Supplementary Material 2: Curve Fitting using Excel-Solver®

The equation, $L_1(t) = L_1(\infty) \times (1 - \mathrm{Exp}(-kt))$ can be rearranged to give $L_1(\infty) = L_1(t) / (1 - \mathrm{Exp}(-kt))$. As the saturated count, $L_1(\infty)$, should be the same value for any (t, $L_1(t)$), the next equation would be $L_1(\infty) = L_1(t_1) / (1 - \mathrm{Exp}(-kt_1)) = L_1(t_2) / (1 - \mathrm{Exp}(-kt_2)) = L_1(t_3) / (1 - \mathrm{Exp}(-kt_3))$, where $L_1(t_1)$, $L_1(t_2)$ and $L_1(t_3)$ are the observed values of radioactivity at time t_1, t_2 and t_3, respectively. We generated this relationship for $L_1(t)$ for $t_{1\text{-}3}$ and for $L_1(\infty)$ for $t_{1\text{-}3}$ on an Excel sheet. For determining the k value that provides the best fit curve for $L_1(t) = L_1(\infty) \times (1 - \mathrm{Exp}(-kt))$ at the observed radioactivity requires us to find k such that $L_1(\infty)$ for t_1, $L_1(\infty)$ for t_2 and $L_1(\infty)$ for t_3 are all equal. Using this theoretical basis, we used a programme to find a k value that will yield minimum difference between the $L_1(\infty)$ that fulfils the curve passing the measured point (t_1, $L_1(t_1)$) and the $L_1(\infty)$ that fulfils the curve passing the measured point (t_2, $L_1(t_2)$). As an identical operation should be established between $L_1(\infty)$ that fulfils the curve passing the measured points (t_2, $L_1(t_2)$) and (t_3, $L_1(t_3)$), and also between $L_1(\infty)$ that fulfils the curve passing the measured points (t_3, $L_1(t_3)$) and (t_1, $L_1(t_1)$), we practically developed a program that calculated the average of absolute differences between any two $L_1(\infty)$ first, and then searched for a k value that made this average minimum. These operations were performed using the Excel-Solver® (Generalised Reduced Gradient Method) by defining k as a changing variable, by setting the average of the absolute value of difference as the objective and by finding the minimum value for the objective.

	A	B	C	D	E	F	G	H
1	Input values in RED CELLS only and do not edit other cells							
2	Then, activatre Solver with F4 cell as Target Cell and H4 cell as Chaning Cell							
3	Time (min)	Estimated uptake acivity					T half	K_rGSA
4	0	0					8.377	0.083
5	10	160502	285178	$L_{1\infty}$(10,20)	2675.6			
6	20	228507	282502	$L_{1\infty}$(10,30)	0.0			
7	30	261348	285178	$L_{1\infty}$(20,30)	2675.6			
8								
9		Liver VOI volume	Heart VOI volume	Volume ratio (L/H)				
10		1460.75	744	0.49				
11								
12–13	Time (min)	Liver ROI acivity	Heart ROI activity	Estmated liver blood pool activity				
14	10	188478	57029	27976				
15	20	249370	42529	20863				
16	30	278510	34984	17162