Supplementary Table S1: TNF-independent and cellular/tissue scale parameters, definitions and values estimated from literature as described in (1), or approximated via uncertainty analysis as described in Methods. Further descriptions of parameters, if needed, are presented in Supporting Text.

Parameter	Parameter description	Value*
N_{source}	Number of vascular sources	50
N_{caseum}	Number of qualified cell deaths required for caseation	7
D_{chem} (cm^2/s)	Diffusion coefficient of chemokines	10^{-8}-10^{-7} (5.2×10^{-8})
δ_{chem} (s^{-1})	Chemokine degradation rate constant	10^{-4}-10^{-3} (4.58×10^{-4})
τ_{chem} (molecules)	Minimum chemokine concentration threshold	1-10 (2)
s_{chem} (molecules)	Saturating chemokine concentration threshold	10^3-10^4 (2000)
M_{init}	Initial number of resident macrophages	105
max_{ageMac} (day)	Maximum lifespan of macrophages	100
$max_{ageActive}$ (day)	Maximum lifespan of an active macrophage	10
t_{regMac} (hours)	Macrophage inactivity time after down-regulation by T_{reg}	12
t_{moveMr} (min)	Time interval for M_r movement	20
t_{moveMa} (hour)	Time interval for M_a movement	7.8
t_{moveMi} (hour)	Time interval for Mi movement	24
r_{CCL2} (molecules per 10 min)	Full secretion rate of CCL2	35.5
r_{CCL5} (molecules per 10 min)	Full secretion rate of CCL5	35.5
r_{CXCL9} (molecules per 10 min)	Full secretion rate of CXCL9/10/11	71
ω_{recTNF}	Effect of TNF on cell recruitment	1
$\omega_{recCCL2}$	Effect of CCL2 on cell recruitment	0.0507
$\omega_{recCCL5}$	Effect of CCL5 on cell recruitment	0.0507
$\omega_{recCXCL9/10/11}$	Effect of CXCL9 on cell recruitment	0.0254
N_{rk}	Number of extracellular Mtb engulfed by M_r or M_i	1
P_k	Probability of M_r killing bacteria	0.01-0.1 (0.015)
B_{actM}	Number of extracellular Mtb activating NF-κB in a mac	50-150 (110)
N_c	Number of intracellular Mtb for $M_i \rightarrow M_{ci}$ transition	10
N_{burst}	Number of intracellular Mtb that leads to M_{ci} bursting	20-30 (20)
P_{STAT1}	Probability of STAT-1 activation in M_r or M_i	0.001-0.1 (0.085)
N_{ak}	Number of extracellular Mtb killed by M_a each time-step	10
τ_{recMac}	TNF/chemokine threshold for M_r recruitment	0.01-0.1 (0.023)
M_{recr}	Probability of M_r recruitment	0.01-0.1 (0.04)
$max_{ageTcell}$ (day)	Maximum lifespan of T cells	3
t_{delay} (day)	T cell recruitment delay	20
T_{moveM}	Probability of T cell moving to a mac-containing location	0.001-0.1 (0.014)
T_{moveT}	Probability of T cell moving to a T cell-containing location	0.001-0.1 (0.08)
T_{recr}	Probability of T cell recruitment	0.05-0.5 (0.15)
$t_{regTgam}$ (min)	T_γ inactivity time after down-regulation by T_{reg}	100
$P_{apop/Fas}$	Probability of Fas/FasL apoptosis by T_γ	0.01-0.1 (0.06)
$\tau_{recTgam}$	TNF/chemokine threshold for T_γ recruitment	0.1-1.0 (0.4)
$T_{recTgam}$	Probability of T_γ recruitment	0.54
$t_{regTcyt}$ (min)	T_c inactivity time after down-regulation by T_{reg}	100
$\tau_{recTcyt}$	TNF/chemokine threshold for T_c recruitment	0.1-1.0 (0.4)
$T_{recTcyt}$	Probability of T_c recruitment	0.36
$P_{cytKill}$	Probability of T_c killing M_i or M_{ci}	0.02 0.2 (0.12)
$P_{cytKillClean}$	Probability of T_c killing all intracellular Mtb by killing M_{ci}	0.75
$\tau_{recTreg}$	TNF/chemokine threshold for T_{reg} recruitment	0.01-0.1 (0.05)
$T_{recTreg}$	Probability of T_{reg} recruitment	0.1
α_{Bi} (per 10 min)	Intracellular Mtb growth rate	2×10^{-4}-2×10^{-3} (1.4×10^{-3})
α_{Be} (per 10 min)	Extracellular Mtb growth rate	10^{-4}-10^{-3} (7×10^{-4})
K_{be}	Capacity of a micro-compartment for extracellular Mtb	200

* Parameters used for sensitivity analysis are indicated by their ranges of values. Values in parentheses are used to generate containment baseline.

1. Ray, J. C., J. L. Flynn, and D. E. Kirschner. 2009. Synergy between individual TNF-dependent functions determines granuloma performance for controlling Mycobacterium tuberculosis infection. *J. Immunol.* 182: 3706-3717.