Parameter	Value	Units	Description	Source
V	3.00000e+00	L	Reaction volume	Serum volume of a human
C_e	5.00000e+12	cells L^{-1}	Concentration of erythrocytes	Physiological value
V_e	9.00000e-14	L	Mean corpuscular volume	Physiological value
N_h_e	2.70000e+08	cell^{-1}	Number of hemoglobin molecules per erythrocyte	Physiological value
MW_h	6.45000e+04	Da	Molecular weight of hemoglobin	Physiological value
Avogadro	6.02000e+23	mol^{-1}	Avogadro constant	Physical constant
LDHmax	1.49500e+03	U L^{-1}	Maximal LDH level	S1 Figure
H_LDH50	7.94000e+00	g dL^{-1}	Hemoglobin level at half-maximal LDH levels	S1 Figure
LDH0	2.96000e+02	U L^{-1}	Baseline LDH level	S1 Figure
MAC50	1.15000e+00	cell^{-1}	Number of MAC/cell resulting in 50% hemolysis	Fig. 2, S3 Appendix
k_p_C3(H20)	8.30000e-07	s^{-1}	Hydrolysis of C3(H2O)	[1]
k_p_C3(H20)B	2.13000e+05	M^{-1} s^{-1}	Association of Factor B to C3(H2O)	[2] (Estimation)
k_m_C3(H20)B	1.55000e-01	s^{-1}	Dissociation of complex C3(H2O)B	[2] (Estimation)
k_p_C3bH	1.10000e+06	M^{-1} s^{-1}	Association of Factor H to C3(H2O)	[3]
k_m_C3bH	5.90000e-02	s^{-1}	Dissociation of Factor H complexes	[3]
k_p_C3bH_surf	1.10000e+06	M^{-1} s^{-1}	Association of Factor H to surface bound proteins	[3]

k_p_C3bCR1	4.40000e+06	$M^{-1} s^{-1}$	Association of CR1 to C3b	[3]
k_m_C3bCR1	5.70000e-02	s^{-1}	Dissociation of CR1 complexes	[3]
k_m_C3(H2O)Bb	9.00000e-03	s^{-1}	Dissociation of complex C3(H2O)Bb	[5]
k_m_C3bBbH decay	7.70000e-02	s^{-1}	Decay of C3 convertase by Factor H	[2] (Assumption)
k_p_fC3b	1.20000e+04	s^{-1}	Association of nfC3b and nhC3b to water	[6]
k_p_C3bB	2.22590e+05	$M^{-1} s^{-1}$	Association of Factor B to C3b	Estimation
k_m_C3bB	1.55000e-01	s^{-1}	Dissociation of complex C3bB	[7]
k_m_C3bBb	7.70000e-03	s^{-1}	Dissociation of complex C3bBb	[5]
k_m_C3bBbCR1 decay	7.70000e-02	s^{-1}	Decay of C3 convertase by inhibitor CR1	[2] (Assumption)
k_p_C3bBbC3b	3.50000e+06	$M^{-1} s^{-1}$	Association of C3b to C3bBb	[8] (Optimization)
k_m_C3bBbC3b	3.80000e-03	s^{-1}	Dissociation of complex C3bBbC3b	[9]
k_m_C3bBbDAF decay	2.27560e-03	s^{-1}	Decay of C3 convertase by inhibitor DAF	Estimation
k_p_C3b_surface	2.16000e+09	$M^{-1} s^{-1}$	Attachment of nfC3b to erythrocyte	Estimation
k_p_hC3b	2.67000e+04	$M^{-1} s^{-1}$	Attachment of nhC3b to erythrocyte	[2] (Calculated)
k_p_C5b7 surface	4.20000e+08	$M^{-1} s^{-1}$	Attachment of C5b7 to erythrocyte	[2] (calculated)
k_p_C3bBbDAF	2.52950e+10	$M^{-1} s^{-1}$	Association of DAF to C3 convertase on erythrocyte	Estimation

k_p_iC3bCR1	2.00000e+03	$M^{-1}\,s^{-1}$	Association of iC3b to CR1	[2] (Estimation)
k_m_iC3bCR1	1.00000e-02	s^{-1}	Dissociation of complex iC3bCR1	[2] (Estimation)
k_m_C5b	3.80000e-02	s^{-1}	Dissociation of complex C3bBbC3bC5b	[10]
k_p_C5b7	7.30000e+05	$M^{-1}\,s^{-1}$	Association of C7 to C3bBbC3bC5bC6	[8,11,12]
k_m_C5b7	8.00000e-07	s^{-1}	Dissociation of complex C3bBbC3bC5bC6C7	[8,11,12]
k_p_C5b8	1.10000e+06	$M^{-1}\,s^{-1}$	Association of C8 to C5b7	[8,11,12]
k_m_C5b8	9.80000e-07	s^{-1}	Dissociation of complex C5b8	[8,11,12]
k_p_C5b9	2.80000e+06	$M^{-1}\,s^{-1}$	Association of C9 to C5b8	[8,11,12]
k_m_C5b9	1.00000e-06	s^{-1}	Dissociation of complex C5b9	[8,11,12]
k_p_CD59C5b9	6.03000e+11	$M^{-1}\,s^{-1}$	Association of CD59 to C5b9	Estimation
k_m_CD59C5b9	2.00000e-04	s^{-1}	Dissociation of complex CD59C5b9	[2] (Assumption)
k_p_C3bBbC3bC5bC6	7.74360e+04	$M^{-1}\,s^{-1}$	Association of C6 to C3bBbC3bC5b	Estimation
k_m_C3bBbC3bC5bC6	9.00000e-08	s^{-1}	Dissociation of complex C3bBbC3bC5bC6	[8,11]
k_p_C5b7 micelle	6.93000e+01	s^{-1}	Formation of C5b7 micelle in fluid	[12]
k_p_CnC5b7	4.10000e+05	$M^{-1}\,s^{-1}$	Association of Cn to C5b7	[2] (Estimation)
k_m_CnC5b7	4.00000e-03	s^{-1}	Dissociation of complex CnC5b7	[2] (Estimation)

k_p_VnC5b7	2.40000e+05	$M^{-1}\,s^{-1}$	Association of Vn to C5b7	[8,13]
k_m_VnC5b7	2.00000e-03	s^{-1}	Dissociation of complex VnC5b7	[2] (Assumption)
k_p_VnC5b8	1.10000e+06	$M^{-1}\,s^{-1}$	Association of C8 to VnC5b7	[8,11,12]
k_m_VnC5b8	9.80000e-07	s^{-1}	Dissociation of complex VnC5b8	[2] (Assumption)
k_p_VnC5b9	2.80000e+06	$M^{-1}\,s^{-1}$	Association of C9 to VnC5b8	[2] (Assumption)
k_m_VnC5b9	1.00000e-06	s^{-1}	Dissociation of complex VnC5b9	[2] (Assumption)
k_p_CnC5b8	1.10000e+06	$M^{-1}\,s^{-1}$	Association of Cn to C5b8	[2] (Assumption)
k_m_CnC5b8	7.30000e+05	s^{-1}	Dissociation of complex CnC5b8	[2] (Assumption)
k_p_CnC5b9	2.80000e+06	$M^{-1}\,s^{-1}$	Association of C9 to CnC5b8	[2] (Assumption)
k_m_CnC5b9	1.00000e-06	s^{-1}	Dissociation of complex CnC5b9	[2] (Assumption)
k_D_cat_C3(H2O)B	2.10000e+00	s^{-1}	Activation of complex C3(H2O)B by enzyme Factor D	[2] (Estimation)
K_D_m_C3(H2O)B	1.00000e-07	M	Activation of complex C3(H2O)B by enzyme Factor D	[2] (Estimation)
k_D_cat_C3bB	2.10000e+00	s^{-1}	Activation of complex C3bB by enzyme Factor D	[8] (Optimization)
K_D_m_C3bB	1.00000e-07	M	Activation of complex C3bB by enzyme Factor D	[8] (Optimization)
k_C3_cat_C3(H2O)Bb	1.80000e+00	s^{-1}	Cleavage of C3 by C3 convertase C3(H20)Bb	[2] (Estimation)
K_C3_m_C3(H2O)Bb	4.19000e-06	M	Cleavage of C3 by C3 convertase C3(H20)Bb	Estimation

k_C3_cat_C3bBb	1.80000e+00	s^{-1}	Cleavage of C3 by C3 convertase C3bBb	[5]
K_C3_m_C3bBb	5.90000e-06	M	Cleavage of C3 by C3 convertase C3bBb	[5]
k_FI_cat_C3bH	1.30000e+00	s^{-1}	Cleavage of C3b by inhibitor Factor I	[4]
K_FI_m_C3bH	2.50000e-07	M	Cleavage of C3b by inhibitor Factor I	[4]
k_C5_cat_C3bBbC3b	3.00000e-03	s^{-1}	Cleavage of C5 by C5 convertase C3bBbC3b	[3,14–16]
K_C5_m_C3bBbC3b	1.60000e-08	M	Cleavage of C5 by C5 convertase C3bBbC3b	[3,14–16]
k_p_C3bP	1.23700e+08	M^{-1} s^{-1}	Association of P to C3b on cell	Estimation
k_m_C3bP	5.00000e-04	s^{-1}	Dissociation of Properdin complexes	[17]
k_p_C3bBP	2.13000e+05	M^{-1} s^{-1}	Association of Factor B to C3bP	[8]
k_m_C3bBbP	7.70000e-04	s^{-1}	Dissociation of complex C3bBbP	[17]
k_p_iC3bP	3.00000e+06	M^{-1} s^{-1}	Association of Properdin to iC3b	[8] (Optimization)
k_m_iC3bP	3.80000e-04	s^{-1}	Dissociation of Properdin from iC3b	[17]
k_C3_cat_C3bBbP	3.10000e+00	s^{-1}	Cleavage of C3 by C3 convertase C3bBbP	[8] (Optimization)
K_C3_m_C3bBbP	1.80000e-06	M	Cleavage of C3 by C3 convertase C3bBbP	[8] (Optimization)
k_m_C3bBbDAF	1.20000e-03	s^{-1}	Dissociation of DAF complexes on cell	[18]
k_m_C3bBbC3bP	5.70000e-04	s^{-1}	Decay of C3bBbC3bP on cell	[17]
k_pr_surface	1.61000e-12	M^{-1} s^{-1}	Production of erythrocytes surface due to physiological turnover	Assumption of steady-state in vivo

k_S	1.34000e-07	s^{-1}	Physiological turnover of erythrocytes	Physiological half-live of 60 days
tau	1.33060e+06	s	Hemolysis scaling coefficient	Derived from PNH patients
k_el_C3	4.61000e-06	s^{-1}	Elimination of C3	Calculated from MW (S4 Appendix, S4 Table)
k_el_C5	4.48000e-06	s^{-1}	Elimination of C5	Calculated from MW (S4 Appendix, S4 Table)
k_el_C6	9.52000e-06	s^{-1}	Elimination of C6	Calculated from MW (S4 Appendix, S4 Table)
k_el_C7	1.15000e-05	s^{-1}	Elimination of C7	Calculated from MW (S4 Appendix, S4 Table)
k_el_C8	5.88000e-06	s^{-1}	Elimination of C8	Calculated from MW (S4 Appendix, S4 Table)
k_el_C9	1.67000e-05	s^{-1}	Elimination of C9	Calculated from MW (S4 Appendix, S4 Table)
k_el_D	6.54000e-05	s^{-1}	Elimination of D	Calculated from MW (S4 Appendix, S4 Table)
k_el_B	1.13000e-05	s^{-1}	Elimination of B	Calculated from MW (S4 Appendix, S4 Table)
k_el_I	1.22000e-05	s^{-1}	Elimination of I	Calculated from MW (S4 Appendix, S4 Table)
k_el_P	2.53000e-05	s^{-1}	Elimination of Properdin	Calculated from MW (S4 Appendix, S4 Table)
k_el_H	5.69000e-06	s^{-1}	Elimination of H	Calculated from MW (S4 Appendix, S4 Table)
k_el_Vn	1.54000e-05	s^{-1}	Elimination of Vn	Calculated from MW (S4 Appendix, S4 Table)
k_el_Cn	1.54000e-05	s^{-1}	Elimination of Cn	Calculated from MW (S4 Appendix, S4 Table)

k_el_iC3b	4.89000e-06	s^{-1}	Elimination of iC3b		Calculated from MW (S4 Appendix, S4 Table)
k_el_Ba	4.65000e-05	s^{-1}	Elimination of Ba		Calculated from MW (S4 Appendix, S4 Table)
k_el_Bb	2.12000e-05	s^{-1}	Elimination of Bb		Calculated from MW (S4 Appendix, S4 Table)
k_el_C3a	1.27545e-04	s^{-1}	Elimination of C3a		[19,20]
k_el_C5a	1.19766e-04	s^{-1}	Elimination of C5a		[21,22]
k_el_C3dg	3.81000e-05	s^{-1}	Elimination of C3dg		[19,23]
k_pr_C3	4.40000e-11	M s^{-1}	Production of C3		Derived based on in vivo steady-state
k_pr_C5	1.66000e-12	M s^{-1}	Production of C5		Derived based on in vivo steady-state
k_pr_C6	4.77000e-12	M s^{-1}	Production of C6		Derived based on in vivo steady-state
k_pr_C7	5.73000e-12	M s^{-1}	Production of C7		Derived based on in vivo steady-state
k_pr_C8	2.11000e-12	M s^{-1}	Production of C8		Derived based on in vivo steady-state
k_pr_C9	1.49000e-11	M s^{-1}	Production of C9		Derived based on in vivo steady-state
k_pr_D	5.33000e-12	M s^{-1}	Production of D		Derived based on in vivo steady-state
k_pr_B	9.00000e-11	M s^{-1}	Production of B		Derived based on in vivo steady-state
k_pr_P	1.19000e-11	M s^{-1}	Production of P		Derived based on in vivo steady-state
k_pr_I	4.91000e-12	M s^{-1}	Production of I		Derived based on in vivo steady-state
k_pr_H	1.83000e-11	M s^{-1}	Production of H		Derived based on in vivo steady-state

k_pr_Vn	9.24000e-11	M s^{-1}	Production of Vn	Derived based on in vivo steady-state
k_pr_Cn	6.62000e-12	M s^{-1}	Production of Cn	Derived based on in vivo steady-state
k_pr_CR1	1.11000e-15	M s^{-1}	Production of CR1	Derived based on in vivo steady-state
k_pr_DAF	3.61000e-15	M s^{-1}	Production of DAF	Derived based on in vivo steady-state
k_pr_CD59	2.81000e-14	M s^{-1}	Production of CD59	Derived based on in vivo steady-state
kon_ecu	2.31000e-04	nM^{-1} s^{-1}	kon of eculizumab	Typical mAb on-rate [24,25]
koff_ecu	2.78000e-05	s^{-1}	koff of eculizumab	Derived from kon and KD [26]
k_el_ecu	5.94000e-07	s^{-1}	Elimination of eculizumab	[27]

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