

**S1 Table 1. Parameters for model 1.**

Parameter	Description	Value used	Reference
$\alpha$	Per cell clearance rate of susceptible cells ( $\text{day}^{-1}$ )	0.01	S15 and S16 references.
$\delta_i$	Per cell clearance rate of infected cells in compartment $i$ ( $\text{day}^{-1}$ )	$\delta_1 = 1$ $\delta_0 = 0.5$ (Fig 5a, 5b) $\delta_0 = 1$ (Fig 5c, 5d)	S17 reference. Different values were used to explore the impact of immune therapy that can reverse impaired cell clearance rates in the drug sanctuaries.
$u_i$	The fraction of the body in compartment $i$	$u_0 = 3.69 \times 10^{-5}$ $u_1 = 1 - u_0$	S2 reference.
$z_i$	Effectiveness in compartment $i$ of the antiretroviral therapy in preventing the infection of cells.	$z_0 = 0.6$ $z_1 = 0.97$	Assumed to represent drug sanctuaries To model a main compartment where drugs penetrate effectively.
$\beta$	Transmission coefficient ( $\text{day}^{-1}$ )	$4.3 \times 10^{-10}$	Estimated to fix the basic reproductive number ( $R_0=6$ ) (S18 reference).
$\lambda$	Birth rate of uninfected cells ( $\text{day}^{-1}$ )	$1.4 \times 10^8$	Estimated by fitting the model to infected cell data prior to ART (S3 reference).
$\kappa$	Factor increase in the trafficking rate caused by trafficking therapy	1 (Fig 4c) 3.5 (Fig 4b, 4d) 5 (Fig 4a)	These values were chosen to demonstrate the different impact upon viral dynamics of the addition of a trafficking therapy
$\tau_i$	Per cell rate of traffic of cells from compartment $i$ to the other compartment in the absence trafficking therapy ( $\text{day}^{-1}$ )	$\tau_0 = 0.5$ $\tau_1 = \tau_0 u_0 / u_1$	$\tau_0$ is assumed to be one half the clearance rate of infected cells ( $\delta$ ) in the absence of a trafficking therapy $\tau_1$ is scaled to account for the compartment size

## References

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