SUPPLEMENTARY MATERIAL

Supplement A: Extended FAST (eFAST) details

Supplement A.1: Choice of sinusoidal function form and choice of frequencies

In eFAST, partitioning of variance is achieved by encoding the identity of input factors in the frequency of their variation. As explained in the text, the sampling procedure implemented in eFAST defines a sinusoidal function for each input parameter, $x = f(N_S)$, that assigns a value to x based on the number of samples per parameter (N_S).

Aside from the requirement that the defining function be sinusoidal, the exact form of function f depends on the sampling distribution desired for each parameter. Saltelli *et al.* (Saltelli *et al.*, 1999) detail several forms of function f that result in different parameter distributions (i.e. pdfs).

The frequency of each sinusoidal function f is critical, as this frequency is used as a parameter identifier to partition variance in later algorithm steps. Frequencies (and their first few harmonics) must be less than the Nyquist critical frequency to avoid aliasing effects. The Nyquist-Shannon sampling theorem defines the Nyquist critical frequency of any discretely sampled signal is equal to 1/2 the sampling frequency. Any frequency component in the signal that exceeds the Nyquist critical frequency is incorrectly aliased to a lower frequency during Fourier analysis. Frequencies must additionally be linearly independent to avoid interference (see (Saltelli *et al.*, 1999) and pages 186-187 of (Saltelli *et al.*, 2000)for details on the choice of frequencies). The collection of one-dimensional sinusoidal functions, one for each input parameter, defines a multi-dimensional search curve that explores many different parameter combinations.

Supplement A.2: Differences between eFAST and original FAST

The primary advantage of the eFAST method over the original FAST is the ability to estimate the total-order sensitivity index of each input parameter. The original FAST method assigns a unique frequency to each input parameter, and thus calculates the unique contribution of each parameter in determining the model output. This unique contribution is the first-order sensitivity index, S_i, as described in the text. To calculate the total-order sensitivity index of a given parameter *i*, the eFAST method instead varies *i* at a unique, high frequency, but all other parameters at low, not-necessarily unique frequencies. Both FAST and eFAST calculate the first-order S_i of parameter *i* by Fourier analysis, using its unique high frequency. In contrast to FAST, eFAST then calculates the summed sensitivity index of the entire complementary set of parameters (all parameters except *i*). Thus, while FAST partitions variance to each parameter, eFAST partitions variance into two categories: variance due to the parameter of interest *i*, and variance due to all other parameters (the complementary set to *i*). Any variance that remains unaccounted for is assumed to be due to non-linear interaction between the parameter of interest and other parameters. The total-order sensitivity index, S_{Ti}, is then the first-order S_i plus this remainder fraction of variance, or equivalently, 1 minus the first-order index of the complementary set of parameters: $S_{Ti} = 1 - \left(s_{ci}^2 / s_{total}^2 \right)$. When re-sampling with different parameter search curves (as described above), sensitivity indices are calculated from the mean of re-sampled variances: $S_i = \text{mean}\left(s_i^2 \right) \Big/ \text{mean}\left(s_{total}^2 \right)$.

Supplement A.3: Determining additivity of a model from eFAST indices

If $Y = f\left(X\right)$, $X \in \mathbb{R}^k$, then the model/function *f* is additive if $Y = a_1X_1 + a_2X_2 + \ldots + a_kX_k$ and there are no interactions between X_i. Additivity is a special case of linearity (with

respect to the parameters a_i). If interactions between parameters matter in explaining the variability of Y, then the model f is not additive. Assuming non-correlated inputs, for additive models the following holds true

$$\sum_{i=1}^{k} S_i \simeq 1 \qquad \text{(A.1)}$$

Each S_i delivers a direct measure for the portion of output variance generated by variance in parameter i, therefore all S_i should sum to 1. For non-additive models the interactions among the input quantities within the model have to be considered. Equation (A.1) may be used to validate the additivity of a model. Equivalently a comparison between S_i and S_{Ti} may lead to a conclusion regarding the additivity of models with non-correlated inputs, namely

$$\begin{aligned} S_{Ti} &\simeq S_i \qquad ADDITIVE\ \ MODEL \\ S_{Ti} &> S_i \qquad NON-ADDITIVE\ \ MODEL \end{aligned} \qquad \text{(A.2)}$$

Note that equation (A.2) typically does not hold for dynamical systems, because even the simplest solution of an ordinary differential equation entails nonlinearities and interactions[1].

Supplement A.4: The total-order index, S_{Tdummy}

While the artifactually non-zero first-order index, S_{dummy}, likely derives from aliasing and interference effects, the assignment of a larger artifactual value to the total-order index, S_{Tdummy}, is more complicated. As described in Section 3.3, eFAST estimates the total-order index from the variance unaccounted for after partitioning variance to the parameter of interest and the complementary set of parameters. The remaining variance is assumed

[1] An alternative way to check for model additivity is to compute the standard regression coefficient (SRC) (see pages 24-27 in Saltelli, A., Chan, K. & Scott, E. M. (2000). *Sensitivity analysis*. Wiley series in probability and statistics, Wiley, Chichester ; New York.), because $S_i=(SRC_i)^2$ for additive models.

to be higher-order interactions between the parameter of interest, *i*, and other parameters. However, this assumption is imprecise, as interaction between other parameters, but not with the parameter of interest, is included in this remaining variance. For example, given a model with parameters *i*, *j*, and *k*, the total-order sensitivity index of parameter *i*, S_{Ti}, is given by:

$$S_{Ti} = S_i + S_{ij} + S_{ik} + S_{ijk} \tag{A.3}$$

The higher-order terms, $S_{ij} + S_{ik} + S_{ijk}$, are approximated by the remaining variance after first-order partitioning. However, this remaining variance includes the interaction between parameters j and k, S_{jk}. Therefore, by approximating the higher-order interactions of i using the remaining variance, the interaction effect S_{jk} is inappropriately included in the total-order index.

Supplement A.5: Conditions on the two-sample t-test for eFAST S_i and S_{Ti}

The two-sample t-test compares two distributions, respectively the first $\left(S_i^j\right)$ or total-order $\left(S_{T_i}^j\right)$ sensitivity indexes for the k inputs/parameters $\left(j = 1, 2, ..., N_R\right)$ with the first or total-order sensitivity indexes of the dummy parameter (i.e. $\left(\text{i.e., } S_{dummy}^j \text{ or } S_{T_{dummy}}^j, j = 1, 2, ..., N_R\right)$. As described in Section 3.3, the first-order S_i^j is calculated for each *resampling* $\left(N_R\right)$ as a fraction of total variance:

$$S_i^j = \left(s_i^j\right)^2 \Big/ \left(s_{total}^j\right)^2 , \quad j = 1, 2, ..., N_R$$

while S_{Ti} is calculated as the remaining variance after the contribution of the complementary set, S_{c_i}, is removed:

$$S_{T_i} = 1 - S_{c_i}$$

The *two-sample t-test* implicitly assumes that

$$\text{mean}\left[\left(s_i^j\right)^2\right] \Big/ \text{mean}\left[\left(s_{total}^j\right)^2\right] \simeq \text{mean}\left[\left(s_i^j\right)^2 \Big/ \left(s_{total}^j\right)^2\right], \quad i=1,2,...,k\,, \quad j=1,2,...,N_R \tag{A.4}$$

for the first order coefficients and

$$\text{mean}\left[\left(s_{c_i}^j\right)^2\right] \Big/ \text{mean}\left[\left(s_{total}^j\right)^2\right] \simeq \text{mean}\left[\left(s_{c_i}^j\right)^2 \Big/ \left(s_{total}^j\right)^2\right], \quad i=1,2,...,k\,, \quad j=1,2,...,N_R \tag{A.5}$$

for the total order sensitivity coefficients.

Conditions (A.4) and (A.5) can fail due to a large difference in either total variances between different re-samplings (s_{total}^j , denominators in (A.4) and (A.5)) or in s_i^j between different resamples. There is no way to control this variability *a priori*, This lack of robustness often occurs because N_S (the number of samples per parameter per search curve) is too small: the two-sample t-test will likely discard significant S_i and S_{Ti}.

We suggest the following method to check for adequacy of the re-sampling. We define the two indexes:

$$\nabla S_i^j = \frac{\text{mean}\left[\left(s_i^j\right)^2\right] \Big/ \text{mean}\left[\left(s_{total}^j\right)^2\right]}{\text{mean}\left[\left(s_i^j\right)^2 \Big/ \left(s_{total}^j\right)^2\right]}, \quad i=1,2,...,k \text{ and } j=1,2,...,N_R \tag{A.6}$$

$$\nabla S_{T_i}^j = \frac{\text{mean}\left[\left(s_{c_i}^j\right)^2\right] \Big/ \text{mean}\left[\left(s_{total}^j\right)^2\right]}{\text{mean}\left[\left(s_{c_i}^j\right)^2 \Big/ \left(s_{total}^j\right)^2\right]}, \quad i=1,2,...,k \text{ and } j=1,2,...,N_R\,. \tag{A.7}$$

Coefficients of variation[2] are then calculated on the distributions of (A.6) and (A.7), i.e.

[2] $\left(CV = \left(\text{Standard Deviation}\right)/\left(\text{Mean}\right) = \sigma/\mu\right)$

$$\mathrm{CV}_{\nabla S_i^j} = \frac{\sigma_{\nabla S_i^j}}{\mu_{\nabla S_i^j}} \quad \text{and} \quad \mathrm{CV}_{\nabla S_{T_i}^j} = \frac{\sigma_{\nabla S_i^j}}{\mu_{\nabla S_i^j}} \quad , \quad i = 1, 2, ..., k \text{ and } j = 1, 2, ..., N_R \qquad \text{(A.8)}$$

Comparing the first and total order sensitivity indexes of the k inputs/parameters with the dummy can be informative, if $\mathrm{CV}_{\nabla S_i^j}$ and $\mathrm{CV}_{\nabla S_{T_i}^j}$ are not too large. We use a threshold of 0.2 and implement the following heuristic conditions

$$\begin{cases} \mathrm{CV}_{\nabla S_i} < 0.2 \\ \mathrm{CV}_{\nabla S_{T_i}} < 0.2 \end{cases}, \; i = 1, 2, ..., k \qquad \text{(A.9)}$$

Condition (A.9) allows for a variation of 20% around each average value for S_i and S_{Ti} across the N_R resamples). The threshold is a qualitative check on how much variability we allow with the S_i and S_{Ti} over different N_R .

If condition (A.9) is not satisfied for some parameters/inputs, the two-sample t-test results cannot be considered reliable for these parameters/inputs. A way to improve accuracy is to increase N_S. We implemented a Matlab function (given on website) to check for condition (A.9), where $\mathrm{CV}_{\nabla S_i}$ and $\mathrm{CV}_{\nabla S_{T_i}}$ $(i = 1, 2, ..., k)$ are expressed as percentages for each parameter/input. Unfortunately, when the mean value is near zero (that is the case for many first-order sensitivity indexes S_i), the coefficient of variation $\mathrm{CV}_{\nabla S_i}$ is sensitive to change in the standard deviation, limiting its usefulness.

Supplement B: Multiple testing corrections for PRCC and eFAST

Multiple testing corrections adjust p-values derived from multiple statistical tests to correct for occurrence of spurious false positives. The incidence of false positives is proportional to the number of tests performed and the critical significance level (p-value threshold). The total number of statistical tests performed depends on the number of parameters varied and output variables analyzed, but multiple testing corrections are

particularly important when analyzing the output of a dynamical system over many time points. To perform a correction, the p-value of each sensitivity index is multiplied by a correction factor that is a function of the number of tests performed.

Several correction procedures are available. Bonferroni correction (see (Abdi, 2007) for a review) is the most stringent test, providing the most conservative approach to control for false positives. Benjamini and Hochberg False Discovery Rate (Benjamini & Hochberg, 1995) is less stringent and provides a good balance between discovery of statistically significant PRCCs and eFAST indexes and limitation of false positive occurrences. We implement both corrections in our Matlab function for calculating PRCC (see PRCC function online at http://malthus.micro.med.umich.edu/lab/usanalysis.html).

A multiple testing correction factor for eFAST is only dependent on N_R and not on N_S or k[3], and, since N_R is usually within the order of 5-10, there is no need for a correction factor (we use uncorrected p-values for significance testing in comparing eFAST S_i and S_{Ti} to the dummy).

If λ is the number of tests performed, the Bonferroni correction multiplies the p-value of each PRCC by λ, namely

$$Corrected\ p_i = \lambda p_i \ , \ i = 1,.....,\lambda \, . \qquad \text{(A.10)}$$

If the corrected p-value is still below our threshold for significance, then the PRCC is significantly different from 0. Otherwise the PRCC will be considered not significant. For example, if we vary 30 parameters simultaneously in the LHS scheme and check for

[3] No statistic is known for eFAST sensitivity indexes

significant PRCCs for 5 outputs at 10 different time points, we are looking at a correction factor of $\lambda = 1500$ (i.e. 30x5x10)[4].

The Benjamini and Hochberg False Discovery Rate method works in 2 steps. The p-values are first ranked, from the smallest to the largest. The largest p-value remains as is. The second largest p-value is multiplied by the total number of tests λ divided by its rank (λ-1). The third p-value is multiplied by λ divided by its rank (λ-2). The i^{th} largest p-value is then corrected as follows,

$$Corrected\ p_i = \left(\frac{\lambda}{\lambda - i + 1} \right) p_i \ , \ i = 2, ..., N \ . \qquad (A.11)$$

Supplement C: Log-scale sampling

If the size of the interval of variation for some parameter is large, values of the parameter in its outer ranges can be neglected during sampling. A way to prevent under-sampling is to sample on a log scale those parameters with large variations. Figure C.1 shows the effect of sampling two parameters, s and μ_T, of the HIV ODE model described in section 4.2. Each point represents a combination of samples of s and μ_T resulting from LHS scheme. Parameters s and μ_T are uniformly sampled in [$1e^{-2}$, 50] and [$1e^{-5}$, 0.2], respectively. To prevent under-sampling in the outer ranges, we apply LHS on a log scale if the ratio between the max and the min value of the interval is higher than 10^3 (this threshold is arbitrary). We didn't implement the same adjustment in eFAST.

Both s and μ_T exceed this threshold. If a log scale sampling is applied, all regions of the parameter space are sampled at least once (Figure C.1 Panel C). That is not the case if a

[4] Equivalently, if the threshold for significance was 5%, the corrected threshold will be 0.000033 (i.e., p/λ=0.05/1500). Each corrected p-value should fall below this new threshold to consider the PRCC significant.

linear scale is implemented: large portions of the parameters space are not sampled (Figure C.1, Panel A and B).

Figure C.1

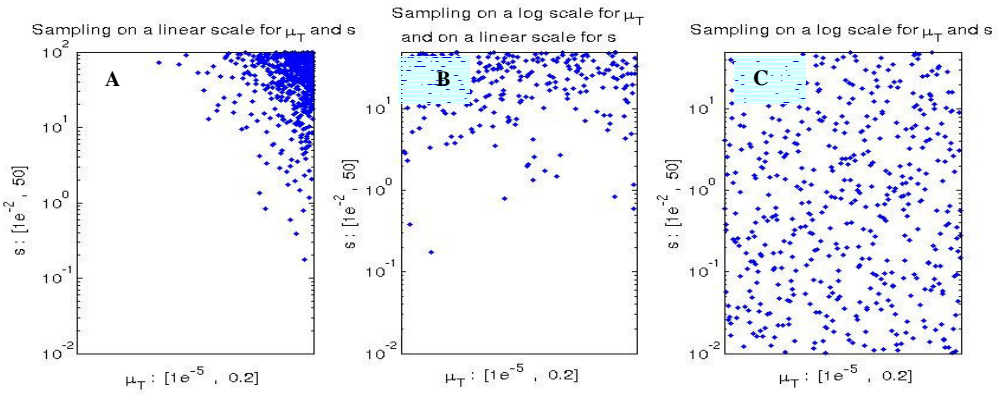

Figure C.1: Effect of sampling on linear and log scales in large intervals with a uniform pdf.

Figure C.2

LHS schemes for different sample sizes N applied to the model described by Eqs. (3)-(4) in the main text.

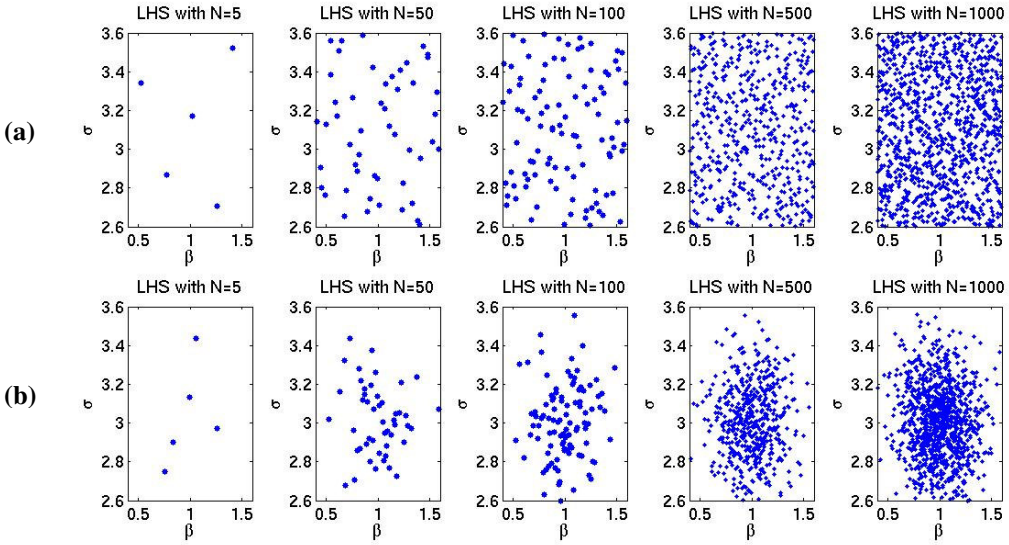

Figure C.2: LHS schemes for different sample sizes N applied to the model (3)-(4). Parameter β is represented on the abscissa while parameter σ is represented on the ordinate. The plots of row **(a)** are obtained by using uniform pdfs: $\beta \in (0.4, 1.6)$ and $\sigma \in (2.6, 3.6)$. The plots of row **(b)** are obtained following Eq. (6) in the main text, namely $\beta \sim Normal(1, 0.2)$ and $\alpha \sim Normal(3, 0.2)$.

Supplement D: HIV model (Eqs. (15)-(18) in the main text) US analysis results

PRCC results

Table D.1: PRCC results on the HIV-ODE model at 2 different time points (2000 and 4000 days post infection). Ranges for LHS are given in Table II (see main text). Panels A-F show the results for different sample sizes.

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.1068	-0.2490	0.1855	0.4473*	0.6774*	-0.0923	0.7033*	-0.6461*	-0.0284
4000	0.0814	-0.2336	0.1661	0.4281*	0.6761*	-0.0570	0.7009*	-0.6489*	-0.0130

Panel A: NS=100

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	-0.1183	-0.3303*	0.0604	0.3374*	0.7698*	0.1621	0.7470*	-0.7529*	0.0453
4000	-0.0939	-0.3306*	0.0427	0.3266*	0.7650*	0.1470	0.7430*	-0.7517*	0.0494

Panel B: NS=200

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	-0.0639	-0.3017*	0.0538	0.3981*	0.7194*	-0.0084	0.7254*	-0.6910*	-0.0161
4000	-0.0518	-0.2992*	0.0389	0.4076*	0.7262*	-0.0163	0.7291*	-0.7064*	-0.0032

Panel C: NS=300

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	-0.0008	-0.2665*	0.1307*	0.3301*	0.7093*	0.0275	0.6945*	-0.6722*	-0.0366
4000	-0.0082	-0.2671*	0.1247	0.3174*	0.6992*	0.0190	0.6929*	-0.6616*	-0.0490

Panel D: NS=400

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0561	-0.2609*	0.0882	0.2996*	0.6772*	0.0041	0.6540*	-0.6932*	-0.0446
4000	0.0627	-0.2616*	0.1012	0.2903*	0.6708*	-0.0084	0.6443*	-0.6889*	-0.0480

Panel E: NS=500

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0778	-0.3282*	0.0297	0.3815*	0.6702*	-0.0177	0.6763*	-0.6464*	0.0101
4000	0.0692	-0.3248*	0.0322	0.3865*	0.6739*	-0.0042	0.6824*	-0.6474*	0.0148

Panel F: NS=1000

Table *D.2:* Top-Down Coefficient of Concordance (TDCC) for the PRCC results of Panels A-F in Table D.1.

N	*TDCC*	
	t=2000	t=4000
100-200	0.9169*	0.8987*
200-300	0.991**	0.9647**
300-400	0.9795**	0.9558*
400-500	0.9899**	0.9899**
500-1000	0.973**	0.973**

**: p<0.01, *:p<0.05

Table D.3: PRCC results on the HIV-ODE model at 2 different time points (2000 and 4000 days post infection). Ranges for LHS are given in Table II (see main text). Panels A-F show the results for different sample sizes. Sampling is performed using a log scale if max/min>1e3.

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.1174	-0.4045*	0.1397	0.3132*	-0.0824	0.0794	0.3928*	-0.1826	0.1224
4000	0.1127	-0.5179*	0.1527	0.2854*	-0.0805	-0.1652	0.3357*	-0.2803*	0.0298

Panel A: NS=100

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	-0.054	-0.3425*	0.0329	0.5102*	-0.0886	-0.0015	0.3909*	-0.2128*	-0.0180
4000	-0.065	-0.3826*	-0.0495	0.4049*	0.0427	-0.0384	0.2555*	-0.1777*	-0.0955

Panel B:NS=200

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0091	-0.3071*	0.0404	0.4230*	-0.1330	0.0299	0.3742*	-0.1663*	-0.0343
4000	0.0183	-0.4263*	-0.0042	0.3889*	-0.0427	-0.0451	0.4019*	-0.2099*	-0.1210

Panel C:NS=300

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0026	-0.2481*	0.0746	0.4135*	-0.1060	-0.0000	0.3860*	-0.1793*	-0.0439
4000	0.0354	-0.3616*	0.1604*	0.3962*	-0.1069	0.0133	0.3066*	-0.2564*	-0.0785

Panel D:NS=400

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0874	-0.3290*	-0.0084	0.4210*	-0.1739*	-0.0189	0.4139*	-0.1321*	-0.0216
4000	0.0495	-0.3874*	-0.0077	0.3958*	-0.0466	-0.0214	0.4371*	-0.1928*	-0.0496

Panel E:NS=500

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0160	-0.2991*	0.0286	0.4455*	-0.1394*	-0.0657	0.3650*	-0.2044*	-0.0399
4000	0.0243	-0.4052*	0.0933*	0.3951*	-0.0334	-0.0556	0.3384*	-0.1765*	0.0059

Panel F: NS=1000

Table D.4*:* Top-Down Coefficient of Concordance (TDCC) for the PRCC results of Panels A-F in Table D.3.

N	*TDCC*	
	t=2000	t=4000
100-200	0.9728**	0.8621*
200-300	0.9899**	0.9361*
300-400	0.9935**	0.9513*
400-500	0.9550*	0.9412*
500-1000	0.9449*	0.8987*

**: p<0.01, *:p<0.05

eFAST results

Table D.5: eFAST S_i and S_{Ti} results on the HIV-ODE model at 2 different time points (2000 and 4000 days post infection). Ranges for LHS are given in Table II (see main text). Panels A-N show the results for different sample sizes.

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0173	0.0350	0.0482	0.0455	0.0878*	0.0383	0.1145*	0.2676*	0.0456
4000	0.0173	0.0350	0.0481	0.0455	0.0877*	0.0383	0.1145*	0.2676*	0.0456

Panel A: S_i [N_S=65]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.3845	0.5007	0.5535	0.5158	0.6066*	0.4600	0.7098	0.8538*	0.5102
4000	0.3845	0.5008	0.5536	0.5158	0.6067*	0.4601	0.7098	0.8539*	0.5102

Panel B: S_{Ti} [N_S=65]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0325	0.0127	0.0286	0.0293	0.0709*	0.0173	0.0702*	0.3271*	0.0237
4000	0.0325	0.0127	0.0285	0.0293	0.0709*	0.0173	0.0702*	0.3270*	0.0237

Panel C: S_i [N_S=129]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.5347	0.3488	0.4809	0.4766	0.5164	0.4239	0.5321	0.8339*	0.4667
4000	0.5348	0.3488	0.4809	0.4766	0.5164	0.4239	0.5321	0.8339*	0.4667

Panel D: S_{Ti} [N_S=129]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0150	0.0142	0.0284*	0.0242*	0.0753*	0.0229*	0.0776*	0.3232*	0.0184
4000	0.0150	0.0142	0.0284*	0.0240*	0.0753*	0.0229*	0.0776*	0.3232*	0.0184

Panel E: S_i [N_S=257]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.3969	0.3747	0.4872	0.4493	0.5579*	0.4569	0.5734*	0.8480*	0.4222
4000	0.3969	0.3747	0.4872	0.4482	0.5579*	0.4569	0.5736*	0.8480*	0.4224

Panel F: S_{Ti} [N_S=257]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0165	0.0232	0.0207	0.0171	0.0561*	0.0180	0.0739*	0.2796*	0.0177
4000	0.0165	0.0232	0.0207	0.0171	0.0561*	0.0180	0.0739*	0.2796*	0.0178

Panel G: S_i [N_S=513]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.4153	0.4600	0.4425	0.4323	0.4942	0.4443	0.6071*	0.8302*	0.4328
4000	0.4154	0.4600	0.4426	0.4324	0.4943	0.4444	0.6071*	0.8302*	0.4330

Panel H: S_{Ti} [N_S=513]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0018	0.0068*	0.0043*	0.0026*	0.0391*	0.0014	0.0518*	0.1280*	0.0009
4000	0.0018	0.0068*	0.0043*	0.0026*	0.0391*	0.0014	0.0517*	0.1282*	0.0009

Panel I: S_i [N_S=1025]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.4693	0.4686	0.4569	0.5047	0.5987*	0.4665	0.5763*	0.8551*	0.4205
4000	0.4688	0.4687	0.4570	0.5047	0.5988*	0.4665	0.5764*	0.8551*	0.4205

Panel L: S_{Ti} [N_S=1025]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0012	0.0042*	0.0031*	0.0017	0.0352*	0.0010	0.0487*	0.1974*	0.0005
4000	0.0012	0.0042*	0.0031*	0.0017	0.0352*	0.0010	0.0487*	0.1975*	0.0005

Panel M: S_i [N_S=2049]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.4181	0.4308	0.4412	0.4603	0.5894*	0.4568	0.5583*	0.8445*	0.4173
4000	0.4182	0.4309	0.4414	0.4603	0.5894*	0.4569	0.5584*	0.8445*	0.4173

Panel N: S_{Ti} [N_S=2049]

Table D.6: Coefficient of Variations described in Supplement A.5 for S_i and S_{Ti} results across the resamples (N_R) on the HIV-ODE model at 2 different time points (2000 and 4000 days post infection). Panels A-N show the results for different sample sizes.

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	27.6270	50.6562	85.8384	65.6931	40.4772	110.8997	55.5056	19.5493	50.7581
4000	27.6332	50.6821	85.8076	65.4197	40.3326	111.0496	55.5066	19.5538	50.8285

Panel A: Coefficients of Variation for S_i [N_S=65]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	32.3344	18.9849	8.4448	14.4363	18.4949	15.7540	21.4101	5.3203	9.8655
4000	32.3339	18.9785	8.4263	14.4369	18.3964	15.7751	21.4030	5.3098	9.8863

Panel B: Coefficients of Variation for S_{Ti} [N_S=65]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	66.4009	37.1084	47.1681	38.8312	42.9006	57.7603	20.8953	7.5438	68.7373
4000	66.4141	37.6689	47.0853	38.8305	42.8930	57.8376	20.8835	7.5592	68.6892

Panel C: Coefficients of Variation for S_i [N_S=129]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	19.4592	33.4483	13.2410	17.4296	20.7016	20.5410	11.0773	3.1447	33.7744
4000	19.4569	33.6302	13.2481	17.4266	20.7030	20.5229	11.0739	3.1448	33.7709

Panel D: Coefficients of Variation for S_{Ti} [N_S=129]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	75.6668	68.2531	10.8336	24.5938	15.5854	14.3132	3.1165	6.1560	15.3970
4000	75.4665	68.2950	10.9324	25.2706	15.6287	14.1029	3.0968	6.1630	15.4647

Panel E: Coefficients of Variation for S_i [N_S=257]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	22.8305	23.2808	6.1407	11.2132	11.5687	10.4057	9.7493	2.7791	14.3156
4000	22.7958	23.2928	6.1285	11.4409	11.5712	10.3824	9.7243	2.7704	14.3153

Panel F: Coefficients of Variation for S_{Ti} [N_S=257]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	*N*	μ_V	*dummy*
2000	29.6937	52.7933	46.3433	6.6893	5.4713	25.2698	14.1906	12.9174	17.6040
4000	29.8846	52.8598	46.4226	6.6961	5.4463	25.2115	14.1742	12.9181	17.4123

Panel G: Coefficients of Variation for S_i [N_S=513]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	7.6933	15.6349	13.3265	14.7151	7.0411	8.4665	9.3695	1.2625	12.2550
4000	7.6836	15.6336	13.3108	14.7121	7.0351	8.4625	9.3634	1.2611	12.2753

Panel H: Coefficients of Variation for S_{Ti} [N_S=513]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	44.7893	42.0246	15.8155	40.2886	25.0616	86.3381	7.9166	40.1370	38.4888
4000	44.4671	42.0021	15.4814	40.4222	25.0753	86.2653	7.9596	40.1090	38.6360

Panel I: Coefficients of Variation for S_i [N_S=1025]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	11.9433	13.4549	3.0501	16.5545	5.9074	15.8635	4.0985	2.0700	8.6099
4000	11.8901	13.4592	3.0460	16.5575	5.8910	15.8596	4.0905	2.0663	8.6110

Panel L: Coefficients of Variation for S_{Ti} [N_S=1025]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	74.8358	23.0827	39.6820	67.2312	22.1101	64.9453	9.6696	26.3278	25.0941
4000	75.3972	22.7410	39.4439	67.1669	22.1482	64.7345	9.6436	26.4074	25.0236

Panel M: Coefficients of Variation for S_i [N_S=2049]

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	7.1642	4.8226	3.4069	8.5539	6.4335	12.9741	2.4695	1.4821	4.6299
4000	7.1603	4.7716	3.3939	8.5593	6.4554	12.9718	2.4682	1.4784	4.6285

Panel N: Coefficients of Variation for S_{Ti} [N_S=2049]

Table D.7*:* Top-Down Coefficient of Concordance (TDCC) for eFAST S_i and S_{Ti} results of Panels A-N in Table D.5 and D.6.

N	*TDCC - S_i*		*TDCC - S_{Ti}*	
	t=2000	t=4000	t=2000	t=4000
65-129	0.4239	0.4239	0.2518	0.2518
129-257	0.7906*	0.7906*	0.6922*	0.6922*
257-513	0.3882	0.3882	0.4239	0.4239
513-1025	0.5229	0.5229	0.2290	0.2290
1025-2049	1**	1**	0.8121*	0.8121*

**: p<0.01, *:p<0.05

Supplement E: Two compartmental ODE model of *M. tuberculosis* infection

Supplement E.1: Model description

To capture global dynamics of Mtb infection and immunity, we developed a two compartmental mathematical model (Marino & Kirschner, 2004; Marino *et al.*, 2004) that extended on a previous model (Wigginton & Kirschner, 2001) and that qualitatively and quantitatively addresses important processes of cellular priming and activation. These processes occur between the site of infection (lung) and the nearest draining lymph node (DLN) (see Figure E.1). The key cells mediating this process are the dendritic cells (DC). The ODE model describes the dynamics of macrophages (resting [MR], infected [MI] and activated [MA]), dendritic cells (immature [IDC] and mature [MDC]), lymphocytes (Naïve CD4+ T cells in the lymph node [T], Th0 in the lung [T0] and in the lymph node [T0LN], Th1 [T1] and Th2 [T2] in the lung), bacteria (intracellular [BI] and extracellular [BE]) and cytokines (IFNγ, IL12 in the lung and in the lymph node [IL12LN], IL10 and IL4).

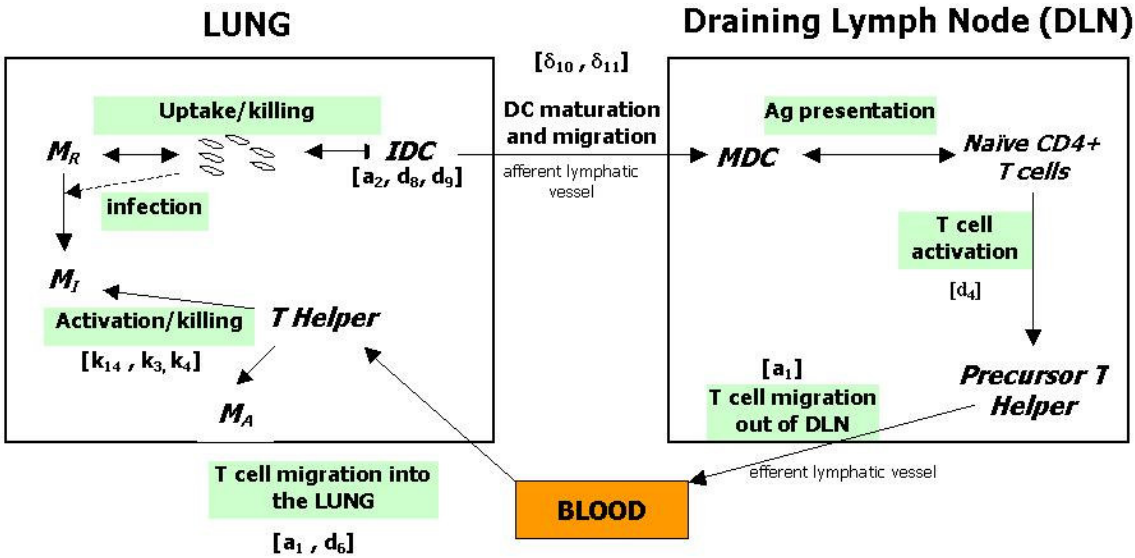

Figure E.1: diagram of the main processes (uptake, trafficking and presentation) described in the two compartmental ODE model of *M. tuberculosis* infection in humans.

During infection, macrophages are the prime target cells for Mtb. However, upon activation, macrophages can both kill intracellular bacteria and participate in a protective T helper cell type 1 (Th1) response (targeting intracellular bacteria). Immature or resting DCs (IDC) are present at sites of infection (such as the lung) at the onset of the inflammatory response: they are specialized for antigen uptake, processing and presentation. After bacterial uptake, immature DCs differentiate into the mature phenotype (mature DC or MDC) and migrate through the afferent lymphatic vessels into T cell area of the closest draining lymph node (DLN), where they perform two main functions: naive T cell recruitment and antigen presentation. Once presentation occurs, naive T cells experience stages of differentiation from naive to armed effector T cell. This phenotypic and functional change allows primed T cells to proliferate and migrate through the efferent lymphatic vessels into the blood, and eventually into the site of infection. As professional antigen presenting cells (APCs), dendritic cells play a major role in establishing an effective adaptive response.

Table E.1

Table E.1: parameter definitions and values of the two-compartmental model

Parameter	*Description*	*Range*
ξ	fraction of Th0 migrating out of the DLN into the blood	[1e-4 , 1]
δ_{10}	Max rate of IDC activation/maturation/migration from the lung to the DLN	[1e-4 , 1]
s_{IDC}	IDC baseline turnover in the lung	[1 , 1e3]
k_2	Max infection rate of macrophages due to B_E	[1e-4 , 1]
k_3	Max activation rate of macrophages induced by B_T and IFNγ	[1e-3 , 1]
k_4	Max deactivation rate of macrophages induced by IL10	[1e-3 , 1]
k_{14}	Max rate of infected macrophage killing by T cells (apoptosis, CTL)	[1e-3 , 1]
δ_4	Rate of MDC-T cell interaction (antigen presentation, T cell activation)	[1e-7 , 1e-1]
δ_8	Mx rate of recruitment of IDC due to B_E	[1e-4 , 1e-1]
δ_6	Half saturation of Th0 migration from the LN due to M_A	[1e3 , 1e5]
δ_9	Half saturation of IDC recruitment due to B_E	[1e5 , 1e6]
δ_{11}	Half saturation of IDC activation/maturation/migration due to B_E	[1e3 , 1e5]

Supplement E.2: *Two compartmental model US analysis results*

PRCC results

NS=100

BE =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
0.0288	-0.2527	-0.2871*	-0.1726	0.0174	0.1652	-0.1503	-0.0553	-0.1187	-0.0803	0.0287	0.0305	-0.0575
-0.1112	0.2113	-0.5448*	0.8755*	-0.4074*	0.4129*	-0.3075*	-0.1265	-0.0136	-0.1145	-0.0072	0.0565	-0.0002
-0.0329	0.5810*	-0.3106*	0.7968*	-0.5358*	0.3557*	-0.2027	-0.1959	0.0887	-0.0061	0.0945	0.1024	-0.0720

MDC =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
-0.0473	0.9697*	0.7086*	-0.5004*	0.0350	0.0794	-0.0129	-0.0137	-0.0564	-0.0918	0.0258	0.1301	0.1428
0.0773	0.2145	0.7082*	0.5647*	0.0740	0.1069	-0.1255	-0.0906	-0.0438	-0.0005	0.1584	0.1483	-0.1085
0.0644	-0.2188	0.4983*	0.5502*	-0.0295	0.2229	-0.1491	-0.1134	-0.0024	0.0244	0.1249	0.2154	-0.1403

Th1 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
0.8935*	0.8926*	0.3152*	0.4978*	0.8546*	0.0645	0.0804	0.1441	-0.0860	0.0599	-0.0246	-0.0957	0.1302
0.6717*	-0.1464	0.0647	0.4719*	0.6747*	-0.2161	-0.1560	0.0909	-0.0204	-0.0851	-0.0418	0.1090	-0.0357
0.6648*	-0.3083*	-0.0530	0.0234	0.7082*	-0.0317	-0.2508*	0.0848	0.0494	-0.1420	0.0096	0.2379	-0.1415

NS=200

BE =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
0.0032	0.0476	-0.0422	-0.1835	0.0409	0.1739	-0.1537	-0.1484	0.0696	-0.0286	0.0014	-0.0926	0.0588
0.0411	0.3094*	-0.4387*	0.8558*	-0.4713*	0.3707*	-0.1311	-0.0488	-0.0123	0.0164	-0.0935	-0.0569	0.0587
0.0533	0.5821*	-0.4043*	0.6861*	-0.4651*	0.2717*	-0.0486	-0.0221	0.0223	0.0469	0.0563	-0.0787	-0.0387

MDC =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
-0.0307	0.9739*	0.7725*	-0.5695*	-0.0116	0.1179	-0.0499	-0.0985	0.1782	0.0620	0.0361	-0.2093	0.0434
-0.0479	0.3963*	0.7519*	0.5351*	-0.0070	0.0447	-0.1630	-0.0120	-0.0261	-0.0772	0.0295	-0.0314	0.1033
-0.1284	-0.1303	0.5146*	0.5168*	-0.1402	0.1082	-0.0781	-0.0161	-0.0220	-0.0470	0.0690	0.0532	0.1410

Th1 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
0.8828*	0.9129*	0.4627*	0.4052*	0.8457*	0.1211	-0.0848	0.0317	0.1352	-0.0772	-0.0621	-0.1629	-0.0199
0.4930*	0.1820	0.1813	0.3929*	0.6039*	-0.0679	-0.1817	-0.0828	0.0271	-0.0418	0.0643	-0.0398	0.1080
0.4967*	0.0377	0.0284	0.0506	0.5652*	-0.0310	-0.1891*	-0.0646	-0.0050	-0.0535	0.0941	-0.0055	0.1266

NS=300

BE =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
0.0978	0.9705*	0.7542*	-0.5362*	0.0569	0.1371	-0.0484	0.0079	-0.0590	-0.0046	0.0170	-0.0600	-0.0862
-0.0787	0.3343*	0.7292*	0.5789*	-0.1841*	0.1350	-0.0528	-0.0428	-0.0364	-0.0475	0.0638	-0.0924	-0.0666
-0.1798*	-0.1636*	0.5515*	0.5634*	-0.3815*	0.1713	-0.0521	-0.0446	0.0015	-0.0716	0.0446	-0.0815	-0.1135

MDC =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
-0.0910	0.9734*	0.7598*	-0.5324*	0.0890	-0.0896	-0.0046	-0.0923	0.0460	0.0202	0.0327	-0.0864	0.0317
-0.0581	0.3947*	0.7689*	0.5894*	-0.0499	-0.0166	-0.1261	-0.0186	0.0600	0.0502	0.0305	-0.0204	0.0779
-0.0325	-0.0969	0.4821*	0.5090*	-0.2422*	0.1244	-0.1788*	-0.0225	0.0391	0.0482	-0.0397	-0.0133	0.0601

Th1 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
0.8821*	0.8988*	0.3888*	0.4183*	0.8373*	0.0650	-0.0418	0.1135	-0.0490	0.0110	0.0307	-0.0821	-0.1077
0.5534*	0.0429	0.0760	0.3930*	0.5320*	-0.0701	-0.1083	-0.0411	-0.0554	-0.1096	0.0732	-0.0520	-0.0175
0.4803*	-0.1662*	-0.0067	0.0062	0.4375*	-0.0557	-0.1299	-0.0557	-0.0699	-0.0816	0.0492	-0.0442	-0.0239

NS=400

BE =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
0.0672	0.1071	-0.1235	-0.1941*	-0.0483	-0.1802*	0.0327	0.0536	0.0076	-0.1222*	0.0125	0.0037	-0.0479
0.0142	0.2545*	-0.4485*	0.8459*	-0.5470*	0.1379*	-0.0838	0.0892	0.1296*	-0.0349	-0.0165	0.0032	-0.0443
-0.0272	0.4781*	-0.3343*	0.6001*	-0.4952*	0.1454*	-0.0686	0.0382	0.0603	-0.0089	0.0368	0.0280	-0.0413

MDC =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
-0.0036	0.9717*	0.7328*	-0.4922*	-0.0418	-0.1095	0.0307	0.0233	0.0154	-0.1027	0.0842	-0.0637	-0.0245
0.0985	0.3976*	0.7569*	0.6085*	-0.1616*	-0.0604	0.0434	0.0008	-0.0800	-0.0076	-0.0240	0.0573	-0.0336
0.1015	-0.1574*	0.5639*	0.5868*	-0.2869*	0.0108	0.0520	-0.0105	-0.0190	-0.0140	-0.0322	0.0161	-0.0478

Th1 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.8751*	0.9012*	0.3870*	0.4323*	0.8179*	-0.1204	0.0348	0.1054	-0.0128	-0.0987	-0.0160	-0.0437	-0.0304
0.5752*	0.1257	0.1656*	0.3969*	0.5593*	-0.3174*	0.0166	0.0148	0.0138	-0.0572	0.0070	0.0322	-0.0791
0.5925*	-0.0649	0.0567	-0.0065	0.5235*	-0.2865*	-0.0384	0.0041	-0.0424	-0.0460	-0.0279	0.0334	-0.1135

NS=500

BE =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
-0.0063	-0.0087	-0.1826*	-0.1938*	0.0067	0.0049	0.0589	0.0252	-0.0348	0.0031	0.0470	-0.0255	-0.0390
-0.2141*	0.2555*	-0.5394*	0.8418*	-0.5091*	0.1987*	-0.0787	-0.0577	0.0266	-0.0157	-0.0328	-0.0012	-0.0739
-0.1739*	0.5272*	-0.4131*	0.6594*	-0.4778*	0.1530*	-0.0670	-0.0586	0.0565	-0.0610	-0.0139	0.0052	-0.0930

MDC =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
-0.0265	0.9693*	0.7188*	-0.5094*	-0.0271	0.0439	-0.0405	0.0404	-0.0148	-0.0232	0.0125	-0.0560	-0.0322
-0.0444	0.3627*	0.7366*	0.5786*	-0.0175	0.0615	-0.0162	0.0066	0.0102	-0.0327	-0.0542	-0.0343	0.0490
-0.1063*	-0.1749*	0.5335*	0.5132*	-0.1337*	0.1263*	-0.0905	0.0063	0.0162	-0.1128*	-0.0774	-0.0164	0.0310

Th1 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
0.8768*	0.8927*	0.3556*	0.4163*	0.8309*	0.0257	-0.0245	0.1581*	-0.0438	-0.0134	0.0235	-0.0368	-0.0074
0.5247*	0.0368	0.1328*	0.4271*	0.5842*	-0.1945*	-0.0169	0.0760	-0.0036	-0.0072	-0.0289	-0.0209	0.0384
0.4626*	-0.1195*	0.0637	0.0354	0.5097*	-0.1110	-0.1495*	0.0650	0.0166	-0.0585	-0.0547	-0.0346	0.0661

NS=1000

BE =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
-0.0412	-0.0241	-0.1127*	-0.2011*	-0.0329	0.0022	-0.0956*	0.0129	0.0156	0.0297	-0.0224	-0.0125	0.0048
-0.0460	0.3066*	-0.4712*	0.8710*	-0.5564*	0.2779*	-0.1088*	0.0119	0.0553	0.0351	-0.0293	-0.0409	-0.0548
-0.1133*	0.5516*	-0.2826*	0.6612*	-0.4824*	0.2119*	-0.1119*	0.0106	0.0819*	0.0102	0.0079	0.0295	-0.0613

MDC =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
-0.0316	0.9693*	0.7344*	-0.5096*	-0.0129	-0.0155	-0.0858*	0.0004	0.0420	0.0243	0.0255	0.0030	-0.0060
0.0100	0.3811*	0.7671*	0.5668*	-0.0875*	0.0294	-0.0607	0.0351	0.0415	0.0107	-0.0914*	0.0416	-0.0335
0.0030	-0.1388*	0.5765*	0.5322*	-0.1837*	0.1277*	-0.0974*	0.0421	0.0628	0.0535	-0.0805	0.0576	-0.0520

Th1 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	*dummy*
0.8737*	0.8942*	0.4219*	0.4409*	0.8239*	-0.0368	-0.1072*	0.1086*	0.0594	-0.0088	0.0352	0.0145	0.0179
0.4676*	0.0671	0.1916*	0.3987*	0.5462*	-0.1441*	-0.0582	0.0396	0.0268	0.0130	-0.0169	0.0145	-0.0049
0.4496*	-0.0688	0.0930*	0.0269	0.4974*	-0.1072*	-0.1484*	0.0174	0.0406	0.0305	-0.0183	0.0354	-0.0542

TOP-DOWN COEFFICIENT OF CONCORDANCE (TDCC) for LHS\PRCC

BE

N	**TDCC**		
	t=100	t=500	t=1000
100-200	0.2569	0.8067**	0.8818**
200-300	0.7295*	0.8968**	0.908**
300-400	0.6209*	0.9417**	0.9697**
400-500	0.6526*	0.8006**	0.958**
500-1000	0.6168*	0.8567**	0.9863**

**:p<0.01,*:p<0.05

MDC

N	**TDCC**		
	t=100	t=500	t=1000
100-200	0.5334	0.6447*	0.4984
200-300	0.6987*	0.2876	0.867***
300-400	0.5949*	0.5794	0.6866*
400-500	0.6247*	0.0354	0.6456*
500-1000	0.7381*	0.7*	0.7658*

**:p<0.01,*:p<0.05

Th1

N	**TDCC**		
	t=100	t=500	t=1000
100-200	0.7551*	0.5521**	0.304
200-300	0.5981*	0.6749*	0.5083
300-400	0.3981	0.7219*	0.3853
400-500	0.3296	0.7219*	0.3853
500-1000	0.4317	0.8854**	0.8487**

**:p<0.01,*:p<0.05

Supplement E.3: Two compartmental model: eFAST results

Extracellular Bacteria – BE [N_S=65]

Si_BE_65

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0038	0.0067*	0.0044	0.3244*	0.0057	0.0034	0.0053	0.0064*	0.0033	0.0051	0.0034	0.0060	0.0026
0.0895	0.0265	0.0460	0.0585*	0.0513	0.0572	0.2289*	0.0103	0.0051	0.0051	0.0069	0.0080	0.0098
0.0880	0.0513	0.0652*	0.0661*	0.1561*	0.0574	0.1071*	0.0097	0.0041	0.0075	0.0108	0.0125	0.0047

CVsi_BE_65

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
86.8628	38.3861	63.8279	6.0697	91.9956	96.7852	77.9249	36.2095	90.4711	44.6985	48.5835	80.9546	53.7108
100.3436	49.1524	51.3573	45.4020	60.0721	72.5628	17.8410	105.5258	188.2265	100.8178	119.0568	64.7040	77.6912
90.4884	88.2778	30.7078	46.0177	49.7105	78.5018	41.0348	143.7117	168.7495	129.8468	80.9908	139.7135	123.5859

Sti_BE_65

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.6966	0.6979	0.6684	0.9924*	0.6532	0.6502	0.6679	0.6813	0.6812	0.6932	0.6552	0.6452	0.6570
0.4895	0.3602	0.4892	0.5421	0.4402	0.5016	0.7138*	0.3584	0.3394	0.3887	0.2918	0.3850	0.3300
0.5292	0.4401	0.5130	0.5666	0.6195	0.4450	0.5546	0.2966	0.3311	0.3199	0.3036	0.3296	0.2899

CVsti_BE_65

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
7.3302	3.4523	6.0620	0.4939	4.6133	3.9000	3.5900	3.9193	6.3403	7.5275	6.9258	5.0233	5.7635
42.5563	25.8821	29.7230	27.1947	26.3716	28.4626	11.1503	32.4773	44.1996	29.4062	22.7306	25.6159	28.2485
43.9069	40.4246	27.7896	35.4428	17.3258	35.7115	17.5528	52.5841	49.0303	45.9448	39.8224	45.1248	37.9895

Mature Dendritic Cells – MDC [N_S=65]

Si_MDC_65 =

xi	delta10	's_idc	k2	k3	k4	k14	delta4	delta8	delta6	delta9	delta11	dummy
ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.1099*	0.1097*	0.0585*	0.0431*	0.1596*	0.0017	0.0041	0.0029	0.0025	0.0032	0.0030	0.0013	0.0032
0.0818*	0.0083	0.0436	0.0221	0.0354	0.0258	0.2760*	0.0094	0.0198	0.0133	0.0065	0.0153	0.0202
0.0917*	0.0186	0.0430	0.0244	0.0523	0.0302	0.2642*	0.0215	0.0328	0.0161	0.0129	0.0180	0.0293

CVsi_MDC_65 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
140.8227	18.0515	34.6070	9.5636	148.8631	49.9253	95.3691	80.6727	148.9018	66.9880	122.7160	66.3718	45.7464
74.7551	152.9174	18.4005	48.1771	122.2057	131.3604	15.8268	80.3923	94.1299	89.4211	96.0603	70.4982	89.7999
77.0756	120.9874	18.6690	27.4835	130.6108	125.4884	13.7963	69.3100	94.2891	87.4892	80.4512	101.5912	67.5134

Sti_MDC_65 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.7020	0.6689	0.5494	0.5468	0.7255	0.4841	0.4749	0.5452	0.5065	0.4791	0.5014	0.4573	0.6384
0.6080*	0.3872	0.4990	0.4732	0.5106	0.4600	0.8318*	0.3532	0.4300	0.4146	0.4302	0.3989	0.4613
0.5906	0.4078	0.4845	0.4627	0.4921	0.4855	0.8067	0.4081	0.4775	0.4496	0.4171	0.4160	0.4939

CVsti_MDC_65 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
28.2544	11.0587	20.4799	9.1491	14.6956	21.2334	21.1512	28.6563	20.0182	17.4426	27.1018	18.9809	22.3807
8.3302	13.0828	5.3871	9.9565	25.5803	19.3074	4.6418	8.2433	13.7049	13.6389	10.1435	12.7780	8.4518
8.0963	24.1285	4.8032	7.5875	27.6128	19.3176	4.6295	10.4173	13.6230	13.2465	8.3126	20.4179	7.9913

T Helper cells type I – Th1 [N_S=65]

Si_TH1_65 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0055	0.1358*	0.0976*	0.2056*	0.0029	0.0007	0.0027	0.0061	0.0048	0.0017	0.0026	0.0009	0.0011
0.0102	0.0052	0.1113*	0.0100	0.0259	0.0044	0.3187*	0.0049	0.0035	0.0088	0.0065	0.0025	0.0071
0.0142	0.0456	0.1045*	0.0216	0.0273	0.0069	0.3227*	0.0093	0.0065	0.0129	0.0094	0.0079	0.0125

CVsi_TH1_65 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
10.6337	19.1272	17.5552	38.7402	18.9659	90.0578	83.6578	141.4616	135.9323	111.8723	140.0054	92.8032	101.0236
24.9560	85.0440	16.3021	81.3374	29.9596	64.3515	8.4721	93.9950	78.9607	91.7153	102.6955	115.0464	91.2406
35.3139	82.1306	21.5663	75.3026	23.5883	65.3416	10.3869	64.8068	46.2993	70.6320	100.3491	79.6528	60.4772

Sti_TH1_65 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.4746	0.6623*	0.5870	0.7382*	0.6314	0.4614	0.4971	0.4821	0.4915	0.4640	0.4866	0.4867	0.4768
0.4658	0.4480	0.6456*	0.5073*	0.5081	0.4770	0.8737*	0.5028	0.4568	0.4675	0.4958	0.4717	0.4582
0.4638	0.5758	0.6319*	0.5407*	0.5028	0.4779	0.8688*	0.5097*	0.4495	0.4809	0.4837	0.4774	0.4492

CVsti_TH1_65 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
7.5924	9.5265	6.5893	15.9447	10.5968	18.9740	13.3598	15.8792	18.9122	16.4928	21.0216	23.2901	11.7281
8.0693	20.7618	12.8892	6.5452	9.2283	24.8183	4.5147	21.7625	15.7532	20.0121	10.0241	32.8582	12.1237
8.9295	21.3188	20.3639	8.1841	15.4581	25.8899	4.7131	17.1346	24.4030	18.2070	21.4257	28.0478	15.1708

Extracellular Bacteria – BE [N_S=129]

Si_BE_129 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0019	0.0027	0.0048*	0.3297*	0.0030	0.0026	0.0039*	0.0025	0.0025	0.0024	0.0024	0.0029	0.0023
0.0632*	0.0122	0.0311	0.0371*	0.0398*	0.0141	0.3329*	0.0052	0.0030	0.0057	0.0028	0.0081	0.0060
0.0572*	0.0238*	0.0664*	0.0602*	0.1375*	0.0291*	0.1200*	0.0048	0.0056	0.0042	0.0048	0.0156	0.0032

CVsi_BE_129 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
15.9591	17.6841	26.2085	5.9614	18.6746	43.4428	28.2650	28.2208	36.3871	17.4347	19.2612	46.8388	33.5291
77.8805	67.2753	70.6350	31.2257	64.7614	74.0948	32.5033	92.2886	73.4182	135.6527	53.5177	90.9806	188.0083
73.4783	52.7065	43.5391	41.9704	37.9656	18.3893	51.3208	134.3104	88.6972	172.2057	98.9585	84.1844	185.0581

Sti_BE_129 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.6632	0.6561	0.6790	0.9945*	0.6608	0.6608	0.6608	0.6660	0.6672	0.6614	0.6604	0.6540	0.6678
0.4549*	0.3808	0.3873	0.4430	0.3989	0.3543	0.7757*	0.3120	0.3148	0.3115	0.3259	0.3565	0.3227
0.4622*	0.3593	0.4840	0.4770	0.5590*	0.3994	0.5675*	0.2871	0.3115	0.2656	0.3231	0.4225	0.3057

CVsti_BE_129 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
1.2596	1.9340	1.5290	0.2811	3.0612	2.5556	1.6691	2.6804	2.2321	3.2136	2.0800	1.0621	2.5153
36.8062	17.2907	26.5066	31.3774	24.0416	28.9990	15.9380	23.8884	10.1325	34.6037	11.0282	10.8413	40.1812
37.0389	32.5489	27.9616	34.1996	20.5114	39.0642	23.9000	36.4924	25.3305	42.7183	25.9474	37.5672	49.9166

Mature Dendritic Cells – MDC [N_S=129]

Si_MDC_129=

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0992*	0.0919*	0.0612*	0.0350*	0.1552*	0.0014	0.0024	0.0019	0.0012	0.0024	0.0020	0.0033	0.0020
0.0873*	0.0023	0.0302*	0.0078	0.0398*	0.0603*	0.2896*	0.0029	0.0026	0.0010	0.0033	0.0018	0.0026
0.0797*	0.0136	0.0381*	0.0264*	0.0588*	0.0562*	0.2798*	0.0065	0.0058	0.0049	0.0070	0.0054	0.0064

Sti_MDC_129 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.6638*	0.6048*	0.5896*	0.5214	0.7151*	0.4585	0.5055	0.5007	0.4945	0.5275	0.4955	0.5235	0.4462
0.5645*	0.3313	0.4416*	0.4130*	0.4721*	0.5176*	0.8323*	0.3571	0.3841	0.4069	0.3051	0.3560	0.3702
0.5330*	0.4052	0.4639*	0.4437*	0.5082*	0.5039*	0.8130*	0.3562	0.3784	0.4189*	0.3340	0.3798	0.3519

CVsti_MDC_129 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
29.7585	9.9326	18.8261	5.5185	22.4600	27.8105	8.8327	25.3747	11.9512	23.2338	28.2300	12.6538	10.6234
13.1214	11.3364	4.7876	12.0147	12.0713	9.2173	5.3991	6.1616	12.9547	6.4379	15.9436	7.8506	20.3042
28.1130	24.8494	7.6369	8.7467	11.2131	10.4491	3.9960	12.6010	10.6061	8.7480	17.3420	4.8569	14.5562

T Helper cells type I – Th1 [N_S=129]

Si_TH1_129 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0008	0.1248*	0.1070*	0.2073*	0.0014	0.0010	0.0014	0.0012	0.0008	0.0013	0.0012	0.0016	0.0014
0.0082	0.0032	0.1134*	0.0069	0.0183	0.0011	0.3074*	0.0016	0.0009	0.0033	0.0025	0.0026	0.0028
0.0215	0.0434	0.1036*	0.0147	0.0168	0.0020	0.3283*	0.0032	0.0020	0.0082	0.0042	0.0043	0.0039

CVsi_TH1_129 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
15.1347	12.7960	31.4362	27.3040	7.3869	80.1214	71.9512	69.4527	93.3157	83.1985	71.1344	60.7786	81.4784
19.4860	90.8395	29.1228	90.1381	56.4234	58.5268	9.5870	80.8807	93.6591	62.5016	40.8374	52.7626	80.2078
16.7164	87.5921	28.7937	47.4236	30.3210	68.1802	11.3491	58.3934	58.2101	66.9167	72.3731	71.4664	28.9149

Sti_TH1_129=

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.4724	0.6343*	0.6347*	0.7409*	0.4650	0.4558	0.5004	0.4910	0.5851*	0.4687	0.4677	0.4285	0.5069
0.4759	0.5048	0.6530*	0.4791	0.5126	0.4539	0.8484*	0.4399	0.4374	0.4671	0.4300	0.4588	0.4805
0.5303	0.6984	0.6518*	0.4923	0.5083	0.4397	0.8603*	0.4327	0.4232	0.4845	0.4277	0.4453	0.4699

CVsti_TH1_129 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
11.6624	10.5610	7.4554	19.7504	6.1796	19.5978	11.3739	15.5800	16.2055	10.2638	3.4555	16.0248	19.0006
5.8117	20.7312	8.2141	18.8029	21.3050	25.7691	5.0402	10.5850	13.6532	12.6350	26.6565	8.0826	14.4674
9.1898	15.3408	10.7155	17.4915	14.0927	20.7839	3.8248	17.7457	15.3558	18.6097	26.7293	12.9438	16.6652

Extracellular Bacteria – BE [N_S=257]

Si_BE_257 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0025	0.0023	0.0038*	0.3283*	0.0025	0.0025	0.0031	0.0022	0.0024	0.0024	0.0024	0.0024	0.0022
0.0473*	0.0070*	0.0231*	0.0360*	0.0673*	0.0138*	0.3179*	0.0021	0.0015	0.0007	0.0013	0.0025	0.0021
0.0236	0.0165*	0.0371*	0.0330*	0.1752*	0.0181*	0.1250*	0.0017	0.0020	0.0006	0.0006	0.0019	0.0046

CVsi_BE_257 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
18.1510	19.1695	24.8259	1.1347	17.4597	9.4464	15.1906	5.8681	14.9833	18.9544	11.1743	7.0221	13.3638
25.1515	53.5338	31.3204	21.1334	51.9089	34.6328	11.2448	89.2002	46.6025	91.7668	122.3768	42.7518	32.7818
89.4831	55.0413	63.2962	43.4050	38.1521	50.5633	31.7924	149.7740	109.8429	86.9036	105.0679	104.2631	69.9682

Sti_BE_257 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.6602	0.6652	0.6669	0.9930*	0.6569	0.6605	0.6611	0.6526	0.6588	0.6652	0.6605	0.6569	0.6552
0.4302*	0.3148	0.3390	0.4048*	0.4423*	0.3515	0.7636*	0.3118	0.3466	0.2637	0.2761	0.3208	0.3307
0.3198	0.2838	0.3364	0.3547	0.6694*	0.2537	0.5411*	0.2520	0.2774	0.1882	0.2068	0.2356	0.3518

CVsti_BE_257 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.6900	0.4750	2.2779	0.1909	0.7701	1.2718	1.0400	1.1780	2.2386	0.9957	1.0241	1.8233	1.8169
8.2341	8.9253	12.8443	5.2754	23.7513	7.7154	7.4213	17.8793	19.6273	14.4308	33.1798	21.1381	17.1012
40.1390	20.8303	36.6597	29.6766	17.3137	30.4705	15.7334	47.1933	42.4482	35.5814	24.2164	34.6719	22.2617

Mature Dendritic Cells – MDC [N_S=257]

Si_MDC_257=

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0900*	0.0904*	0.0642*	0.0442*	0.1370*	0.0018	0.0030	0.0016	0.0017	0.0022	0.0017	0.0020	0.0017
0.0759*	0.0017	0.0253*	0.0117*	0.0263*	0.0334*	0.2512*	0.0012	0.0021	0.0010	0.0022	0.0021	0.0019
0.0724*	0.0030	0.0264*	0.0306*	0.0359*	0.0337*	0.2489*	0.0036	0.0030	0.0022	0.0031	0.0031	0.0020

CVsi_MDC_257 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
20.1365	2.2684	7.0859	1.8417	22.3432	38.8371	30.9613	51.0841	46.5893	59.8218	43.8312	60.2252	39.2317
115.0199	61.4329	8.3326	79.2129	50.7297	33.8708	5.3194	97.9994	51.1821	73.1675	70.7537	77.5501	45.2402
104.7471	63.5396	11.1459	98.7342	50.2605	40.8361	4.6519	101.2728	81.5557	58.3951	53.0516	88.3641	65.4752

Sti_MDC_257 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.6154	0.6034	0.5966	0.5444	0.6819*	0.5432	0.5122	0.4818	0.3924	0.5563	0.4473	0.4493	0.4644
0.5411*	0.3056	0.3883	0.4540*	0.4514*	0.4368*	0.8226*	0.3414	0.3446	0.3185	0.3321	0.3353	0.3390
0.5232*	0.3129	0.3995	0.4999*	0.4662*	0.4660*	0.8044*	0.3797	0.3447	0.3441	0.3070	0.3212	0.3377

CVsti_MDC_257 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
7.6744	0.6182	4.8405	0.6520	18.5298	7.6022	14.9315	20.7457	15.8126	13.9806	14.3030	20.6122	13.2743
11.5246	8.4956	1.3189	6.6282	1.2975	7.9412	1.6558	9.3381	10.8174	7.9533	7.4723	3.8401	4.7555
12.4535	6.2516	2.3756	10.0177	0.7973	6.6855	1.5281	13.1823	11.4136	9.0182	8.6245	7.6661	5.1088

T Helper cells type I – Th1 [N_S=257]

Si_TH1_257 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0020	0.1283*	0.1045*	0.2056*	0.0013	0.0009	0.0008	0.0012	0.0008	0.0009	0.0008	0.0010	0.0013
0.0077	0.0013	0.1106*	0.0034	0.0060*	0.0012	0.3422*	0.0009	0.0010	0.0011	0.0015	0.0011	0.0011
0.0064	0.0025	0.1007*	0.0049	0.0062*	0.0022	0.3465*	0.0010	0.0035	0.0023	0.0020	0.0015	0.0022

CVsi_TH1_257 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
14.7227	25.9226	9.6800	27.2236	15.0160	36.0816	28.5087	50.8402	42.8439	46.8924	41.3955	21.4703	45.9818
24.7738	63.6780	36.8439	55.6003	25.6651	21.1924	6.4952	75.4574	85.9415	24.4113	43.8079	87.5526	59.0301
26.6076	81.3065	34.8875	62.3358	31.2573	17.4207	6.7030	99.2549	26.6670	70.2210	49.1251	57.3429	54.5801

Sti_TH1_257=

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.4292	0.6486*	0.6116*	0.7392*	0.4196	0.4709	0.4381	0.4086	0.4263	0.4172	0.4106	0.3875	0.4585
0.4694	0.4485	0.6332*	0.4739	0.4912	0.4374	0.8819*	0.4792	0.4566	0.4190	0.4373	0.4379	0.4670
0.4559	0.4285	0.6166*	0.4684	0.4867	0.4386	0.8806*	0.4651	0.4752	0.4220	0.4299	0.4347	0.4571

CVsti_TH1_257 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
11.8740	13.1368	8.2651	17.0422	6.7443	8.7430	5.5755	10.8220	25.0758	18.4462	18.1968	9.8864	21.5975
7.2326	25.8843	19.0791	16.4254	5.8282	8.3054	1.7027	24.8092	13.9802	5.9945	16.7008	21.0469	14.0273
7.5245	32.7508	24.2600	17.6351	10.6335	7.7715	3.0504	22.9637	13.6040	10.3817	16.2854	24.3211	13.0457

Extracellular Bacteria – BE [N_S=513]

Si_BE_513 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0015	0.0021	0.0031	0.3348*	0.0016	0.0016	0.0017	0.0017	0.0017	0.0016	0.0018	0.0018	0.0018
0.0552*	0.0080*	0.0188*	0.0370*	0.0378*	0.0138*	0.3301*	0.0006	0.0005	0.0006	0.0009	0.0012	0.0008
0.0257*	0.0170*	0.0445*	0.0423*	0.1151*	0.0244*	0.1298*	0.0006	0.0007	0.0005	0.0007	0.0013	0.0008

CVsi_BE_513 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
26.5409	29.3640	47.9821	1.0719	40.1943	7.3276	41.8669	13.9131	5.9079	8.5430	15.8410	14.4510	6.8454
26.6961	53.6316	40.7862	9.0561	36.4572	22.7949	18.0666	32.4435	32.1010	115.7340	62.6676	56.4549	82.7114
55.2134	35.0966	36.1130	18.9474	42.8556	50.3149	26.5621	85.6728	53.0016	58.4832	39.5807	60.6801	77.7069

Sti_BE_513 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.6552	0.6548	0.6660	0.9954*	0.6562	0.6578	0.6603	0.6580	0.6609	0.6578	0.6511	0.6524	0.6584
0.4318*	0.3320	0.3439*	0.4219*	0.3671*	0.3397	0.7612*	0.2938	0.2943	0.2951	0.2889	0.3133	0.3041
0.3449	0.3397	0.4233*	0.4122*	0.5036*	0.3269	0.5568*	0.2209	0.2190	0.2298	0.2195	0.3233	0.2130

CVsti_BE_513 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.6220	1.4683	1.3075	0.2479	0.7352	0.8837	1.0419	0.6683	1.0370	1.0951	0.8273	1.1841	0.9293
9.4946	10.3106	9.0194	2.0090	13.6120	7.4964	10.2592	10.2543	11.8399	12.4349	11.5946	9.4210	6.6881
27.9353	22.0723	18.4594	6.7147	25.6797	27.6277	15.7599	51.1217	27.9965	20.1748	32.1494	17.3119	41.2751

Mature Dendritic Cells – MDC [N_S=513]

Si_MDC_513=

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0806*	0.0874*	0.0554*	0.0413*	0.1310*	0.0005	0.0003	0.0003	0.0003	0.0003	0.0003	0.0005	0.0003
0.0648*	0.0005	0.0253*	0.0059	0.0242*	0.0187*	0.2512*	0.0006	0.0010	0.0005	0.0010	0.0009	0.0006
0.0594*	0.0015	0.0242*	0.0157*	0.0324*	0.0150*	0.2432*	0.0011	0.0010	0.0011	0.0005	0.0011	0.0007

CVsi_MDC_513 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
32.9789	3.0833	17.4451	0.6632	15.5160	34.4218	52.2417	16.6863	20.6902	25.6938	17.9546	26.7716	29.5280
28.5570	32.2634	2.9377	46.4735	34.8560	68.6679	7.2045	44.7213	39.9769	37.1634	60.1488	65.0988	43.8448
24.3007	56.5679	23.3079	100.4356	31.0515	82.0276	8.2265	127.0678	67.6083	32.5055	72.9938	49.7169	43.0133

Sti_MDC_513 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.5838	0.5831	0.5274	0.5138	0.6585*	0.4102	0.4294	0.4455	0.4128	0.3600	0.4380	0.3894	0.4350
0.5193*	0.3228	0.4329*	0.3930*	0.4569*	0.3758	0.8226*	0.3312	0.3127	0.3079	0.3367	0.3259	0.3093
0.5056*	0.3263	0.4276*	0.4315*	0.4762*	0.3732	0.8007*	0.3141	0.3114	0.2985	0.3451	0.3227	0.3168

CVsti_MDC_513 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
15.6025	1.9539	12.3922	0.6108	20.9539	15.7794	22.1648	12.6613	6.3196	21.3011	20.5591	9.1060	14.2663
1.8774	3.8822	1.2119	4.1133	4.4243	3.1801	1.9370	7.9909	3.1341	5.2089	2.5046	4.0207	7.4078
2.6483	4.1404	2.4726	27.7439	3.9588	4.2636	2.2786	15.8078	3.1407	6.1296	6.0704	4.9264	8.7764

T Helper cells type I – Th1 [N_S=513]

Si_TH1_513 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0006	0.1287*	0.1007*	0.2144*	0.0007	0.0006	0.0005	0.0008	0.0006	0.0007	0.0006	0.0007	0.0007
0.0073*	0.0006	0.1136*	0.0018	0.0084*	0.0007	0.3333*	0.0003	0.0004	0.0006	0.0005	0.0005	0.0004
0.0074*	0.0023	0.0901*	0.0088	0.0062*	0.0015	0.3437*	0.0030	0.0007	0.0010	0.0007	0.0011	0.0005

CVsi_TH1_513 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
8.2352	4.8078	13.3446	7.4206	14.6361	31.0580	53.2974	47.0976	39.0415	34.9531	40.4425	45.1606	60.6979
8.9344	80.9013	22.8538	76.8713	20.4765	61.6601	10.1435	59.6089	88.0498	68.4691	92.2902	58.0276	57.9889
9.6682	55.7922	13.2417	52.1563	34.0148	65.7503	13.4410	18.3354	57.0078	61.4090	87.0957	54.6159	62.4885

Sti_TH1_513=

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.4125	0.6446*	0.5931*	0.7429*	0.4235	0.3967	0.3789	0.4412	0.3715	0.3924	0.4000	0.4140	0.4387
0.4471	0.4128	0.6371*	0.4251	0.4292	0.4138	0.8711*	0.4202	0.4074	0.4142	0.4152	0.4137	0.4162
0.4458	0.4110	0.6269*	0.6307	0.4225	0.4097	0.8759*	0.4588	0.4024	0.4140	0.4176	0.4032	0.4119

CVsti_TH1_513 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
6.9893	5.2382	11.2394	9.9376	8.8531	13.4650	16.5427	9.5079	15.6034	22.1775	15.5404	27.1461	21.8602
3.4842	11.9674	5.8410	16.1609	6.7227	19.9981	1.6230	17.2041	14.8684	7.0567	10.4363	15.2466	13.2417
4.7206	14.8003	6.5369	14.9819	7.1664	19.5812	1.7050	16.1784	14.7706	11.2647	12.5708	18.5522	15.1931

Extracellular Bacteria – BE [N_S=1025]

Si_BE_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0009	0.0007	0.0020	0.3277*	0.0009	0.0005	0.0008	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
0.0512*	0.0095*	0.0208*	0.0338*	0.0509*	0.0134*	0.3225*	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0293*	0.0181*	0.0387*	0.0346*	0.1598*	0.0229*	0.1100*	0.0003	0.0003	0.0001	0.0002	0.0003	0.0002

CVsi_BE_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
69.5353	80.6675	47.6579	1.3154	75.5250	7.3479	68.4804	2.6821	5.8713	7.1889	3.4583	5.1824	9.2049
18.6276	36.9439	33.2522	15.1562	27.3966	23.2483	16.1836	72.0371	53.1869	44.7801	65.6183	98.4265	41.6993
10.5146	37.0191	40.9451	27.1069	27.1353	20.8833	28.0485	97.6835	29.7065	66.2808	104.5595	114.8517	99.7735

Sti_BE_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.6487	0.6450	0.6651*	0.9927*	0.6480	0.6458	0.6516	0.6437	0.6494	0.6505	0.6539	0.6529	0.6442
0.4048*	0.3202*	0.3252*	0.3743*	0.3921*	0.3255*	0.7439*	0.2743	0.2690	0.2638	0.2740	0.2806	0.2581
0.3511*	0.3062*	0.3531*	0.3402*	0.6123*	0.3172*	0.4966*	0.1974	0.2084	0.1946	0.2048	0.2310	0.1769

CVsti_BE_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.2708	0.9469	1.5133	0.1955	0.5802	1.6843	0.7515	1.3611	1.0716	1.2808	0.3153	0.6570	1.1120
9.0652	7.1690	11.3339	7.7849	11.6318	5.6563	9.8024	5.2150	5.4022	6.3164	6.1972	5.2423	11.7681
11.4592	16.0682	24.8670	21.4524	17.9491	12.3794	20.5521	27.9059	21.7777	16.2223	14.1163	28.8251	5.5267

Mature Dendritic Cells – MDC [N_S=1025]

Si_MDC_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0804*	0.0739*	0.0561*	0.0367*	0.1273*	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0675*	0.0003*	0.0210*	0.0046*	0.0191*	0.0163*	0.2719*	0.0001	0.0001	0.0000	0.0003	0.0001	0.0001
0.0628*	0.0007	0.0199*	0.0171*	0.0263*	0.0125*	0.2689*	0.0004	0.0004	0.0002	0.0006	0.0003	0.0005

CVsi_MDC_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
60.7128	4.4716	16.6995	3.4017	71.7825	26.8877	52.6881	16.9232	26.4935	11.4901	18.7683	31.2793	12.7878
35.9192	36.3166	4.8999	35.8367	17.1044	74.9222	7.8564	60.8886	79.0136	49.0990	64.6049	80.7515	73.0903
47.6521	72.8015	33.5732	32.6538	39.2987	75.1278	7.5573	68.6660	53.2641	48.6477	101.5433	56.6334	69.1702

Sti_MDC_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.5653	0.5249	0.5211	0.4896	0.6333*	0.4452	0.4395	0.4016	0.4263	0.4313	0.3536	0.4011	0.4649
0.4912*	0.2647	0.3656*	0.3846*	0.3623*	0.3137	0.8302*	0.2540	0.2668	0.2626	0.2643	0.2718	0.2750
0.4744*	0.2602	0.3695*	0.4140*	0.3870*	0.3187	0.8122*	0.2517	0.2582	0.2496	0.2590	0.2741	0.2841

CVsti_MDC_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
12.5385	1.5705	9.5511	1.1855	18.7975	22.0934	8.9660	14.0699	19.5816	8.1715	13.2149	21.1699	6.1590
3.2070	2.3440	1.7998	2.1201	2.3840	2.4713	3.5655	4.0817	2.9293	3.1597	5.3040	2.1058	2.4157
3.5895	6.4944	3.3109	1.8206	4.1103	5.1006	3.5652	4.6584	6.8166	2.6511	7.9634	2.3985	1.9719

T Helper cells type I – Th1 [N_S=1025]

Si_TH1_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0004	0.1263*	0.0990*	0.2067*	0.0004	0.0002	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0003
0.0049*	0.0004*	0.1108*	0.0014*	0.0078*	0.0004	0.3038*	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
0.0050*	0.0026	0.0646*	0.0025*	0.0061*	0.0006	0.3175*	0.0002	0.0002	0.0002	0.0004	0.0001	0.0001

CVsi_TH1_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
4.4954	13.8594	20.5805	28.2839	14.3248	51.6958	78.1065	24.1335	50.9832	49.9012	58.2918	26.2615	37.3765
8.1282	36.5880	16.2901	47.2238	22.9358	24.4029	2.7319	59.9284	74.4210	85.5294	56.6950	79.7685	40.1908
6.9875	87.8222	18.8861	42.5471	28.7789	46.4586	5.4064	71.4316	44.5807	58.3657	48.8834	49.6953	105.3826

Sti_TH1_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.4269	0.6413*	0.5892*	0.7355*	0.3825	0.4005	0.4444	0.4027	0.3892	0.3779	0.4168	0.3669	0.4318
0.4097*	0.3919	0.6285*	0.4043*	0.4220*	0.3937	0.8339*	0.3870	0.3878	0.3789	0.3867	0.3843	0.3875
0.4030*	0.3921	0.5863*	0.3941*	0.4120*	0.3965	0.8406*	0.3738	0.3644	0.3654	0.3596	0.3713	0.3711

CVsti_TH1_1025 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
3.5726	6.9598	15.2398	15.2938	8.2462	12.0928	15.6135	6.3297	13.8090	6.5257	21.4376	14.4377	17.3167
3.5714	9.5898	5.9134	12.8398	10.9171	8.0569	1.4102	11.7175	10.8595	4.6036	12.0118	11.0035	8.0745
3.7970	9.7967	11.0956	14.0343	11.0960	17.6604	1.9192	9.3436	14.3730	7.3009	16.7504	12.0736	14.0994

Extracellular Bacteria – BE [N_S=2049]

Si_BE_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0003*	0.0003*	0.0012*	0.3299*	0.0004*	0.0000	0.0004*	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0555*	0.0082*	0.0197*	0.0333*	0.0411*	0.0131*	0.3167*	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.0264*	0.0185*	0.0395*	0.0359*	0.1304*	0.0184*	0.1058*	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001

CVsi_BE_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
3.0276	11.0993	4.7001	0.3316	10.6719	86.4311	8.1300	57.0984	49.6679	62.4699	58.0238	37.1397	44.0885
3.2295	26.2516	5.5661	7.2585	15.1752	15.9505	12.4030	40.3223	48.8413	57.4861	53.8162	60.4698	71.8315
27.9210	25.0440	14.3140	17.8010	16.6988	27.8646	28.8433	61.3617	43.0941	51.9227	35.9252	73.9017	55.9736

Sti_BE_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.6526	0.6517	0.6631*	0.9932*	0.6522	0.6525	0.6543	0.6504	0.6522	0.6515	0.6507	0.6523	0.6511
0.4248*	0.3316*	0.3315*	0.3859*	0.3679*	0.3296*	0.7378*	0.2672	0.2666	0.2657	0.2671	0.2648	0.2779
0.3059*	0.3161*	0.3719*	0.3587*	0.5326*	0.2894*	0.4808*	0.1959	0.2007	0.1805	0.1863	0.1860	0.2135

CVsti_BE_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.1550	0.6830	0.8549	0.0437	0.5668	0.5725	0.2023	0.6117	0.4894	0.4670	0.5296	0.5964	0.4738
2.8438	6.8006	2.6795	3.3181	5.7790	4.6291	9.0235	3.9205	5.1876	5.9770	4.7358	5.5271	4.9821
23.6106	22.5551	7.4624	9.3902	12.4883	17.2449	22.0338	14.7646	18.3649	23.1282	14.0016	29.3694	14.4413

Mature Dendritic Cells – MDC [N_S=2049]

Si_MDC_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0861*	0.0841*	0.0554*	0.0368*	0.1340*	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0685*	0.0001*	0.0226*	0.0039*	0.0209*	0.0222*	0.2556*	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000
0.0629*	0.0006	0.0211*	0.0119*	0.0290*	0.0204*	0.2430*	0.0004	0.0003	0.0003	0.0002	0.0002	0.0003

CVsi_MDC_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
20.0892	0.5701	1.5702	2.7439	45.9496	24.6419	57.8661	20.5779	15.2185	11.4988	21.2966	16.1068	30.3324
28.0726	56.0443	1.5930	36.6590	8.5260	42.2309	3.5587	26.8265	55.9199	108.8682	30.6660	91.3402	59.1330
34.3618	62.5909	2.9970	39.9910	12.0879	37.6677	4.3871	98.8949	23.6845	80.5973	42.1671	60.1873	124.5427

Sti_MDC_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.5948*	0.5728*	0.5199*	0.4886*	0.6549*	0.4127	0.4035	0.4203	0.4138	0.4110	0.4134	0.4007	0.3925
0.5068*	0.2874	0.3765*	0.3433*	0.3891*	0.3712*	0.8280*	0.2861	0.2863	0.2880	0.2804	0.2742	0.2955
0.4967*	0.3057	0.3733*	0.3619*	0.4119*	0.3885*	0.8033*	0.2867	0.2873	0.2897	0.2829	0.2773	0.2974

CVsti_MDC_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
4.4118	0.2796	0.5214	0.3574	7.7063	5.0984	7.0420	6.2473	5.3187	4.1414	4.1160	7.6289	3.7673
3.2030	1.2910	0.5686	2.5367	0.6995	1.5294	1.8646	3.0537	1.4190	1.2998	3.9482	1.6742	2.1936
3.0814	4.9455	1.3243	3.9141	0.8451	12.3608	2.2485	3.1276	1.7464	1.6984	4.5009	1.8780	5.4365

T Helper cells type I – Th1 [N_S=2049]

Si_TH1_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.0002*	0.1255*	0.0998*	0.2069*	0.0002*	0.0000	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
0.0056*	0.0001	0.1116*	0.0017*	0.0078*	0.0003*	0.3141*	0.0001	0.0001	0.0000	0.0001	0.0000	0.0000
0.0049*	0.0025*	0.1021*	0.0026*	0.0060*	0.0005	0.3168*	0.0002	0.0001	0.0001	0.0001	0.0001	0.0005

CVsi_TH1_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
2.9282	2.7043	9.3585	8.7888	7.6713	58.5010	39.3522	72.5307	87.0483	46.9633	64.9113	86.2110	57.5326
3.3498	32.7506	5.0565	17.0554	9.5987	20.9087	2.8226	105.7453	76.7754	83.7016	112.6700	108.4503	66.3897
11.0960	53.4468	15.7020	21.1009	11.0417	31.2374	8.0302	65.1240	76.9203	69.4582	63.3900	62.5416	109.1498

Sti_TH1_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
0.3978	0.6401*	0.5934*	0.7372*	0.3918	0.3964	0.4069	0.4122*	0.4036*	0.4073*	0.4021	0.4011	0.3838
0.4253*	0.4067	0.6265*	0.4072	0.4211*	0.3963	0.8477*	0.3967	0.3886	0.3946	0.3988	0.3879	0.3951
0.4130	0.4165	0.6031*	0.4152	0.4061	0.4165	0.8499*	0.3932	0.3787	0.3836	0.3877	0.3809	0.3979

CVsti_TH1_2049 =

ξ	δ_{10}	s_{IDC}	k_2	k_3	k_4	k_{14}	δ_4	δ_8	δ_6	δ_9	δ_{11}	dummy
1.9508	1.2924	5.8109	4.2796	4.1493	9.9246	11.0121	7.0165	6.8395	3.2029	7.4468	4.4889	8.7444
1.8378	2.8823	2.8607	5.9252	3.2162	4.8053	1.2176	7.8602	4.8343	5.8595	4.4338	3.8853	3.6798
3.4297	5.6365	4.3124	7.6887	3.7404	7.5913	2.8652	7.3114	6.9702	7.7754	7.4103	3.5533	7.0

TOP-DOWN COEFFICIENT OF CONCORDANCE - TDCC

BE -S_i

N	*TDCC*		
	t=100	t=500	t=1000
65-129	0.4929	0.6663*	0.6935*
129-257	0.3113	0.7439*	0.604*
257-513	-0.2016	0.6505*	0.8056**
513-1025	-0.2433	0.4904	0.901**
1025-2049	0.7276*	0.4633	0.4820

**: p<0.01, *:p<0.05

MDC - S_{Ti}

N	*TDCC*		
	T=100	t=500	t=1000
65-129	0.0125	0.5152	0.3109
129-257	0.51	0.7013*	0.7927**
257-513	0.2607	0.6167*	0.2398
513-1025	0.3597	0.5067	0.9307**
1025-2049	0.2708	0.5082	0.4424

**: p<0.01, *:p<0.05

BE -S_{Ti}

N	*TDCC*		
	t=100	t=500	t=1000
65-129	0.6164*	0.3617	0.6643*
129-257	-0.0131	0.8041**	0.7313*
257-513	-0.0093	0.6737*	0.2315
513-1025	-0.1466	0.5101	0.8651**
1025-2049	0.689*	0.4608	0.5803

**: p<0.01, *:p<0.05

Th1 - S_i

N	*TDCC*		
	t=100	t=500	t=1000
65-129	0.0711	0.6911*	0.8467**
129-257	0.1506	0.6715*	0.4657
257-513	0.9122**	0.9476**	0.2794
513-1025	0.1933	0.5342	0.7736
1025-2049	0.4904	0.8637**	0.5737

**: p<0.01, *:p<0.05

MDC -S_i

N	*TDCC*		
	t=100	t=500	t=1000
65-129	0.5298	0.3936	0.5483
129-257	0.5937*	0.8543**	0.6643*
257-513	0.3296	0.7861**	0.6239*
513-1025	0.2045	0.6296*	0.3586
1025-2049	0.4476	0.6138*	0.6026*

**: p<0.01, *:p<0.05

Th1 -S_{Ti}

N	*TDCC*		
	t=100	t=500	t=1000
65-129	0.3856	0.0535	0.3989
129-257	0.679*	0.4672	-0.0208
257-513	0.0413	0.3495	0.1629
513-1025	0.2493	0.2959	0.4231
1025-2049	0.1544	0.6759*	0.6809*

**: p<0.01, *:p<0.05

Supplement F: The effect of different parameter ranges on US analysis results

The choice of parameter ranges can affect US analysis results. Here we show two examples: the first one is based on the 2 compartmental ODE model of section 4.3. Figure F.1 shows scatter plots (Panel A and B) of the output BT (total bacterial load) versus LHS sampled values of parameter k_{14} (sampled uniformly between 0.001 and 1). Parameter k_{14} is varied simultaneously with all the other parameters in Panel B while it is the only one varied in Panel A (the rest of the parameters are set to baseline levels from Table A.1). Panel A shows a nonlinear non-monotonic relationship that is less evident in Panel B. In fact, a significantly strong negative correlation exists between parameter k_{14} and total bacterial load (PRCC=-0.77, p<1e-100). If we zoom into the region where k_{14} is non-monotonic (between 0.2 and 0.44, see Panel A), the strong correlation previously observed is almost lost, although still significant (PRCC=-0.15, p<1e-7). Unless the choice of very small ranges for certain parameters is guided by some *a priori* knowledge, the sampling should be performed within the whole set of known and plausible values.

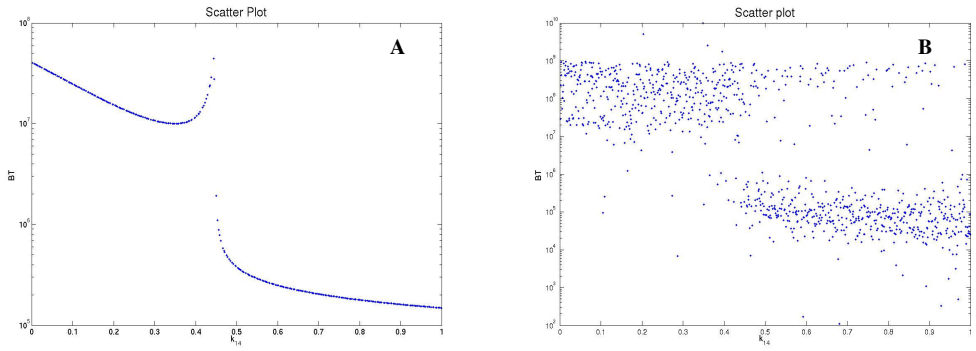

Figure F.1: How different LHS ranges can affect PRCC results for the two-compartmental model described in Section 4.3 of the main text and in Supplement E. Scatter plots and PRCC plots of k_{14} values (x-axis) versus total bacterial load (BT) levels (y-axis) at day 1000. Scatter plots are of raw data in a linear-log scale . The number of runs is equal to 1000, except for Panel A (300 runs). *Panel A*: Scatter plot of the raw data. Only k_{14} is varied (between 10^{-3} and 1). *Panel B*: Scatter plot of the raw data. All parameters from Table A.1 are varied. k_{14} is varied between 10^{-3} and 1.

The second example highlights how a completely different range of variation for some parameter can lead to completely different PRCC results. We use the HIV model described in section 4.2, and compare two sets of ranges for s and k_1: Set 2 has s varying in [$1e^{-4}$, 1] and k_1 in [$1e^{-4}$, 1 e^{-2}], Set 1 has s varying in [$1e^{-2}$, 50] and k_1 varying in [$1e^{-7}$, $^{1e-3}$] (set 1 is the more biologically plausible according to (Perelson *et al.*, 1993) and it is the one used in section 4.2). The results are shown in Table F.1. Panels A and B show PRCC results for Set 1 and Set 2, respectively. Extended FAST results are shown in Panels C and D for Set 1 and Panels E and F for Set 2.

LHS/PRCC analysis shows how switching from Set 1 to Set 2, parameters μ_T loses its significance while parameter r gains it. Parameters N_V, μ_V, and k_2 have consistently significant PRCCs for both sets, while k_1 , although still significant, has now a negative PRCC to viral load (-0.1696).

eFAST results seem lees affected by changes in parameter ranges. In fact, Panels C and E return the same set of significant S_i as well as Panels D and F for S_{Ti} . S_{Ti} for parameter r and k_1 in Panel D are only marginally significant ($p<0.05$): their values are much higher than the dummy but due to large coefficients of variations (greater than 15%, data not shown), any inference is not reliable. Although a larger N_S .is needed to improve accuracy, eFAST results are relatively consistent between the two sets.

Table F.1: PRCC and eFAST results on the HIV model for two different set of ranges for the parameters: Set 1 and Set 2 (Set 2 is the more biologically plausible one). Free virus V is always the output and the time points tested are 2000 and 4000 hours. *Panel A*: PRCC for set 1 (NS=300). *Panel B*: PRCC for Set 2 (NS=300). *Panel C*: First order sensitivity index S_i for Set 1 (N_S=257, N_R=5). *Panel D*: Total order sensitivity index S_{Ti} for Set 1 (N_S=129, N_R=5).*Panel E*: First order sensitivity index S_i for Set 2 (N_S=2049, N_R=5). *Panel F*: Total order sensitivity index S_{Ti} for Set 2 (N_S=257, N_R=5) [(*): significant; i.e., p<0.01].

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0778	-0.3282*	0.0297	0.3815*	0.6702*	-0.0177	0.6763*	-0.6464*	0.0101
4000	0.0692	-0.3248*	0.0322	0.3865*	0.6739*	-0.0042	0.6824*	-0.6474*	0.0148

Panel A: PRCC on Set 1.

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0265	-0.0744	0.4616*	-0.1696*	0.7045*	-0.1121	0.6880*	-0.6591*	-0.0056
4000	0.0315	-0.0576	0.4666*	-0.1704*	0.6993*	-0.0997	0.6929*	-0.6579*	-0.0098

Panel B: PRCC on Set 2

s	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.0073	0.0221	0.0348*	0.0445*	0.0830*	0.0033	0.0963*	0.1875*	0.0099
4000	0.0073	0.0221	0.0321*	0.0448*	0.0837*	0.0035	0.0940*	0.1884*	0.0103

Panel C: S_i on Set 1.

time	*s*	μ_T	*r*	k_1	k_2	μ_b	N_V	μ_V	*dummy*
2000	0.4274	0.4781	0.5301*	0.6611*	0.5965*	0.4913	0.6274*	0.7491*	0.4180
4000	0.4209	0.4761	0.5090*	0.6603*	0.5984*	0.4979	0.6149*	0.7503*	0.4200

Panel D: S_{Ti} on Set 1.

time	*s*	μ_T	*r*	k_1	k_2	μ_b	*N*	μ_V	*dummy*
2000	0.0150	0.0142	0.0284*	0.0242*	0.0753*	0.0229*	0.0776*	0.3232*	0.0184
4000	0.0150	0.0142	0.0284*	0.0240*	0.0753*	0.0229*	0.0776*	0.3232*	0.0184

Panel E: S_i, Set 2.

time	*s*	μ_T	*r*	k_1	k_2	μ_b	*N*	μ_V	*dummy*
2000	0.3969	0.3747	0.4872	0.4493	0.5579*	0.4569	0.5734*	0.8480*	0.4222
4000	0.3969	0.3747	0.4872	0.4482	0.5579*	0.4569	0.5736*	0.8480*	0.4224

Panel F: S_{Ti}, Set 2.

Supplement G: Delay Differential Equation model of immune response

Table G.1

Table G.1: initial conditions (cells or bacteria per cm^3 of tissue), parameter definitions and values for the DDE model

Initial Conditions

Variable	*Description*	*Value*
$X_U(0) = X_U^{baseline}$	Initial condition for uninfected cells	$1e^4$
$X_I(0) = X_I^{baseline}$	Initial condition for infected cells	0
$B(0) = B_0$	Initial condition for bacteria	20
$I_R(0) = I_R^{baseline}$	Initial condition for innate response	1e3
$A_R(0) = A_R^{baseline}$	Initial condition for adaptive response	1e2

Parameters

Parameter	*Description*	*Range*
μ_{X_U}	Half-life of X_U (like macrophages)	0.011
α_1	Rate of infection	$[1e^{-4} – 1\ e^{-2}]$
α_2	Rate of killing of X_I due to A_R	$[1e^{-4} – 1\ e^{-2}]$
μ_{X_I}	Half-life of X_I	0.011
α_{20}	Growth rate of B	$[1e^{-1} – 1]$
σ	Max # of bacteria (threshold)	$[1e^3 – 1e^6]$
α_3	Rate of killing of B due to I_R	$[1e^{-5} – 1e^{-3}]$
α_4	Rate of killing of B due to A_R	$[1e^{-6} – 1e^{-3}]$
μ_{I_R}	Half-life of innate immunity cells (10-fold higher than μ_{X_U})	0.11
μ_{A_R}	Half-life of adaptive immunity cells (T Helper cells)	0.3333
τ_1	Delay of innate immunity	$[1e^{-2}, 10]$
τ_2	Delay of adaptive immunity	$[1e^{-1}, 40]$

Table G.2: PRCC and eFAST results of the delay differential equation model (20)-(24) at five different time points [10 30 50 100 200]. [(*): significant; i.e., p<0.01]. The output chosen for SA is bacterial load. Sample size for LHS/PRCC is N=1000. For eFAST, N_S=65 and N_R=20. *Panel A*: PRCC calculated using the entire LHS matrix. *Panel B*: PRCC calculated using the subset of the LHS matrix not satisfying condition (25) (see main text, section 4.4). *Panel C*: PRCC calculated using the subset of the LHS matrix satisfying condition (25) (see main text, section 4.4). *Panel D*: First-order eFAST sensitivity indexes. *Panel E*: Total-order eFAST sensitivity indexes.

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	-0.0196	-0.0523	0.0623	-0.0001	-0.9808*	-0.5072*	0.9716*	0.0176	-0.0078
30	-0.2331*	-0.1034	0.0489	0.0182	-0.6153*	-0.1238	0.4335*	0.0634	-0.0393
50	-0.2226*	-0.1753*	0.0677	0.0324	-0.7730*	-0.1881*	0.6737*	0.0396	-0.0440
100	-0.1680*	-0.1268	0.0711	0.0279	-0.8247*	-0.2030*	0.7436*	0.0802	-0.0574
200	-0.1844*	-0.0904	0.0499	0.0006	-0.8195*	-0.1767*	0.7311*	0.0672	-0.0517

Panel A: PRCC on the entire LHS matrix

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	-0.0302	0.0027	0.0454	-0.0787	-0.8506*	-0.2965*	0.8117*	0.0197	-0.0254
30	-0.0314	-0.0266	0.0435	-0.0808	-0.8485*	-0.2856*	0.8137*	0.0161	-0.0284
50	-0.0149	-0.0173	0.0445	-0.0775	-0.8456*	-0.2678*	0.8166*	0.0188	-0.0238
100	0.0037	-0.0027	0.0431	-0.0766	-0.8436*	-0.2503*	0.8199*	0.0181	-0.0272
200	0.0089	0.0078	0.0431	-0.0779	-0.8434*	-0.2398*	0.8215*	0.0167	-0.0269

Panel B: PRCC on the LHS subset not satisfying condition (25)

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.0066	-0.0490	0.0467	-0.0115	-0.8899*	-0.4329*	0.8691*	-0.0316	-0.0019
30	-0.4205*	-0.2811*	0.0494	0.0202	0.1144*	-0.1105	-0.3152*	0.0340	0.0452
50	-0.3615*	-0.3283*	0.1024	0.0187	-0.3008*	-0.1972*	0.1823*	-0.0310	0.0673
100	-0.2627*	-0.2577*	0.0853	0.0214	-0.3096*	-0.2099*	0.1898*	0.0454	0.0420
200	-0.2877*	-0.2288*	0.0628	0.0013	-0.2815*	-0.1650*	0.1283*	0.0197	0.0239

Panel C: PRCC on the LHS subset satisfying condition (25)

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.0279*	0.0484*	0.0228	0.0112	0.2877*	0.0583*	0.1523*	0.0221	0.0165
30	0.0733*	0.1157*	0.0600	0.0484	0.2045*	0.0850	0.1004*	0.0519	0.0376
50	0.1173*	0.0983*	0.1202	0.0978	0.1478*	0.0818*	0.1366*	0.0668	0.0792
100	0.1134*	0.0992	0.0967	0.1139	0.1904*	0.0974	0.1274*	0.1178	0.0895
200	0.1227	0.1234	0.1131	0.1042	0.1613*	0.0872	0.1142*	0.0892	0.0916

Panel D: first-order sensitivity index S_i

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.2103*	0.3826*	0.2089	0.1150	0.8409*	0.3955*	0.6485*	0.2033	0.1678
30	0.5437*	0.6839*	0.4734	0.3980	0.8727*	0.6393	0.7365*	0.4178	0.3191
50	0.8218*	0.6931*	0.8050	0.7129	0.8694*	0.5811*	0.7133*	0.5210	0.5895
100	0.8037*	0.7628	0.7179	0.7033	0.8817*	0.6675*	0.7451*	0.8272	0.6959
200	0.7817	0.8584	0.7783	0.7824	0.8863*	0.6620	0.7181*	0.7004	0.6568

Panel E: total-order sensitivity index S_{Ti}

Table G.3: detailed eFAST results on the delay model in section 4.4 of the manuscript.

S_i, NS=65, NR=5

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.0193	0.0155	0.0132	0.0079	0.1984*	0.0414	0.1723*	0.0220	0.0090
30	0.0443	0.1458	0.0533	0.0270	0.2866*	0.1000*	0.1146	0.0515	0.0372
50	0.1008	0.1487	0.0977	0.0456	0.1586*	0.0886*	0.1133*	0.0880	0.0182
100	0.0966	0.1100	0.0779	0.0993	0.1315*	0.1345	0.1299*	0.1201	0.0658
200	0.0852	0.0958	0.0992	0.0992	0.2730*	0.1018	0.1113	0.1053	0.0926

CVsi

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	144.2654	125.2001	95.1143	111.8739	68.8894	58.1539	96.5936	143.9488	152.0000
30	53.2870	149.5556	122.5190	124.0243	100.5846	104.8757	127.1269	142.8619	83.9657
50	168.5867	141.1228	152.0239	103.8887	81.2937	102.2800	87.9667	156.6263	58.1359
100	133.8536	111.3795	102.2914	192.1373	76.9156	111.3086	97.1914	139.8560	126.5793
200	154.6319	135.1095	143.2305	141.8523	90.3385	96.2441	96.8879	99.0502	138.2250

S_{Ti}, NS=65, NR=5

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.1553	0.1447	0.1246	0.0880	0.8630*	0.3267	0.6261*	0.1849	0.0833
30	0.3413	0.8676	0.4198	0.2481	0.8840*	0.6482*	0.7960*	0.4128	0.2873
50	0.7265	0.7656	0.7471	0.3695	0.8453*	0.6560*	0.7613*	0.6410	0.1835
100	0.7230	0.8396	0.5391	0.7290	0.8704*	0.8044	0.8068*	0.8238	0.5120
200	0.7551	0.7569	0.5721	0.7509	0.7872*	0.7006	0.7293	0.7494	0.8023

CVs_{Ti}

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	168.9324	131.5928	97.1150	114.7382	108.0382	128.5753	100.0953	134.1547	142.8055
30	82.2733	139.3402	128.1334	106.8218	100.0881	136.5247	104.9496	124.9635	86.8417
50	178.4657	130.9297	151.3264	108.3445	100.6122	112.9897	103.9011	149.7184	59.3725
100	136.3796	119.0967	98.7360	180.9233	101.4618	135.9653	104.9138	132.2905	125.8226
200	158.5934	123.7234	116.8643	138.8972	99.8849	111.0587	97.7849	113.2401	141.9040

S_i, NS=65, NR=20

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.0279*	0.0484*	0.0228	0.0112	0.2877*	0.0583*	0.1523*	0.0221	0.0165
30	0.0733*	0.1157*	0.0600	0.0484	0.2045*	0.0850	0.1004*	0.0519	0.0376
50	0.1173*	0.0983*	0.1202	0.0978	0.1478*	0.0818*	0.1366*	0.0668	0.0792
100	0.1134*	0.0992	0.0967	0.1139	0.1904*	0.0974	0.1274*	0.1178	0.0895
200	0.1227	0.1234	0.1131	0.1042	0.1613*	0.0872	0.1142*	0.0892	0.0916

CVsi

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	123.5034	194.8934	186.1062	138.6807	85.2739	83.7584	86.4593	214.2552	176.1004
30	72.2393	118.3395	138.5375	124.2849	79.0369	147.3545	130.4251	120.1901	96.3386
50	123.1391	133.4148	220.6788	217.9033	62.3055	104.8393	107.6511	135.6042	188.8654
100	131.0480	134.6358	170.6628	192.1874	77.5074	128.2992	97.0451	253.5032	156.1838
200	141.8747	142.2387	152.2826	168.8486	62.1730	103.0352	90.0777	168.6053	124.5279

S_{Ti}, NS=65, NR=20

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.2103*	0.3826*	0.2089	0.1150	0.8409*	0.3955*	0.6485*	0.2033	0.1678
30	0.5437*	0.6839*	0.4734	0.3980	0.8727*	0.6393	0.7365*	0.4178	0.3191
50	0.8218*	0.6931*	0.8050	0.7129	0.8694*	0.5811*	0.7133*	0.5210	0.5895
100	0.8037*	0.7628	0.7179	0.7033	0.8817*	0.6675*	0.7451*	0.8272	0.6959
200	0.7817	0.8584	0.7783	0.7824	0.8863*	0.6620	0.7181*	0.7004	0.6568

CVs_{Ti}

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	137.9708	207.2900	180.5670	141.3824	101.9384	138.9739	102.3148	192.9522	179.9271
30	113.1428	125.2775	139.8100	126.1887	99.9394	152.2993	112.9639	122.7075	102.6616
50	132.7011	131.7841	205.7701	203.9145	104.7785	117.8112	107.0298	138.9706	185.9341
100	135.1186	133.9035	166.2474	164.3342	99.8418	132.3673	106.5909	220.3176	150.8193
200	130.5880	142.0687	149.9027	164.9461	100.8980	116.6368	99.1134	166.0701	131.6336

S_i, NS=129, NR=5

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.0041	0.0098	0.0023	0.0014	0.3218*	0.0275	0.1038*	0.0028	0.0122
30	0.0593	0.0975	0.0169	0.0215	0.1980*	0.0493	0.0532*	0.0278	0.0062
50	0.0544	0.0438	0.0412	0.0310	0.1997*	0.0345	0.0566	0.0174	0.0393
100	0.0410	0.0546	0.0287	0.0426	0.1340*	0.0505	0.0589	0.0415	0.0383
200	0.0497	0.0424	0.0516	0.0221	0.2126*	0.0544*	0.0806*	0.0638	0.0231

CVsi

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	71.2365	145.8554	173.0452	123.9713	91.4324	35.9810	83.8815	114.1534	346.8012
30	187.7353	158.6901	206.8257	157.5746	89.0176	124.9555	102.9165	258.8308	121.4591
50	178.5905	116.1862	212.6679	153.0807	99.2300	73.4102	133.4740	75.3306	186.2718
100	122.7088	106.2554	111.3175	130.5122	65.7280	100.4312	112.5976	115.4544	158.9387
200	192.1068	114.7978	135.3213	77.1318	89.2582	88.3393	106.7728	151.2681	125.4024

S_{Ti}, NS=129, NR=5

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.0798	0.1196	0.0545	0.0814	0.8446*	0.2605	0.6402*	0.0588	0.2164
30	0.6579	0.8326*	0.3021	0.4127	0.8845*	0.6275	0.7922*	0.4227	0.1123
50	0.7329	0.6094	0.5589	0.4036	0.8440*	0.4904	0.6441	0.3892	0.6198
100	0.6001	0.7224	0.4829	0.7218	0.8868*	0.7709	0.6248*	0.6512	0.5546
200	0.7933	0.7079	0.7207	0.4903	0.8559*	0.7350	0.8030*	0.7662	0.3532

CVs_{Ti}

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	128.5294	146.3572	162.5094	191.1825	102.0818	82.3899	99.8350	119.7284	280.6353
30	194.1368	138.5858	185.5372	157.9181	99.5853	134.8921	102.4297	204.8226	90.2079
50	185.5236	124.9957	177.0138	135.2357	100.6843	82.6950	97.2470	100.5041	165.2885
100	155.8439	121.0368	114.4024	147.5088	101.2867	112.7190	91.1713	121.1986	150.2241
200	207.1623	120.5593	138.2513	95.9509	101.5652	98.9193	107.9415	123.3462	114.7024

S_i, NS=257, NR=5

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.0104*	0.0011	0.0003	0.0004	0.2301*	0.0212*	0.0977*	0.0001	0.0022
30	0.0136	0.0450	0.0029	0.0035	0.1642*	0.0228	0.0390	0.0017	0.0093
50	0.0280*	0.0257	0.0024	0.0287	0.0842*	0.0229	0.0581*	0.0022	0.0124
100	0.0373	0.0283	0.0162	0.0243	0.0857*	0.0324	0.0339	0.0135	0.0251
200	0.0161	0.0202	0.0224	0.0240	0.1471*	0.0303*	0.0300	0.0300	0.0174

CVsi

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	86.3487	27.3484	80.5021	290.2131	87.5709	85.5194	85.0168	103.8637	213.0735
30	97.0851	127.0033	44.8454	59.2454	78.1014	130.0295	66.0919	228.9163	177.2243
50	84.9230	67.3211	40.1802	307.2208	72.7816	93.6995	90.7535	141.2189	100.6158
100	95.2407	108.7243	99.3350	147.7580	73.2456	108.0513	71.0819	113.1675	157.6277
200	88.0191	86.1555	114.4780	177.7660	89.3528	85.1934	72.8476	139.2297	103.5820

S_{Ti}, NS=257, NR=5

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	0.0855*	0.0666	0.0131	0.0294	0.8468*	0.2886*	0.6696*	0.0024	0.0947
30	0.2044	0.4146	0.1262	0.2335	0.8654*	0.4172	0.7630*	0.0979	0.3334
50	0.5472*	0.6230	0.1354	0.7427	0.8642*	0.5633	0.7016*	0.1274	0.5306
100	0.5350	0.7781	0.5180	0.5925	0.8790*	0.6554	0.8633	0.4570	0.7366
200	0.4122	0.6197	0.7607	0.7843	0.8654*	0.7980*	0.8649	0.6367	0.6476

CVs_{Ti}

time	τ_1	τ_2	α_1	α_2	α_3	α_4	α_{20}	σ	dummy
10	94.0727	116.4093	83.6897	266.7391	101.8729	111.8459	101.7834	106.6204	222.5645
30	131.7662	108.6579	58.6523	85.7069	99.2924	133.3653	98.8405	131.6591	164.3038
50	93.1519	104.9844	56.8415	245.1413	103.0454	97.9293	97.7897	130.0527	125.7261
100	96.3868	124.5996	126.7015	153.2688	102.0666	96.5287	104.1681	112.4437	148.2535
200	82.7744	104.1613	124.8783	163.8216	102.0238	104.6895	109.0801	124.7261	113.6821

References

Abdi, H. (2007). Bonferroni and Sidak corrections for multiple comparisons. In *Encyclopedia of Measurement and Statistics* ((ed.), N. J. S., ed.). Sage, Thousand Oaks, CA.

Benjamini, Y. & Hochberg, Y. (1995). Controlling the False Discovery Rate - a Practical and Powerful Approach to Multiple Testing. *Journal of the Royal Statistical Society Series B-Methodological* **57**(1), 289-300.

Marino, S. & Kirschner, D. E. (2004). The human immune response to Mycobacterium tuberculosis in lung and lymph node. *J Theor Biol* **227**(4), 463-86.

Marino, S., Pawar, S., Fuller, C. L., Reinhart, T. A., Flynn, J. L. & Kirschner, D. E. (2004). Dendritic cell trafficking and antigen presentation in the human immune response to Mycobacterium tuberculosis. *J Immunol* **173**(1), 494-506.

Perelson, A. S., Kirschner, D. E. & De Boer, R. (1993). Dynamics of HIV infection of CD4+ T cells. *Math Biosci* **114**(1), 81-125.

Saltelli, A., Chan, K. & Scott, E. M. (2000). *Sensitivity analysis*. Wiley series in probability and statistics, Wiley, Chichester ; New York.

Saltelli, A., Tarantola, S. & Chan, K. P. S. (1999). A quantitative model-independent method for global sensitivity analysis of model output. *Technometrics* **41**(1), 39-56.

Wigginton, J. E. & Kirschner, D. (2001). A model to predict cell-mediated immune regulatory mechanisms during human infection with Mycobacterium tuberculosis. *J Immunol* **166**(3), 1951-67.