figure S.6: Adhesion of sLe<sup>A</sup>-particles in human, mouse, rabbit and pig in recirculating RBCs-in-buffer flow at  $200 s^{-1}$ .

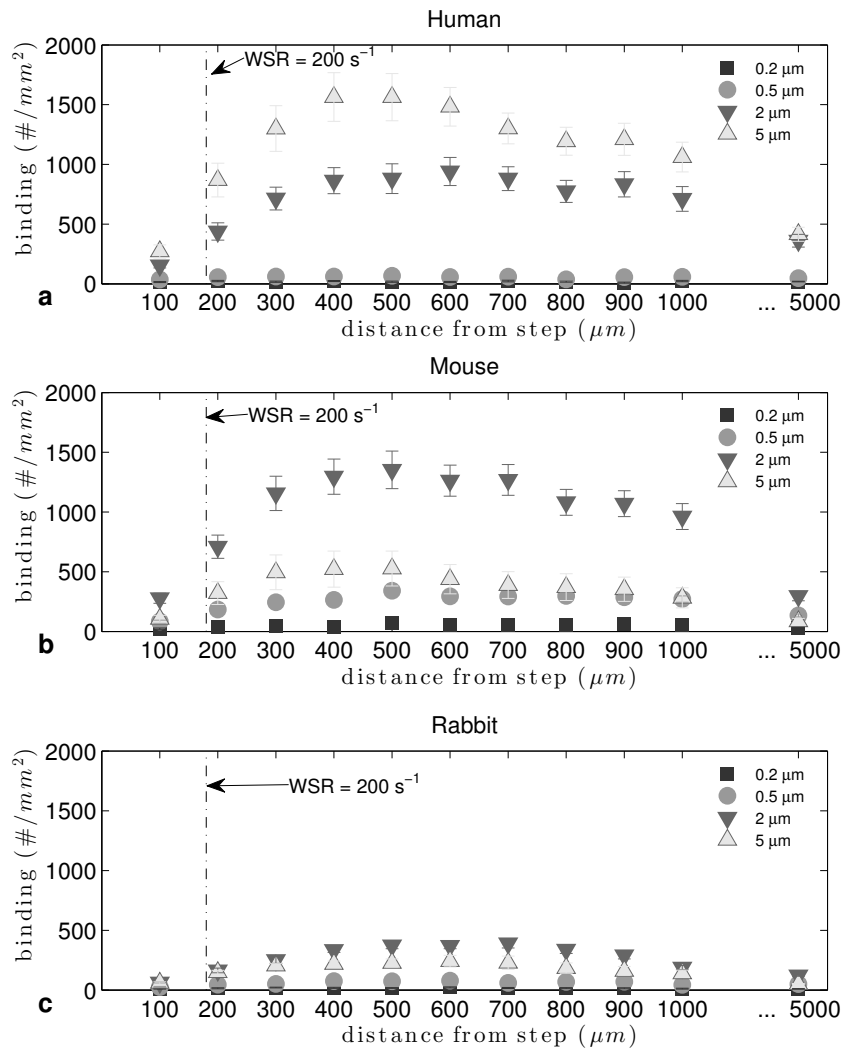


Figure S.7: Adhesion of sLe<sup>A</sup>-particles in human, mouse and rabbit recirculating whole blood flow at 40% Hct, 200 s<sup>-1</sup> grouped by species.