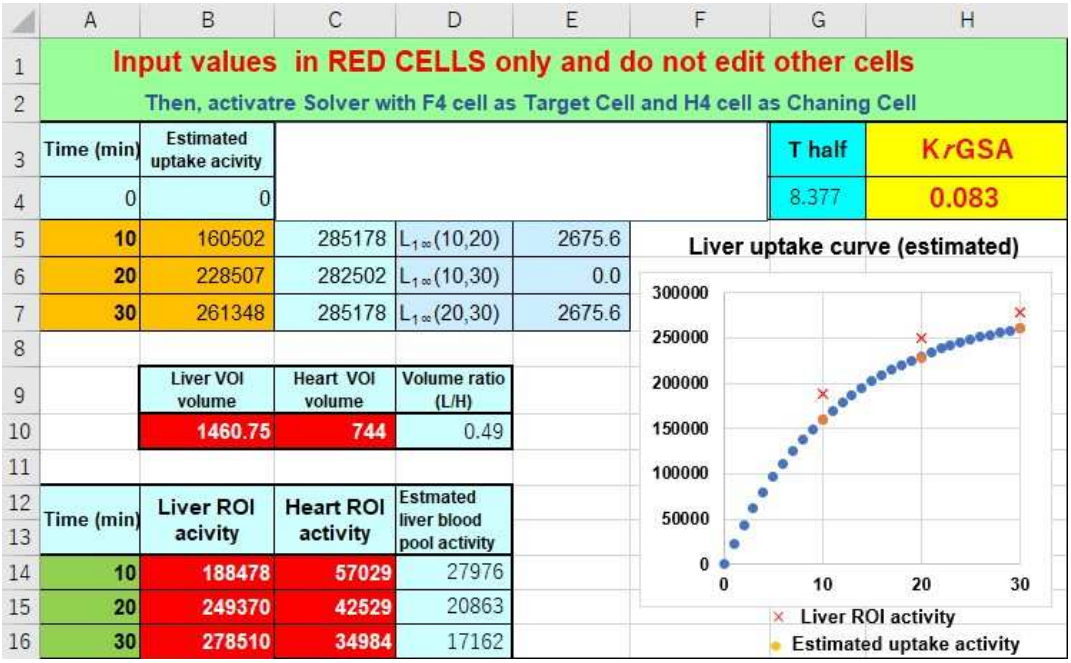
## Supplementary Material 2: Curve Fitting using Excel-Solver®

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/GSA |
| 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 | Time (min) | Liver ROI acivity | Heart ROI activity | Estmated liver blood pool activity | | | | |
| 13 | | | | | | | | |
| 14 | 10 | 188478 | 57029 | 27976 | | | | |
| 15 | 20 | 249370 | 42529 | 20863 | | | | |
| 16 | 30 | 278510 | 34984 | 17162 | | | | |