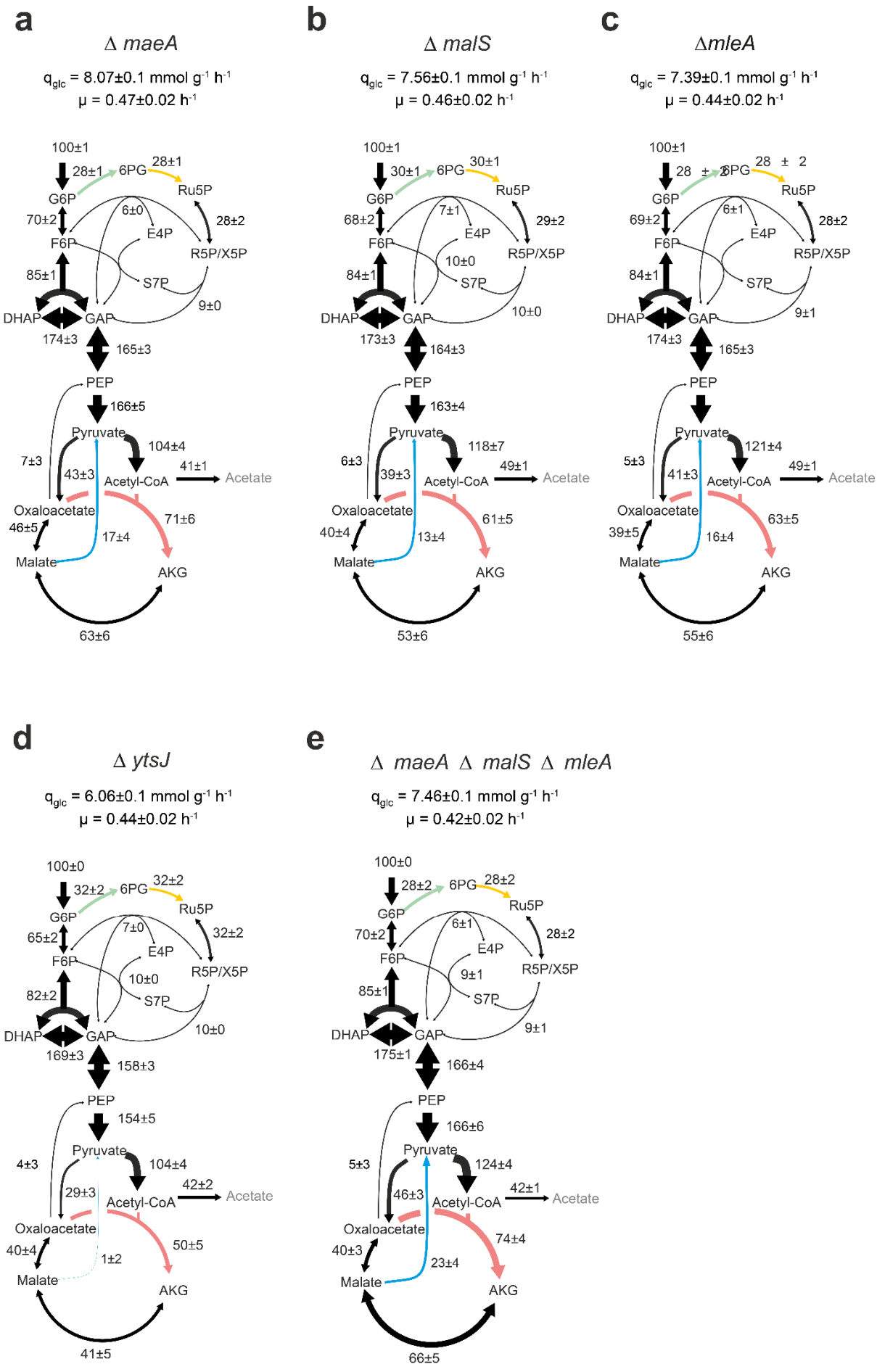
Supplementary Figure 1. Metabolic flux distributions in *B. subtilis* malic enzyme deletion mutants, estimated by ^{13}C flux ratio analysis and metabolite balancing. Flux values are normalized to the glucose uptake rate (q_{glc}, mmol g_{CDW}^{-1} h^{-1}) of each strain. Arrow dimensions scale with flux magnitude.

[figure on next page]


a
Δ maeA
q_{glc} = 8.07±0.1 mmol g^{-1} h^{-1}
μ = 0.47±0.02 h^{-1}
100±1
28±1
6PG
28±1
Ru5P
G6P
70±2
6±0
E4P
28±2
F6P
R5P/X5P
85±1
S7P
9±0
DHAP
GAP
174±3
165±3
PEP
166±5
Pyruvate
104±4
7±3
43±3
41±1
Acetyl-CoA
Acetate
Oxaloacetate
71±6
46±5
17±4
Malate
AKG
63±6
b
Δ malS
q_{glc} = 7.56±0.1 mmol g^{-1} h^{-1}
μ = 0.46±0.02 h^{-1}
100±1
30±1
6PG
30±1
Ru5P
G6P
68±2
7±1
E4P
29±2
F6P
R5P/X5P
10±0
84±1
S7P
DHAP
GAP
10±0
173±3
164±3
PEP
163±4
Pyruvate
118±7
6±3
39±3
49±1
Acetyl-CoA
Acetate
Oxaloacetate
61±5
40±4
13±4
Malate
AKG
53±6
c
ΔmleA
q_{glc} = 7.39±0.1 mmol g^{-1} h^{-1}
μ = 0.44±0.02 h^{-1}
100±1
28 ± 2
6PG
28 ± 2
Ru5P
G6P
69±2
6±1
E4P
28±2
F6P
R5P/X5P
84±1
S7P
9±1
DHAP
GAP
174±3
165±3
PEP
Pyruvate
121±4
5±3
41±3
49±1
Acetyl-CoA
Acetate
Oxaloacetate
63±5
39±5
16±4
Malate
AKG
55±6
d
Δ ytsJ
q_{glc} = 6.06±0.1 mmol g^{-1} h^{-1}
μ = 0.44±0.02 h^{-1}
100±0
32±2
6PG
32±2
Ru5P
G6P
65±2
7±0
E4P
32±2
F6P
R5P/X5P
10±0
82±2
S7P
DHAP
GAP
10±0
169±3
158±3
PEP
154±5
Pyruvate
104±4
4±3
29±3
42±2
Acetyl-CoA
Acetate
Oxaloacetate
50±5
40±4
1±2
Malate
AKG
41±5
e
Δ maeA Δ malS Δ mleA
q_{glc} = 7.46±0.1 mmol g^{-1} h^{-1}
μ = 0.42±0.02 h^{-1}
100±0
28±2
6PG
28±2
Ru5P
G6P
70±2
6±1
E4P
28±2
F6P
R5P/X5P
9±1
85±1
S7P
DHAP
GAP
9±1
175±1
166±4
PEP
166±6
Pyruvate
124±4
5±3
46±3
42±1
Acetyl-CoA
Acetate
Oxaloacetate
74±4
40±3
23±4
Malate
AKG
66±5