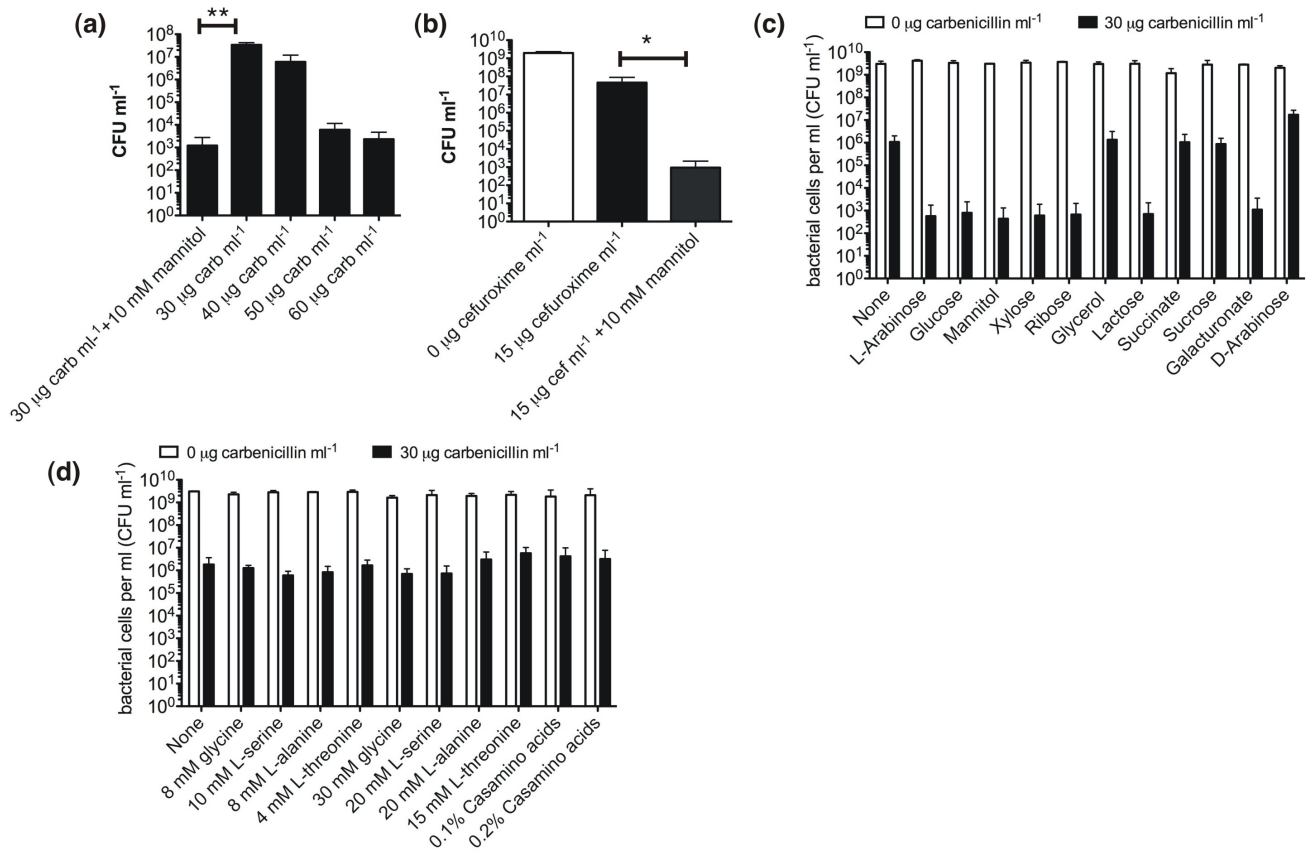


1 Supplementary figure S1, S2, S3, S4 and S5



2

3 **Figure S1.** Survival of *E. coli* MG1655 after 18 hours of treatment. **(a)** Carbenicillin titration.

4 Addition of 10 mM D-mannitol to 30 μg carbenicillin ml⁻¹ equals the effect of 60 μg carbenicillin

5 ml⁻¹ alone n=3, p<0.0023 (**). **(b)** Cefuroxime, another β-lactam antibiotic, is also potentiated

6 when given in combination with 10 mM D-mannitol, n=4, p<0.047 (*). **(c)** Effect of different

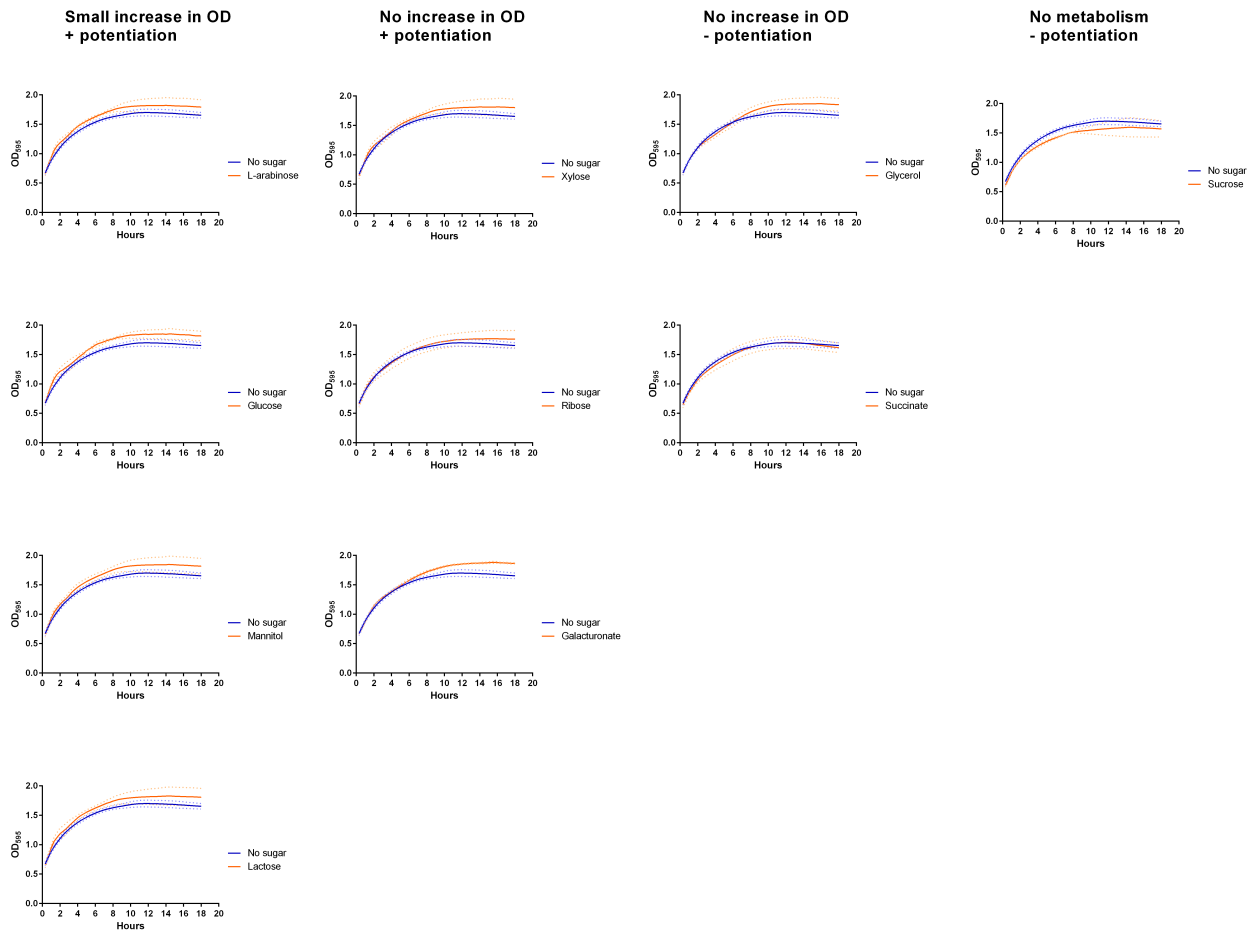
7 metabolites on carbenicillin susceptibility, (L-arabinose, glucose and mannitol are repeated from

8 Figure 1) n ≥3 (*) p<0.0213. **(d)** Effect of single amino acids or casamino acids on carbenicillin

9 susceptibility, n=3.

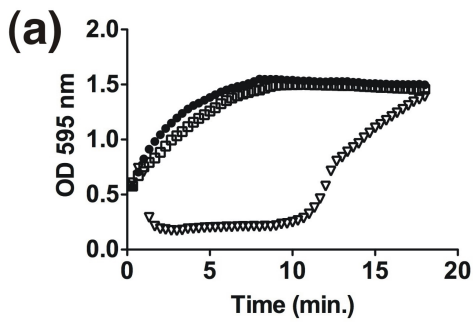
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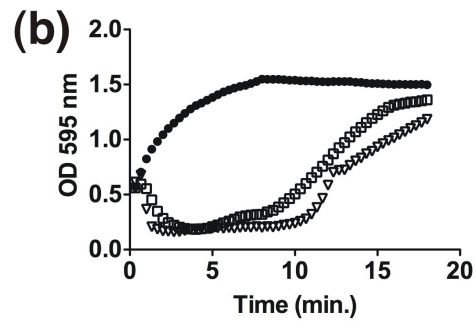


1

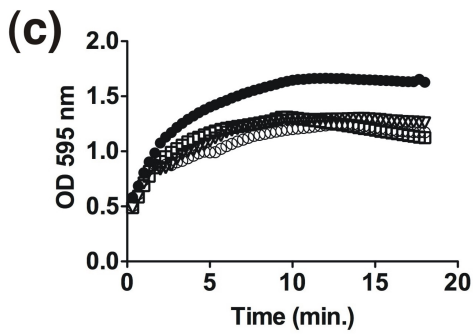
2 **Figure S2.** OD(595nm) measurement of *E. coli* MG1655 during 18 hours of growth with (red lines)
 3 of without (blue lines) supplementation with different sugars. Any minor differences in growth rate
 4 as judged by the slope of the growth curve during the first 4-6 hours did not correlate with the
 5 ability of the sugar to potentiate beta-lactam bactericidal action.



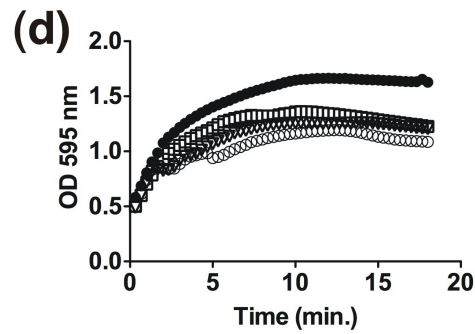
• untreated
 □ 20 µg D-cycloserine ml⁻¹ ▽ 20 D-CS + 10 mM glu



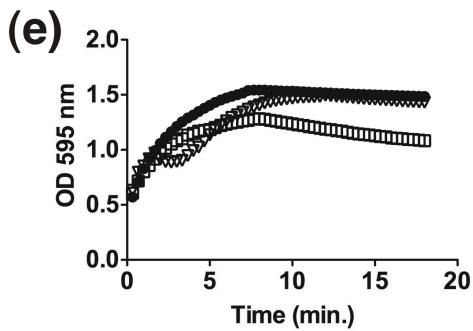
• untreated
 □ 25 µg D-cycloserine ml⁻¹ ▽ 25 D-CS + 10 mM glu



• untreated □ 100 µg mecillinam ml⁻¹
 ▽ 100 mec + 12 mM ara ○ 100 mec + 10 mM glu



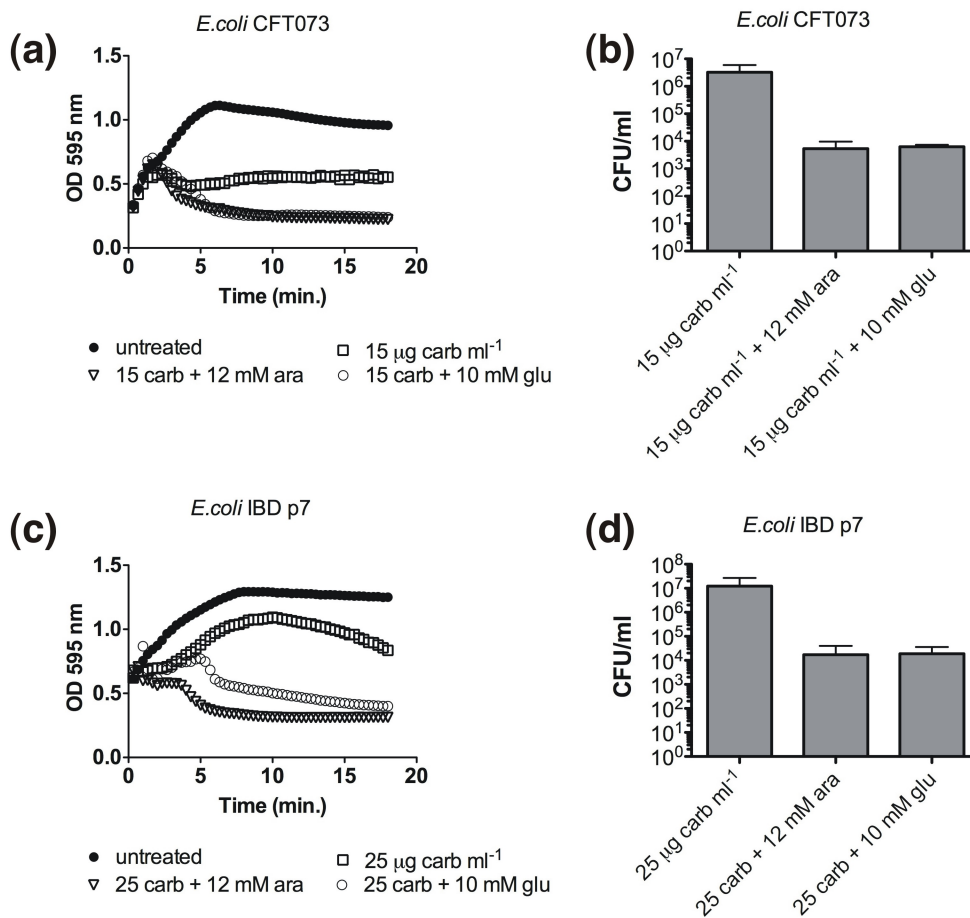
• untreated □ 200 µg mecillinam ml⁻¹
 ▽ 200 mec + 12 mM ara ○ 200 mec + 10 mM glu



• untreated
 □ 50 µg cephalalexin ml⁻¹ ▽ 50 ceph + 10 mM glu

1

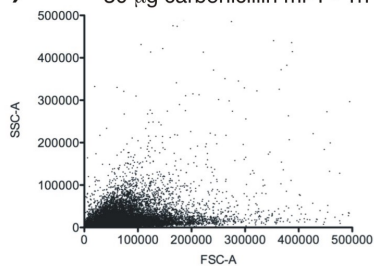
2 **Figure S3.** OD(595nm) measurement of *E. coli* MG1655 during 18 hours of growth with D-
 3 cycloserine (D-CS) **(a-b)**, mecillinam (mec) **(c-d)**, or cephalalexin (ceph) **(e)** in absence (open
 4 squares) or presence of 12mM L-arabinose (open triangles) or 10 mM glucose (open circles).



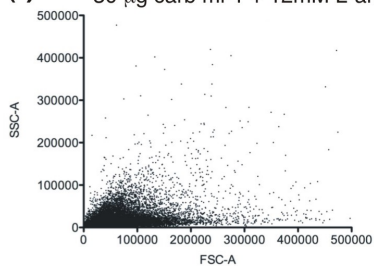
1

2 **Figure S4.** Impact of sugar metabolites on *E. coli* CFT073 and *E. coli* IBD479 antibiotic sensitivity.
 3 **(a)** Optical density of CFT073 cultures during 18 hours of treatment with 15 $\mu\text{g carbicillin ml}^{-1}$
 4 (carb) alone (open squares) or in combination with sugars (arabinose, open triangles; glucose, open
 5 circles). **(b)** CFT073 was treated with 15 $\mu\text{g carbicillin ml}^{-1}$ alone or in combination with 12 mM
 6 L-arabinose or 10 mM D-glucose. Survival was monitored after 18 hours of treatment. $n=3$ (15 μg
 7 carb ml^{-1} versus 15 $\mu\text{g carb ml}^{-1}$ + 12mM ara, $p < 0.11$). **(c)** Optical density of IBD479 cultures
 8 during 18 hours of treatment with 25 $\mu\text{g carbicillin ml}^{-1}$ (carb) alone (open squares) or in
 9 combination with sugars (arabinose, open triangles; glucose, open circles). **(d)** IBD479 was treated
 10 with 25 $\mu\text{g carbicillin ml}^{-1}$ alone or in combination with 12 mM L-arabinose or 10 mM D-
 11 glucose. Survival was monitored after 18 hours of treatment, $n=3$.

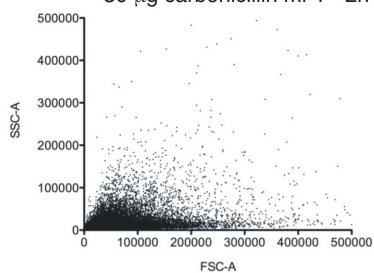
(a) 30 μ g carbenicillin ml-1 - 1h



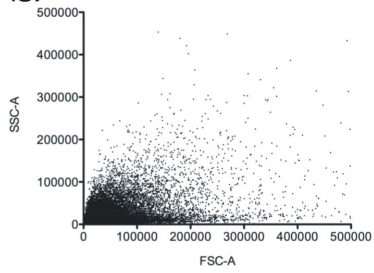
(f) 30 μ g carb ml-1 + 12mM L-ara - 1h



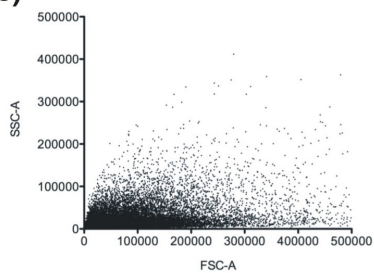
(b) 30 μ g carbenicillin ml-1 - 2h



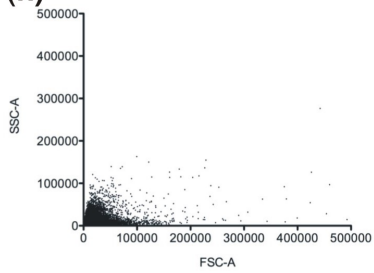
(g) 30 μ g carb ml-1 + 12mM L-ara - 2h



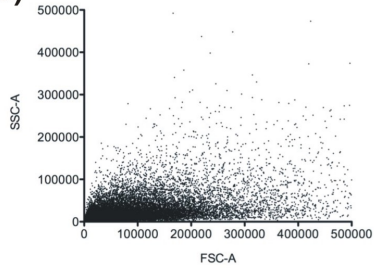
(c) 30 μ g carbenicillin ml-1 - 4h



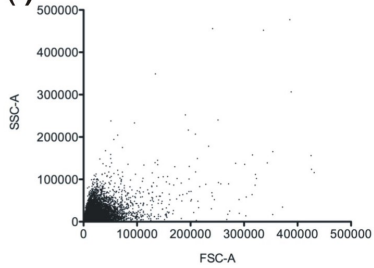
(h) 30 μ g carb ml-1 + 12mM L-ara - 4h



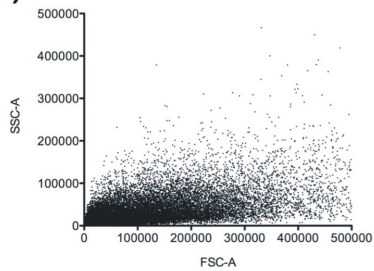
(d) 30 μ g carbenicillin ml-1 - 6h



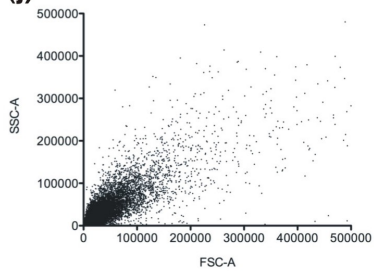
(i) 30 μ g carb ml-1 + 12mM L-ara - 6h



(e) 30 μ g carbenicillin ml-1 - 10h



(j) 30 μ g carb ml-1 + 12mM L-ara - 10h



1 **Figure S5.** Time-course flow cytometry following the change in bacterial cell morphology during
2 treatment. *E. coli* MG1655 was treated with 30 μg carbenicillin ml^{-1} alone (left column, **a-e**) or in
3 combination with 12 mM L-arabinose (right column, **f-j**) and analysed by flow cytometry after 0, 2,
4 4, 6, and 10 hours of treatment.

5