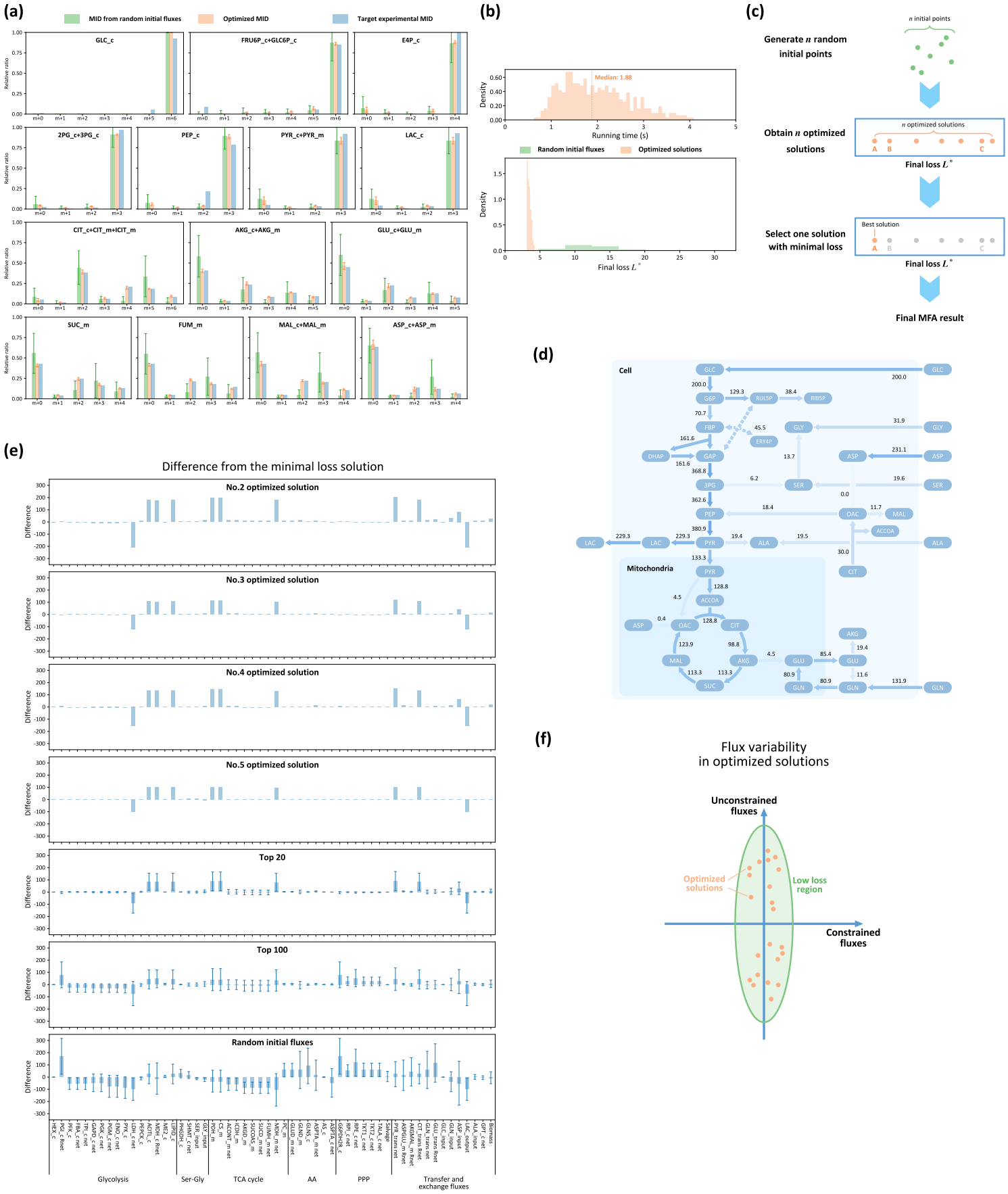
Figure S1


(a)
MID from random initial fluxes
Optimized MID
Target experimental MID
GLC_c
FRU6P_c+GLC6P_c
E4P_c
2PG_c+3PG_c
PEP_c
PYR_c+PYR_m
LAC_c
CIT_c+CIT_m+ICIT_m
AKG_c+AKG_m
GLU_c+GLU_m
SUC_m
FUM_m
MAL_c+MAL_m
ASP_c+ASP_m
Relative ratio
(b)
Median: 1.88
Density
Running time (s)
Random initial fluxes
Optimized solutions
Final loss L^*
(c)
Generate n random initial points
n initial points
Obtain n optimized solutions
n optimized solutions
Final loss L^*
Select one solution with minimal loss
Best solution
Final loss L^*
Final MFA result
(d)
Cell
Mitochondria
(e)
Difference from the minimal loss solution
No.2 optimized solution
No.3 optimized solution
No.4 optimized solution
No.5 optimized solution
Top 20
Top 100
Random initial fluxes
Difference
Glycolysis
Ser-Gly
TCA cycle
AA
PPP
Transfer and exchange fluxes
(f)
Flux variability in optimized solutions
Unconstrained fluxes
Optimized solutions
Low loss region
Constrained fluxes