Supplemental Figures and Tables

Figure S1. A CsgA homolog from *S. oneidensis* MR-1 ($CsgA_{SO}$) formed amyloid fibers *in vitro*. **A)** TEM of fibers formed by freshly purified $CsgA_{SO}$ after incubated at room temperature for 24 h. The scale bar equals 500 nm. **B)** Circular dichroism (CD) analysis of $CsgA_{SO}$ fibers.

Figure S2. Fibers formed by CsgA homologs, CsgB homologs or fibers formed by $CsgA_{EC}$ in the presence of various seeds had similar stability. $CsgA^{slowgo}$ was more sensitive to HFIP treatment. 22 μg fibers as indicated were treated with no HFIP or with 50% (v/v), 70%, 80%, 90% or 100% Samples were immediately dried on a SpeedVac. Samples were boiled in 2x SDS-loading dye for 5 min and loaded on 15% SDS-PAGE gels. Monomers dissociated from fibers by HFIP treatment migrated into the gel at 17 kDa.

Figure S3. Curli subunits didn't cross-seed with $A\beta_{1-42}$ or Sup35-NM. **A)** ThT fluorescence monitoring the polymerization kinetics of 40 μM freshly purified $CsgA_{EC}$ alone (●), in the presence of 8% (w/w) $A\beta_{1-42}$ seeds (○) or 4% $CsgA_{EC}$ seeds (Δ). **B)** Polymerization kinetics of 25 μM freshly purified $A\beta_{1-42}$ alone (●), in the presence of 8% $A\beta_{1-42}$ seeds (○) or 8% $CsgA_{EC}$ seeds (Δ). **C)** 10 μM monomeric Sup35 NM polymerized on its own (●), or in the presence of 5% weak Sup35 NM seeds (▲), strong Sup35 NM seeds (♦), $CsgA_{EC}$ seeds (□) or $CsgB_{EC}$ seeds (Δ). **D)** 10 μM freshly purified CsgA polymerized with no seeds (●), with 5% weak Sup35 NM seeds (□) or 5% strong Sup35 NM seeds (Δ).

Figure S4. $A\beta_{1-42}$ didn't bind curli fibers efficiently. Sensorgrams of interactions between over 1 μM freshly prepared $A\beta_{1-42}$ monomers and $CsgA_{EC}$ seeds **(A)** or $CsgB_{EC}$ seeds **(B)**.

Figure S5. *E. coli csgB*- was complemented by CsgB homologs from *S. typhimurium* ($pCsgB_{ST}$) or *C. koseri* ($pCsgB_{CK}$). **A)** YESCA-CR agar plate with *E. coli csgB*- harboring an empty vector, $pCsgB_{EC}$,

$pCsgB_{ST}$ or $pCsgB_{CK}$ after 48 hr incubation at 26°C. **B)** Western analysis of the whole cell lysates and bacteria with underlying agar of *E. coli csgB*- harboring the empty vector, $pCsgB_{EC}$, $pCsgB_{ST}$ or $pCsgB_{CK}$ after grown on YESCA agar at 26°C for 48 hr. Samples were pre-treated with (+) or without (-) HFIP before electrophoresis. **C)** TEM of *E. coli csgB*- mutant complemented with $pCsgB_{EC}$, $pCsgB_{ST}$ or $pCsgB_{CK}$ after grown on YESCA agar at 26°C for 48 hr. Scale bars equal to 500 nm.

Figure S6. *S. typhimurium csgB*- (A^+B^-) outgrew *E. coli* csgA- (A^-B^+) in the mixed colony. **A)** The percentage of *S. typhimurium* or *E. coli* curli mutants in the mixed colony. Overnight cultures of *E. coli* and *S. typhimurium* mutants were normalized by OD_{600}, mixed at 1:1 (v/v) ratio and spotted on YESCA plates. After 3 days, mixed colonies were suspended in PBS, series diluted and plated on YESCA-CR plates. *S. typhimurium* curli mutants formed pink colonies on YESCA-CR agar while *E. coli* curli mutants formed white colonies. Colony forming units (CFU) of pink or white colonies were measured and plotted as 100% stacked columns. **B)** Western analysis bacteria with underlying agar of *E. coli* A^-B^+ /*S. typhimurium* A^+B^- mixed colonies or *E. coli* A^+B^- /*S. typhimurium* A^-B^+ mixed colonies. Samples were pre-treated with (+) or without (-) HFIP before electrophoresis and CsgA was probed by αCsgA antibody.

Figure S7. The increase in bacterial adherence was CsgB-dependent. **A)** Overnight culture of *E. coli*, *S. typhimurium* or 1:1 (OD_{600} ratio) mixture of both species as indicated in the figure were spread on YESCA and incubated at 26°C for 3 d. Bacteria were washed in 1ml PBS with vigorous shaking for 30 min. OD_{600} of non-adhesive bacteria (both *E. coli* and *S. typhimurium*) and bacteria adhere to the agar after washing were measured as described in the Experimental Procedures. The percentage of adhered bacteria in total population was graphed **B)** *E. coli*, *S. typhimurium* or the mixed culture grown on YESCA agar for 3 d were washed in PBS with vigorous shaking. Bacteria washed off into PBS or adhere to the agar were series diluted and spread on YESCA-CR plates. *E. coli* curli mutants stained white and *S. typhimurium* curli mutant stained pink on YESCA-CR agar. Percentage of adhesive *S. typhimurium* was determined by CFU of pink colonies.

Figure S1

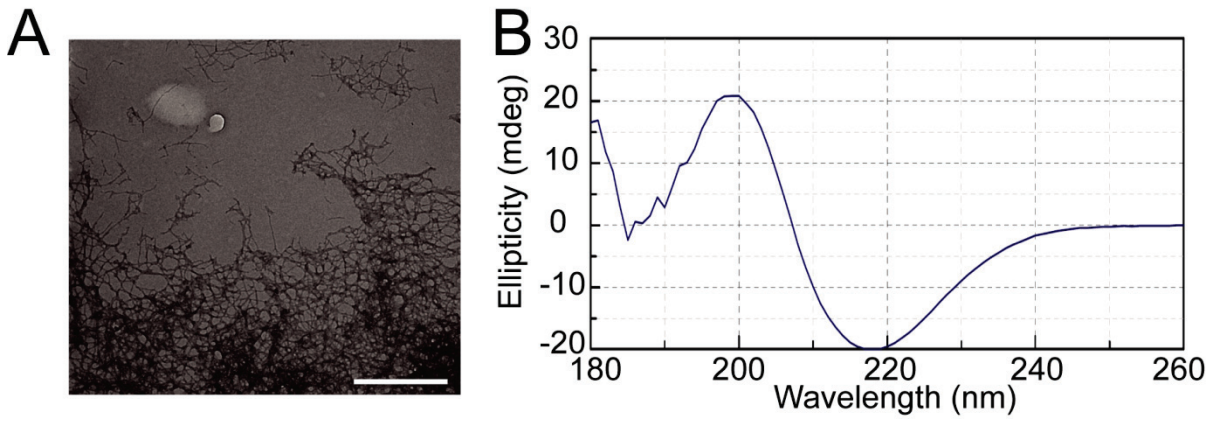

A
B
30
20
10
0
-10
-20
Ellipticity (mdeg)
180
200
220
240
260
Wavelength (nm)

Figure S2

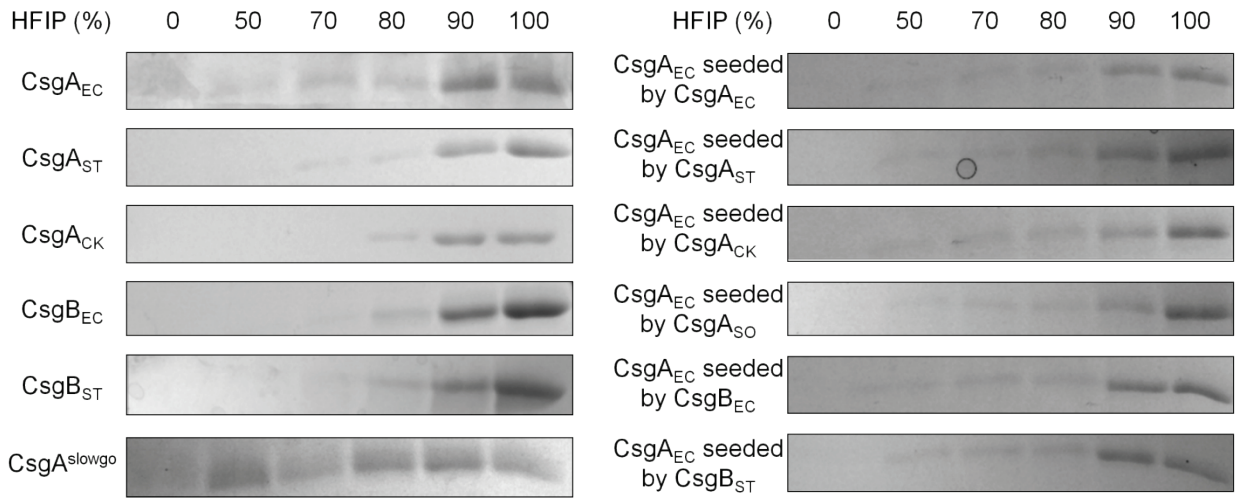

HFIP (%) 0 50 70 80 90 100
CsgA$_{EC}$
CsgA$_{ST}$
CsgA$_{CK}$
CsgB$_{EC}$
CsgB$_{ST}$
CsgA^{slowgo}
HFIP (%) 0 50 70 80 90 100
CsgA$_{EC}$ seeded by CsgA$_{EC}$
CsgA$_{EC}$ seeded by CsgA$_{ST}$
CsgA$_{EC}$ seeded by CsgA$_{CK}$
CsgA$_{EC}$ seeded by CsgA$_{SO}$
CsgA$_{EC}$ seeded by CsgB$_{EC}$
CsgA$_{EC}$ seeded by CsgB$_{ST}$

Figure S3

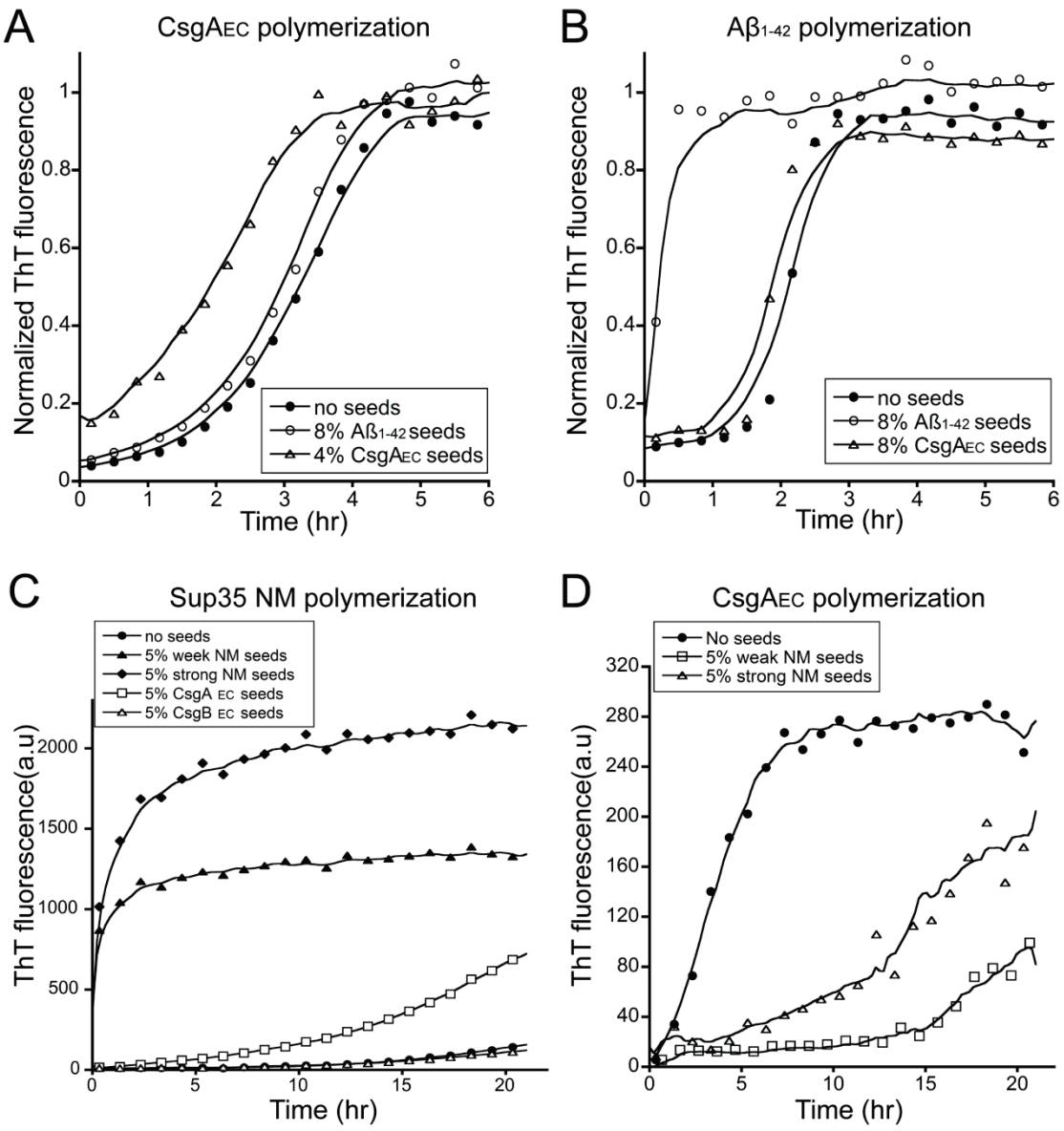

A
CsgAEC polymerization
Normalized ThT fluorescence
Time (hr)
no seeds
8% Aß1-42 seeds
4% CsgAEC seeds
B
Aβ1-42 polymerization
Normalized ThT fluorescence
Time (hr)
no seeds
8% Aß1-42 seeds
8% CsgAEC seeds
C
Sup35 NM polymerization
ThT fluorescence(a.u)
Time (hr)
no seeds
5% week NM seeds
5% strong NM seeds
5% CsgA EC seeds
5% CsgB EC seeds
D
CsgAEC polymerization
ThT fluorescence(a.u)
Time (hr)
No seeds
5% weak NM seeds
5% strong NM seeds

Figure S4

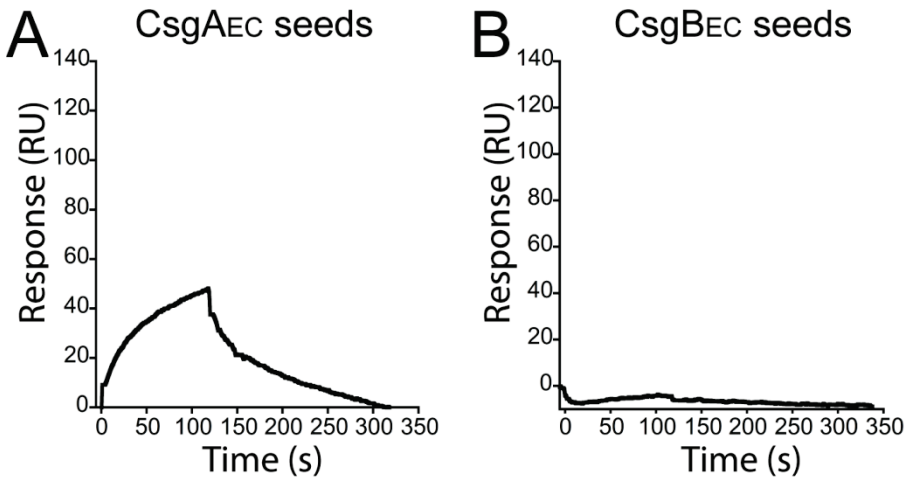

A
CsgAEC seeds
Response (RU)
0
20
40
60
80
100
120
140
0 50 100 150 200 250 300 350
Time (s)
B
CsgBEC seeds
Response (RU)
0
20
40
60
80
100
120
140
0 50 100 150 200 250 300 350
Time (s)

Figure S5

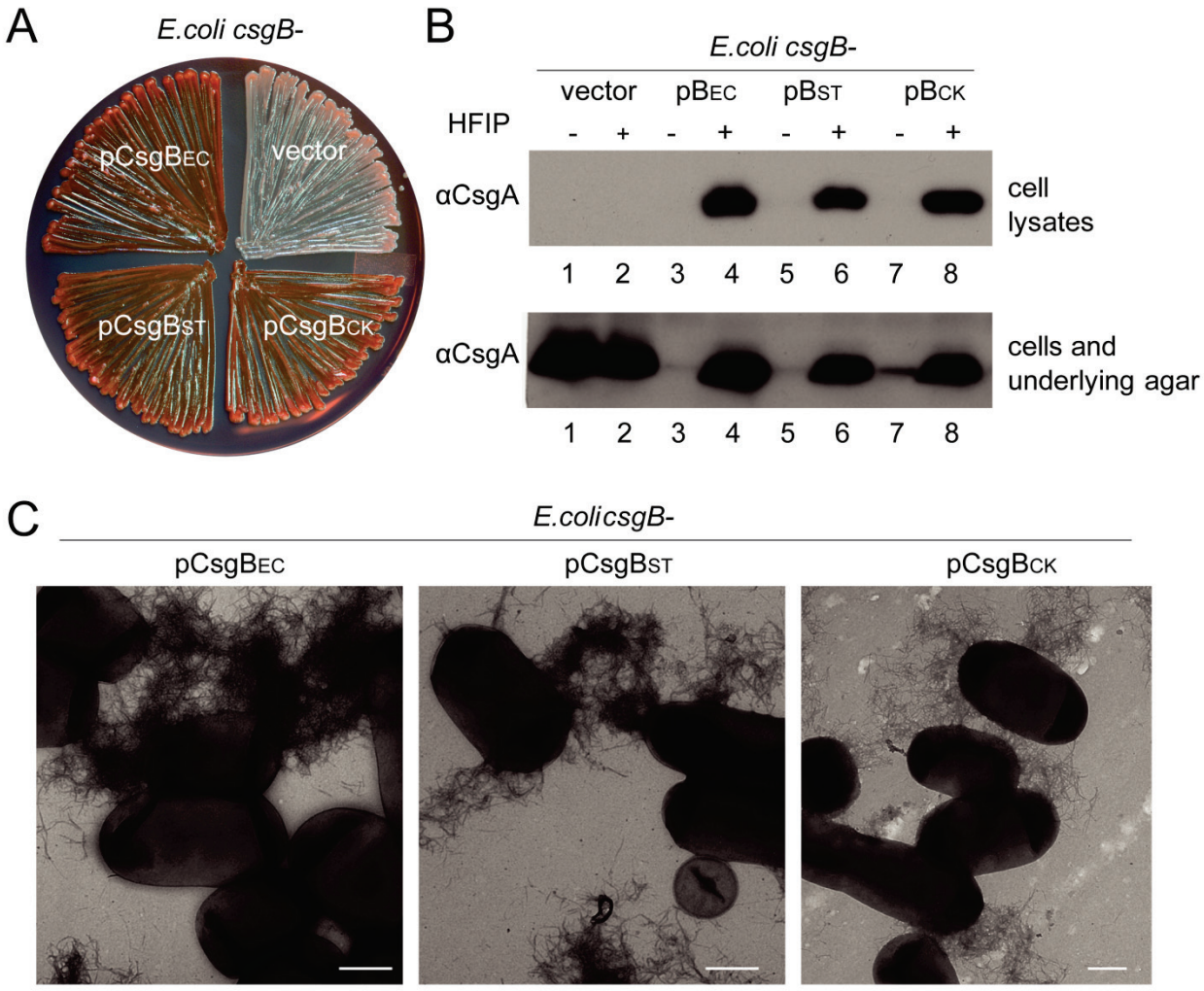

A
E.coli csgB-
pCsgBEC
vector
pCsgBST
pCsgBCK
B
E.coli csgB-
vector
pBEC
pBST
pBCK
HFIP
- + - + - + - +
αCsgA
cell lysates
1 2 3 4 5 6 7 8
αCsgA
cells and underlying agar
1 2 3 4 5 6 7 8
C
E.colicsgB-
pCsgBEC
pCsgBST
pCsgBCK

Figure S6

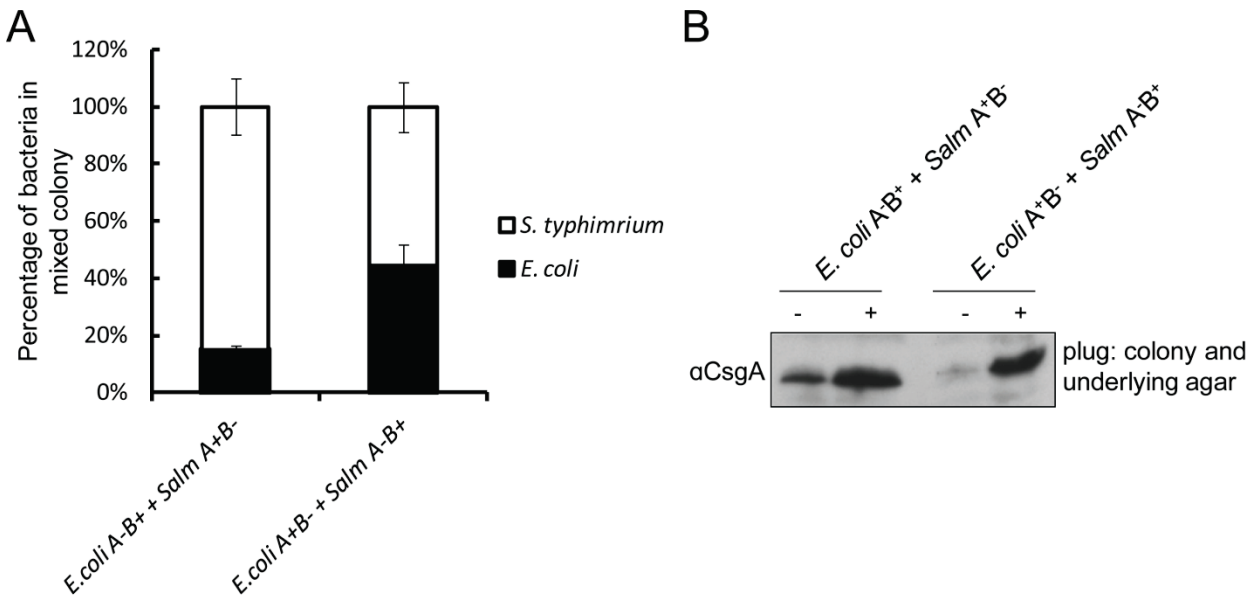
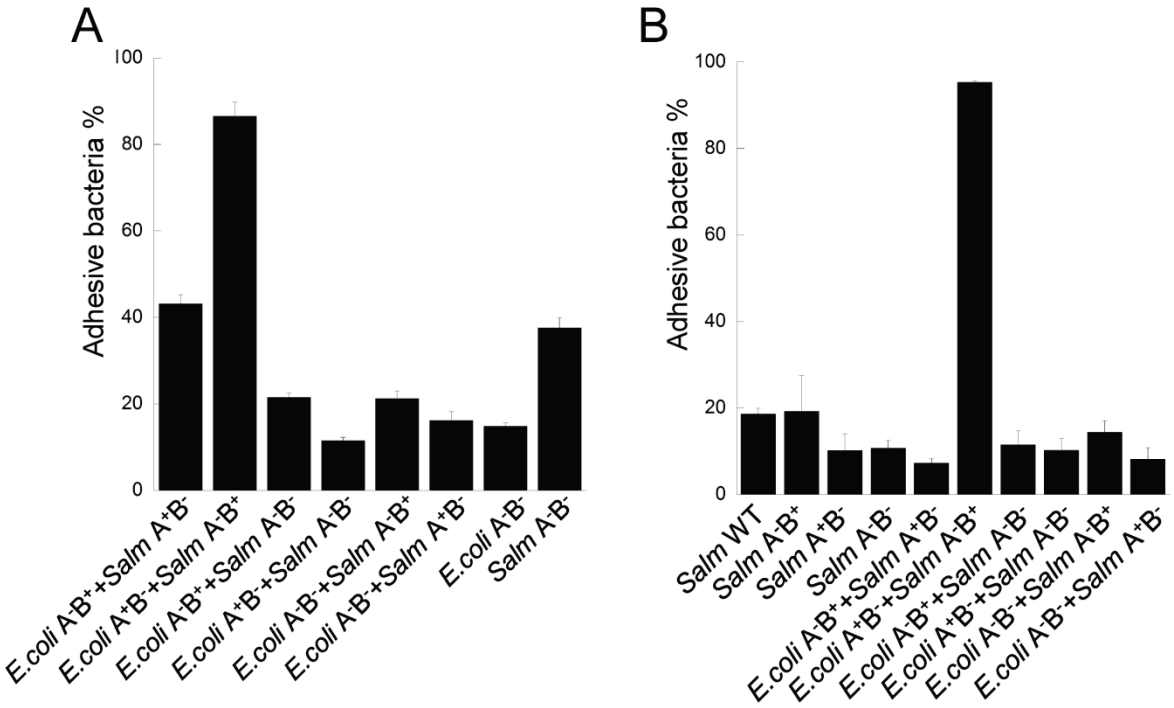

A
120%
100%
80%
60%
40%
20%
0%
Percentage of bacteria in mixed colony
S. typhimrium
E. coli
E.coli A-B+ + Salm A+B-
E.coli A+B- + Salm A-B+
B
E. coli A-B+ + Salm A+B-
E. coli A+B- + Salm A-B+
-
+
-
+
αCsgA
plug: colony and underlying agar

Figure S7


A
Adhesive bacteria %
100
80
60
40
20
0
E.coli A-B+ +Salm A+B-
E.coli A+B- +Salm A-B+
E.coli A-B+ +Salm A-B-
E.coli A+B- +Salm A-B-
E.coli A-B- +Salm A+B+
E.coli A-B- +Salm A+B-
E.coli A-B-
Salm A-B-
B
Adhesive bacteria %
100
80
60
40
20
0
Salm WT
Salm A-B+
Salm A+B-
Salm A-B-
E.coli A-B+ +Salm A+B-
E.coli A+B- +Salm A-B+
E.coli A-B+ +Salm A-B-
E.coli A+B- +Salm A-B-
E.coli A-B- +Salm A-B+
E.coli A-B- +Salm A+B-

Supplemental Table 1. Strains used in this study

Strains	Relevant characteristics	References
MC4100	F- *araD*139 Δ(*argF-lac*) U169 *rpsL*150(*strR*) *relA*1 *fibB*5301 *deoC*1 *ptsF*25 *rbsB*	(1)
E. coli csgA- (LSR10)	MC4100 *ΔcsgA*	(2)
E. coli csgB- (MHR261)	MC4100 *ΔcsgB*	(3)
E. coli csgBA- (LSR13)	MC4100 *ΔcsgBA*	(4)
S. typhimurium LT2	*Salmonella enterica* subsp. enterica serovar Typhimurium str. LT2	From Dr. Blaise Boles
S. typhimurium csgA-	*S. typhimurium* LT2 *csgA::kan*	This study
S. typhimurium csgB-	*S. typhimurium* LT2 *csgB::kan*	This study
S. typhimurium csgBA-	*S. typhimurium* LT2 *csgBA::kan*	This study
NEB 3016	*fhuA2 lacZ::T7 gene1 [lon] ompT gal sulA11 R(mcr-73::miniTn10--*Tet^S*)2 [dcm] R(zgb-210::Tn10--*Tet^S*) endA1 Δ(mcrC-mrr)114::IS10 [mini-lacI^q* (Cam^R*)]*	NEB

Supplemental Table 2. Plasmids used in this study

Plasmids	Relevant characteristics	References
pLR2	Vector with *csgBA* promoter	(5)
$pCsgA_{EC}$	*E. coli csgA* cloned into pLR2. Previously named as pLR5.	(4)
$pCsgA_{ST}$	*S. typhimurium csgA* cloned into pLR2.	This study
$pCsgA_{CK}$	*C. koseri csgA* cloned into pLR2.	This study
$pCsgA_{SO}$	*S. oneidensis csgA* cloned into pLR2	This study
$pCsgBA_{EC}$	*E. coli csgBA* cloned into pLR2, previously named as pLR30.	This study
$pCsgB_{EC}$	*E. coli csgB* cloned into pLR2. Previously named as pLR8.	(6)
$pCsgB_{ST}$	*S. typhimurium csgB* cloned into pLR2.	This study
$pCsgB_{CK}$	*C. koseri csgB* cloned into pLR2.	This study
$pCsgB_{SO}$	*S. oneidensis csgB* cloned into pLR2.	This study
pET11d	Expression vector	NEB
pNH11	C-terminal His_6 tagged *E. coli csgA* cloned into pET11d	(7)
pET11d-$CsgA_{ST}$	C-terminal His_6 tagged *S. typhimurium csgA* cloned into pET11d	This study
pET11d-$CsgA_{CK}$	C-terminal His_6 tagged *C. koseri csgA* cloned into pET11d	This study
pET11d-$CsgA_{SO}$	C-terminal His_6 tagged *S. oneidensis csgA* cloned into pET11d	This study
pAN1	C-terminal His_6 tagged *E. coli csgB* cloned into pET11d	(7)
pET11d-$CsgB_{ST}$	C-terminal His_6 tagged *S. typhimurium csgB* cloned into pET11d	This study
pAH9	Plasmid for mCherry expression	(8)
pAH16	Plasmid for YFP expression	(8)

Supplemental Table 3. Primers used in this study

Primer	Primer Sequence	Constructs
WD1	5'- CACGACCCATGGCGAAACTTTTAAAAGTGGCAG -3'	$pCsgA_{ST}$, $pCsgA_{CK}$
WD2	5'- CAGCTTGGATCCTTAATACTGGTTAGCCGTGG-3'	$pCsgA_{ST}$, $pCsgA_{CK}$
YZ15-f	5'-GCGTTTCCATGGGCGTCGTTCCACAATGGGGCGG-3'	pET11d-$CsgA_{ST}$
YZ15-r	5'-GTTTAAAGCTTGGATCCTTAGTGATGGTGATGGTGAT GATACTGGTTAGCCGTGGCGTTG-3'	pET11d-$CsgA_{ST}$ pET11d-$CsgA_{CK}$
YZ16-f	5'-GCGTTTCCATGGGTGTTGTTCCGCAGTGGGGCGGT-3'	pET11d-$CsgA_{CK}$
YZ17-f	5'-GCGCCATGGCGAAAAACAAATTGTTATTTATG-3'	$pCsgB_{ST}$, $pCsgB_{CK}$
YZ21-r	5'-GCGGGATCCTTAACGTTGCGTAACGCG-3'	$pCsgB_{CK}$
YZ22-r	5'-GCGGATCCTTAGCGTTGGGTGACGCGAATAG-3'	$pCsgB_{ST}$
YZ22-f	5'-GCTACCATGGCGACAAATTATGATCTG-3'	pET11d-$CsgB_{ST}$
YZ22-r	5'-GCGGATCCTTAGTGATGGTATGGTGATGGCGTTGGGT GACGCGAATAG-3'	pET11d-$CsgB_{ST}$
YZ25-f	5'-GCGTTTCCATGGCAAGTACGATCAACGAAATC	pET11d-$CsgA_{SO}$
YZ25-r	5'-GCGGATCCTTAGTGATGGTGATGGTGATGGTATTGCA CTACAGTCG-3'	pET11d-$CsgA_{SO}$
YZ47	5'-CAACGCTAATACCGTTACGACTTTTAAATCAATCCGAT GGGGGTTTTACCCACCAAACACCCCCCAAAACC-3'	*S. typhimurium csgA-*
YZ48	5'-CAGGGCTTATGCCCTGTTTTTTTATTAGCGCAGACGCT AAACACACAACCACACCACACCAC-3'	*S. typhimurium csgA-* *S. typhimurium csgBA-*
YZ50	5'-CAAGGTAATAGATAATTTTCGCTATGTACGACCAGGTC CAGGGTGACAGCCACCAAACACCCCCCAAAACC-3'	*S. typhimurium csgB-* *S. typhimurium csgBA-*
YZ51	5'-AAGTTTCATGGTAAAACCCCCATCGGATTGATTTAAAA GTCGTAACGGTACACACAACCACACCACACCAC-3'	*S. typhimurium csgB-*

Reference

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