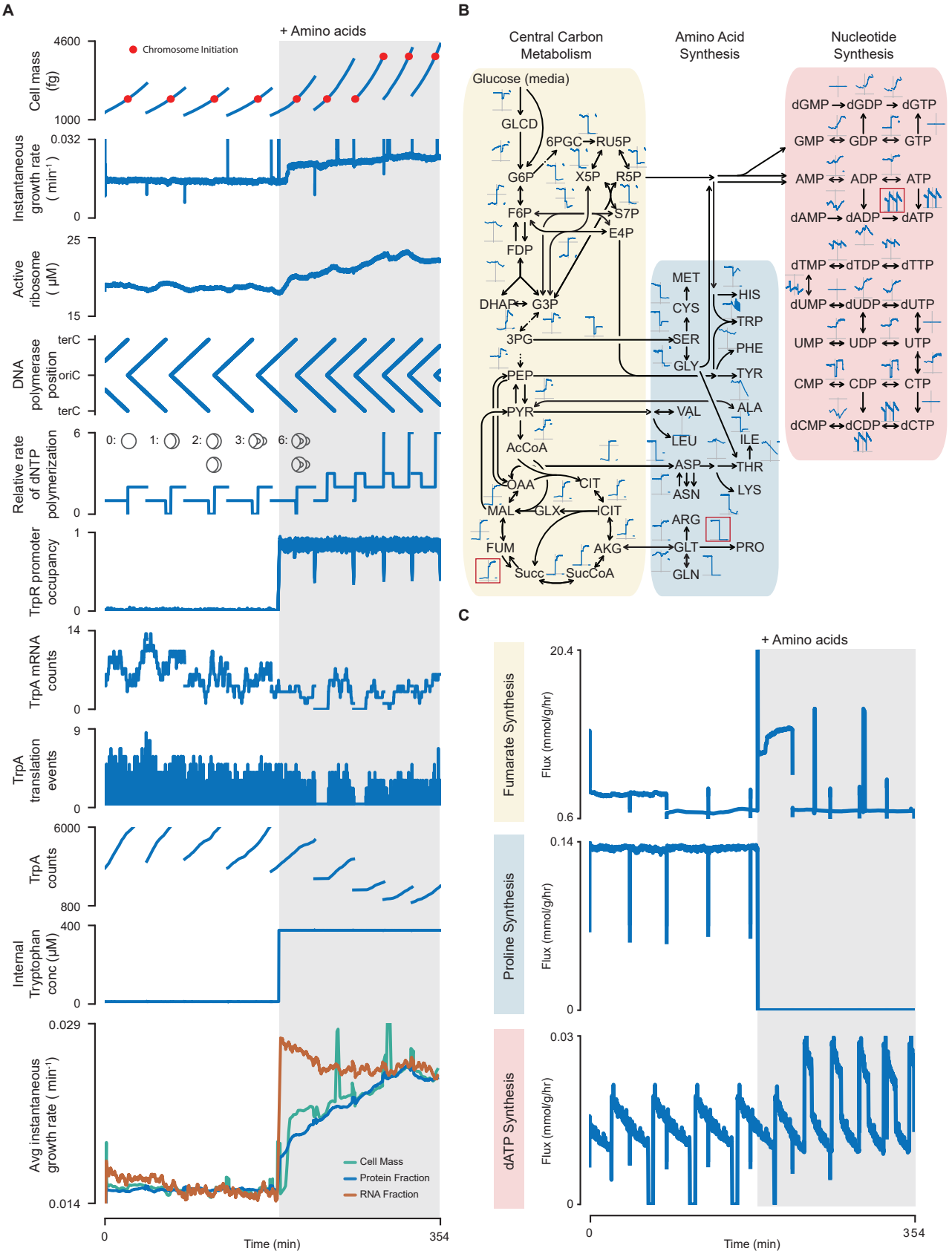
Figure S1


A
+ Amino acids
Chromosome Initiation
Cell mass (fg)
4600
1000
Instantaneous growth rate (min⁻¹)
0.032
0
Active ribosome (μM)
25
15
DNA polymerase position
terC
oriC
terC
Relative rate of dNTP polymerization
0: 1: 2: 3: 6:
6
0
TrpR promoter occupancy
1
0
TrpA mRNA counts
14
0
TrpA translation events
9
0
TrpA counts
6000
800
Internal Tryptophan conc (μM)
400
0
Avg instantaneous growth rate (min⁻¹)
0.029
0.014
Cell Mass
Protein Fraction
RNA Fraction
0
354
Time (min)
B
Central Carbon Metabolism
Amino Acid Synthesis
Nucleotide Synthesis
Glucose (media)
GLCD
6PGC
RU5P
G6P
X5P
R5P
F6P
S7P
E4P
FDP
DHAP
G3P
3PG
PEP
PYR
AcCoA
OAA
CIT
MAL
GLX
ICIT
FUM
AKG
Succ
SucCoA
MET
CYS
HIS
TRP
SER
PHE
GLY
TYR
VAL
ALA
LEU
ILE
ASP
THR
ASN
LYS
ARG
GLT
PRO
GLN
dGMP
dGDP
dGTP
GMP
GDP
GTP
AMP
ADP
ATP
dAMP
dADP
dATP
dTMP
dTDP
dTTP
dUMP
dUDP
dUTP
UMP
UDP
UTP
CMP
CDP
CTP
dCMP
dCDP
dCTP
C
+ Amino acids
Fumarate Synthesis
Flux (mmol/g/hr)
20.4
0.6
Proline Synthesis
Flux (mmol/g/hr)
0.14
0
dATP Synthesis
Flux (mmol/g/hr)
0.03
0
0
354
Time (min)