

Table S3A. Initial conditions of substrates and metabolic by-products with local parameters used for the simulation of Cultivation 1 (Cult1) and Cultivation 2 (Cult2).

	Cult1	Cult2	Unit		Cult1	Cult2	Unit
$[Glc^x] (t=0)$	19.50	19.50	mmol/L	E_{Level}	1.00	1.00	-
$[Gln^x] (t=0)$	4.65	4.56	mmol/L	V_w	1e-3	1e-3	-
$[Glu^x] (t=0)$	1.50	1.50	mmol/L	$X_1(t=0)$	2.19e+05	2.35e+05	cells/mL
$[Lac^x] (t=0)$	0.00	0.00	mmol/L	$X_2(t=0)$	1.49+05	1.57+05	cells/mL
$[NH_4^x] (t=0)$	0.25	0.25	mmol/L	$X_3(t=0)$	1.50+05	1.58+05	cells/mL
$[Pyr^x] (t=0)$	7.66	7.86	mmol/L	$X_4(t=0)$	1.30+05	1.30+05	cells/mL
d_c	19.58	19.58	μm	$X_5(t=0)$	1.12+05	1.12+05	cells/mL
d_m	9.76	9.96	μm	$[V_t] (t=48.1)$	-	1.71e08	Virions/mL
k_{dGln^x}	8.8e-05	8.8e-05	1/min	ρ^1	-	4.85	-
ρ^2	-	15.61	-	ρ^3	-	6.00	-
k_d^{mininf}	-	4.9e-08	1/min	k_d^{maxinf}	-	2.9e-04	1/min
v_p	-	6.45e+00	virions/cell/min				

Table S3B. Initial conditions used for simulation of the pre-culture of Cultivation 1 (Cult1) and Cultivation 2 (Cult2).

	Pre-culture	Unit		Pre-culture	Unit
$X_1(t=0)$	1.49+05	cells/mL	$[G6P] (t=0)$	0.12	mmol/L
$X_2(t=0)$	1.50+05	cells/mL	$[F6P] (t=0)$	0.037	mmol/L
$X_3(t=0)$	1.30+05	cells/mL	$[R5P] (t=0)$	0.016	mmol/L
$X_4(t=0)$	1.12+05	cells/mL	$[UDPGlc] (t=0)$	0.19	mmol/L
$X_5(t=0)$	1.49+05	cells/mL	$[F16P] (t=0)$	0.035	mmol/L
$[Glc^x] (t=0)$	19.50	mmol/L	$[3PG] (t=0)$	0.15	mmol/L
$[Gln^x] (t=0)$	4.65	mmol/L	$[PEP] (t=0)$	0.013	mmol/L
$[Glu^x] (t=0)$	1.50	mmol/L	$[Pyr] (t=0)$	0.036	mmol/L
$[Lac^x] (t=0)$	0.00	mmol/L	$[Lac] (t=0)$	0.39	mmol/L
$[NH_4^x] (t=0)$	0.25	mmol/L	$[AcCoA] (t=0)$	0.99	mmol/L
$[Pyr^x] (t=0)$	7.66	mmol/L	$[IsoCit] (t=0)$	0.023	mmol/L
$[Glc] (t=0)$	0.019	mmol/L	$[Gln] (t=0)$	1.49	mmol/L

Table S3B. Initial conditions used for simulation of the pre-culture of Cultivation 1 (Cult1) and Cultivation 2 (Cult2) (Continued).

	Pre-culture	Unit		Pre-culture	Unit
$[Glu] (t=0)$	1.89	mmol/L	$[Keto] (t=0)$	0.17	mmol/L
$[Suc] (t=0)$	0.019	mmol/L	$[Fum] (t=0)$	0.086	mmol/L
$[Mal] (t=0)$	0.42	mmol/L	$[OAA] (t=0)$	0.24	mmol/L
$[NH4] (t=0)$	5.98	mmol/L	$[ATP] (t=0)$	2.53	mmol/L