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SUPPORTING INFORMATION FOR CHAPTER III

This Appendix includes:

Supplemental Materials & Methods
Supplementary Figures 1-16
Supplementary Tables 1-5

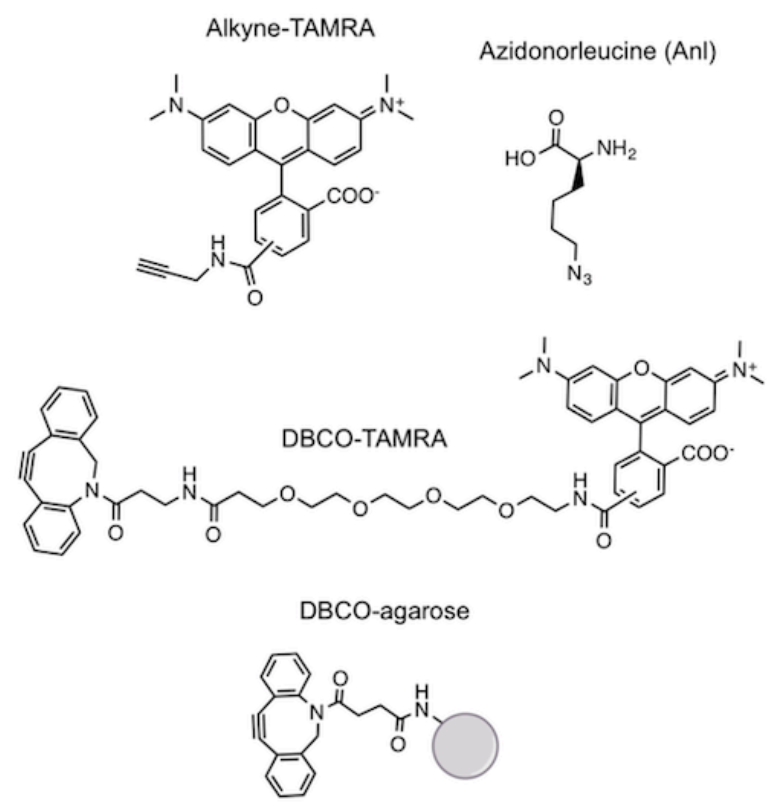
Supplemental Materials & Methods

Histological examination of mouse tissues. Mouse skin was harvested 2 days after inoculation and fixed in 10% neutral-buffered formalin for 48 hours. Fixed tissues were embedded in paraffin, sectioned, mounted on slides, and stained with hematoxylin and eosin (Pacific Pathology).

Keratinocyte culture and infection. Human epidermal keratinocytes from neonatal donors (HEKn) cells (ThermoFisher) were cultured in EpiLife Medium with calcium and human keratinocyte growth supplement (HKGS) with no antibiotics added. At 80% confluence, they were washed with PBS and *S. aureus* strains were added to fresh media at a 10:1 multiplicity of infection (MOI) (MRSA:HEKn). After 90 min, the HEKn cells were washed and lysed with 0.1% SDS. MRSA is resistant to lysis in these conditions and was subsequently diluted and plated on TSA to count the number of adherent and internalized CFUs.

Supplemental Figures

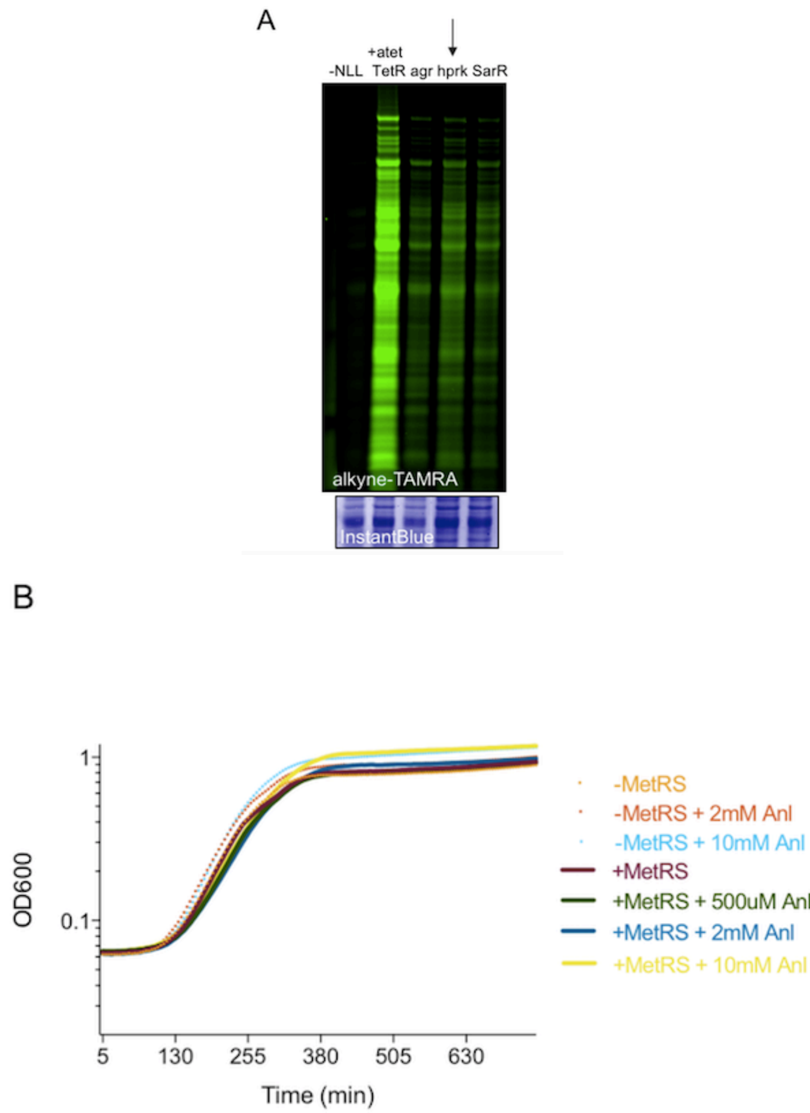
Supplementary Figure S1: Structures of reagents used in the text



Supplementary Figure S2:

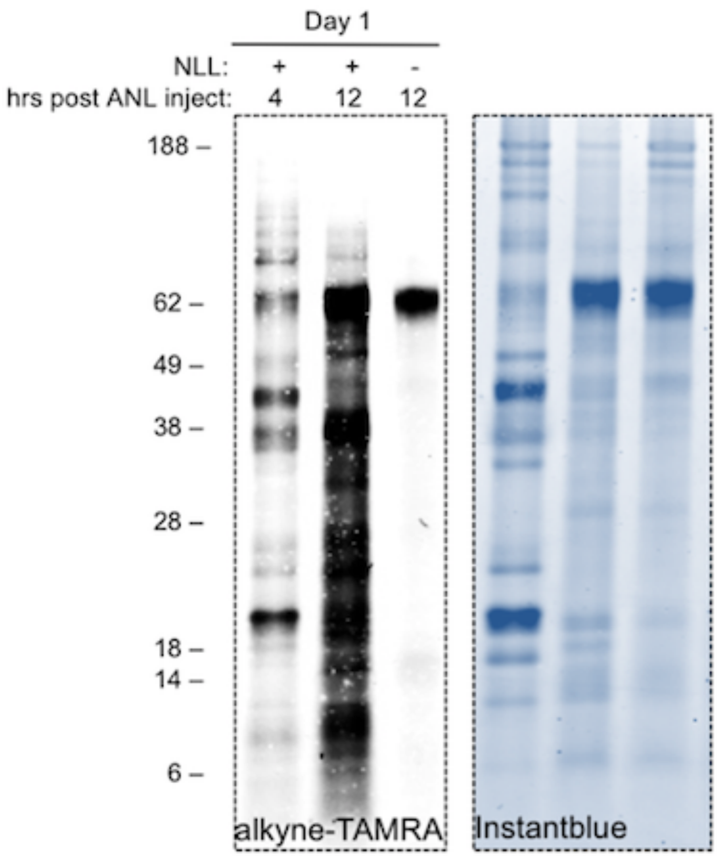
A) In-gel fluorescence reveals the strength of *S. aureus* promoters driving expression of the NLL-MetRS followed by Anl labeling. Selected promoters (~1000bp upstream) were inserted in front of the NLL-MetRS and confirmed via sequencing. A tetracycline-inducible promoter was also tested and induced with 500 ng/μl for 2 hours prior to labeling. The strains were grown in TSB and labeled for 1 hour with 2mM Anl during mid-exponential growth, clicked to alkyne-TAMRA, and ran on a gel. The gel was stained for total protein using Instantblue to confirm equal protein loading. The arrow indicates the selected strain used for all subsequent experiments.

B) Strains (+NLL or –NLL) were diluted 1:500 then grown aerobically in the presence of indicated amounts of Anl in TSB. Growth rate was not significantly affected by addition of Anl or expression of the NLL-MetRS.



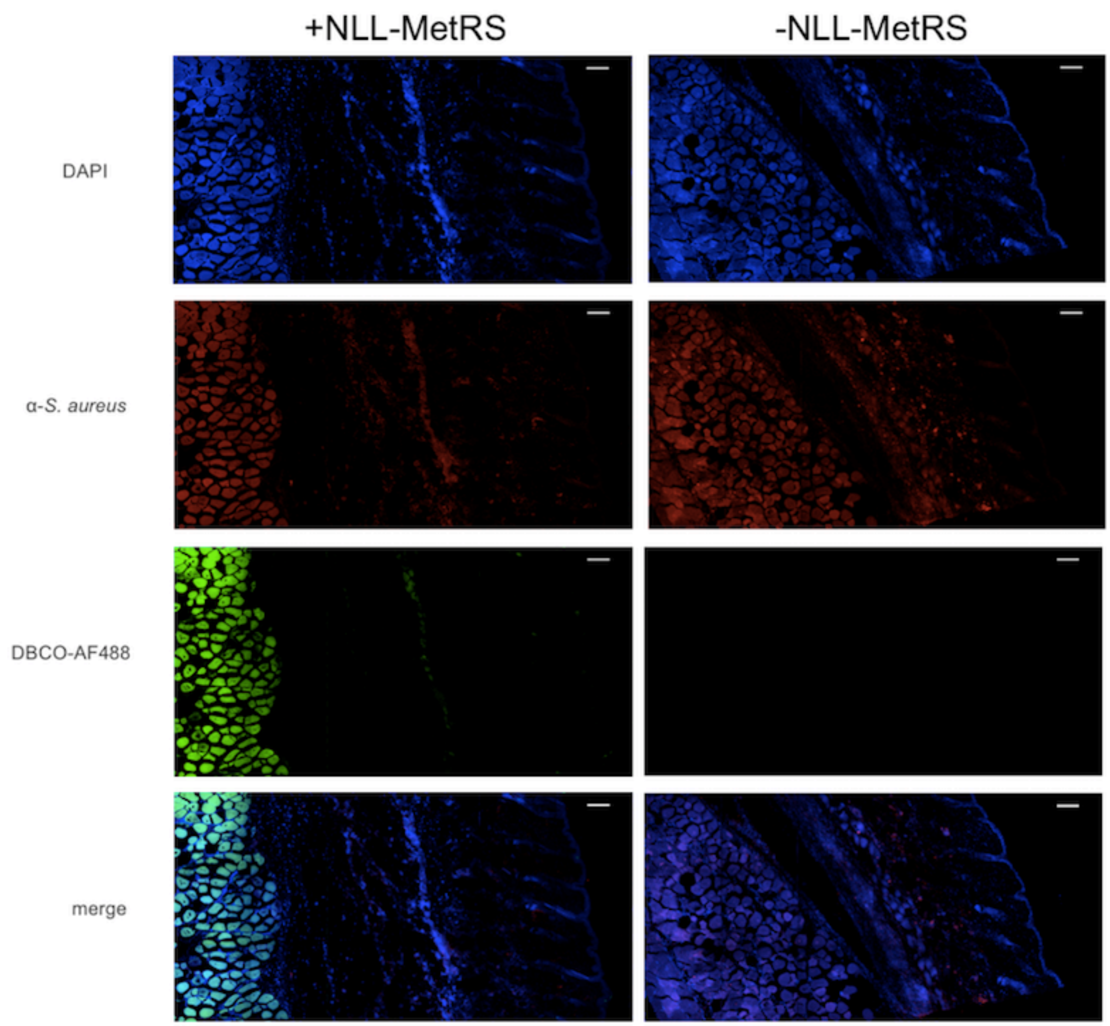
Supplementary Figure S3:

We infected mice subcutaneously with 5e7 CFU of +NLL or –NLL MRSA strains and allowed the infection to proceed for 12 hours. Then, we injected 25mM Anl into the lesion and and allowed cell-specific labeling for the indicated amount of time. Abscesses were excised and homogenized in 1 mL PBS with 1% SDS. The homogenized lysates were clicked to alkyne-TAMRA, ran on a gel, and imaged. The gel was stained with Instantblue to assess total protein loading.



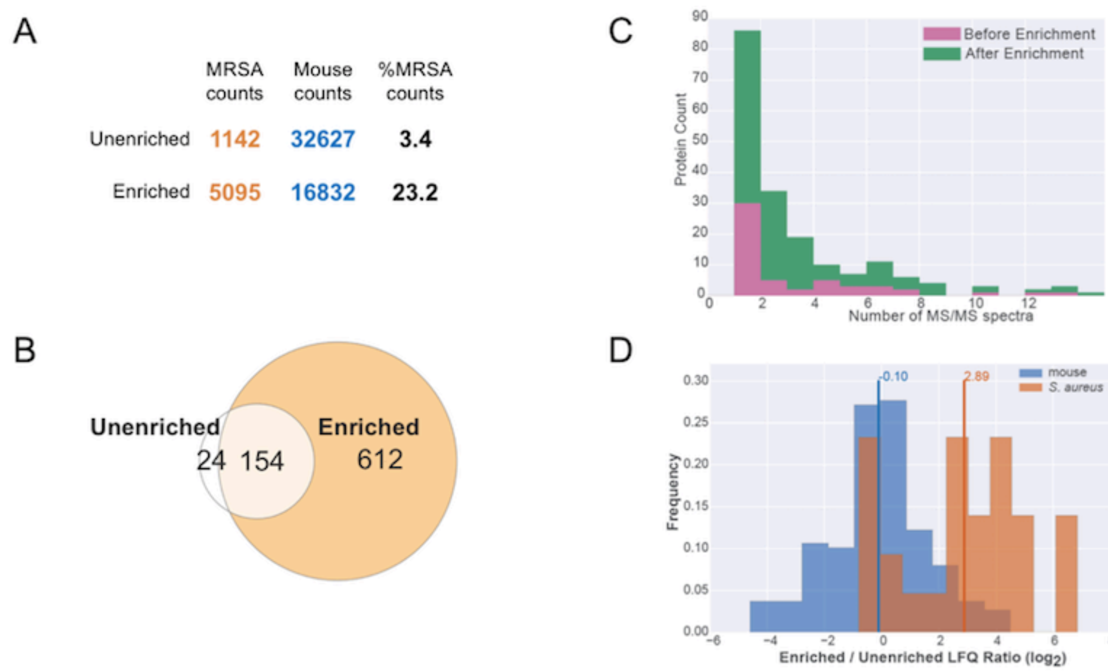
Supplementary Figure S4:

Mice were infected subcutaneously with 5e7 CFU of +NLL or –NLL strains of MRSA and 25 μl of 25 mM Anl was injected at the same time. Abscesses were excised and fixed in 4% PFA before being cryosliced and placed on glass slides. Slices were treated with 50 μg/mL lysostaphin for 45 min at 37 ºC. Samples were blocked with 100 mM iodoacetamide for 15 min then DBCO-AF488 for 10 min. The slides were washed for 1 hour in PBS, blocked with 1% mouse serum in PBS, and treated with 1:3000 dilution of α-*S. aureus* antibody (rabbit polyclonal) in 1% mouse serum in PBS for 1 hour at room temperature. After 3 x 15 min washes in PBS, a goat anti-rabbit secondary antibody conjugated to AF555 was added for 1 hour, followed by 3 more PBS washes. Vectashield with DAPI was added prior to imaging.



Supplemental Figure S5: BONCAT enrichment selects for MRSA proteins

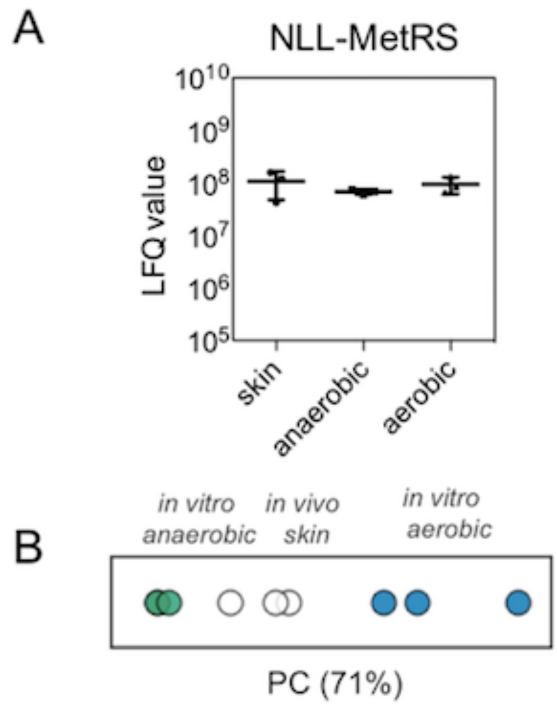
A) Table of spectral counts before and after enrichment with DBCO-agarose. After enrichment we found more spectra matched to MRSA proteins and fewer spectra matched with mouse proteins.
B) Enrichment increases the number of MRSA proteins found with at least 1 peptide.
C) After enrichment, we found more spectra per individual protein found.
D) Of the 154 MRSA proteins found both before and after infection, LFQ intensities of MRSA proteins were higher after enrichment. Mouse proteins found in samples before and after enrichment showed a slight decrease in their LFQ intensities.



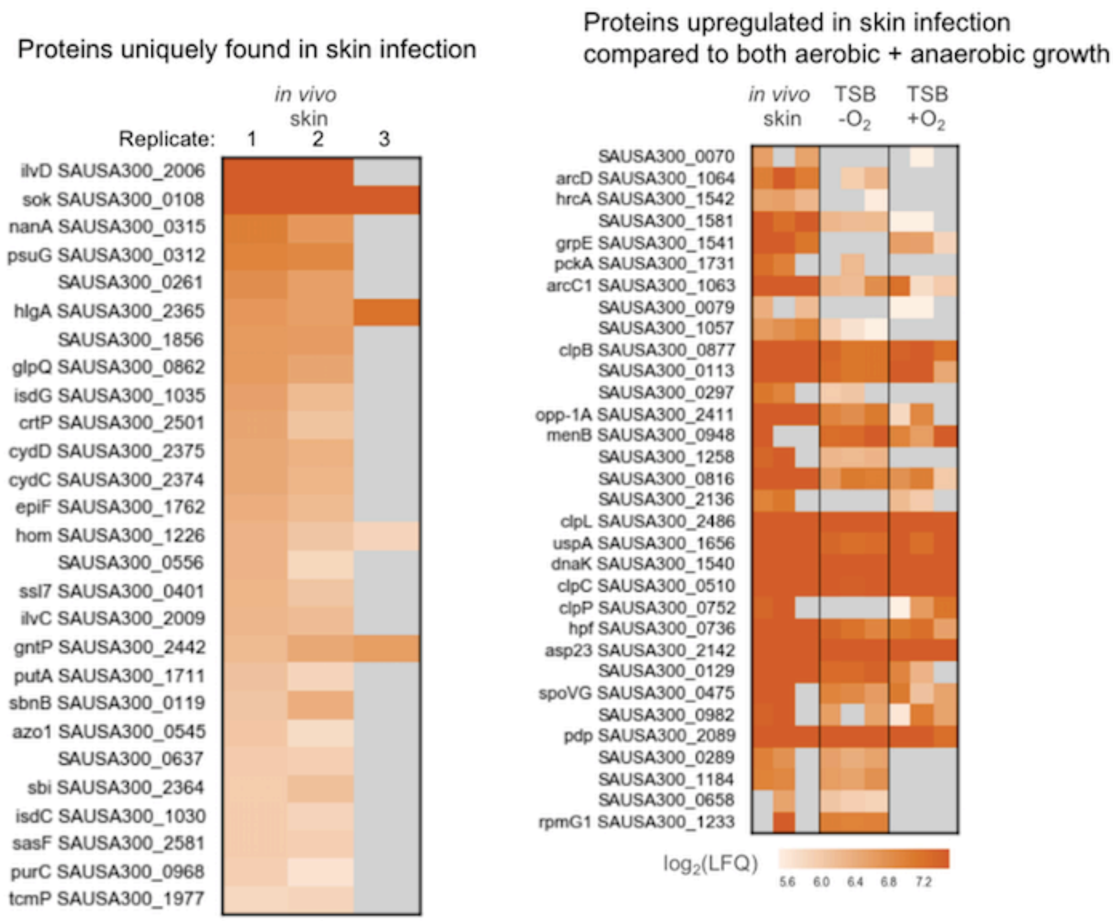
Supplemental Figure S6

A) The NLL-MetRS is expressed in similar levels in all samples as shown by LFQ values.

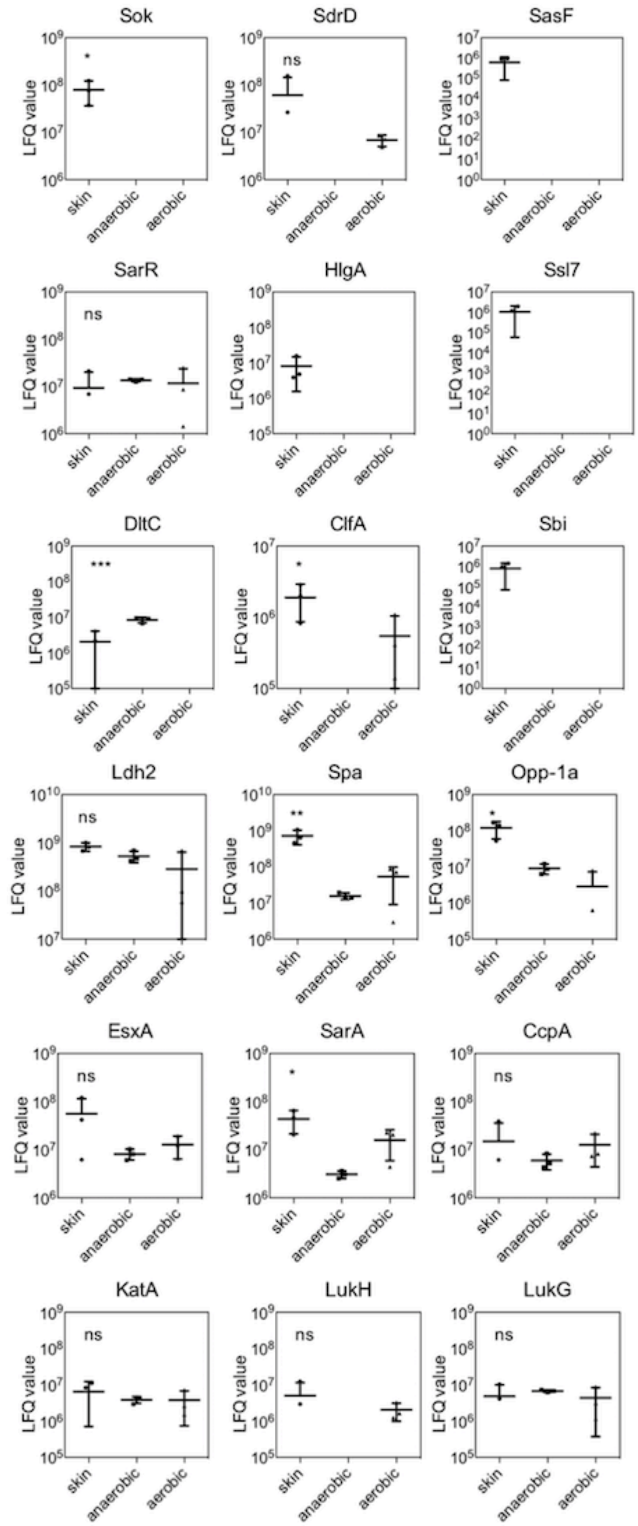
B) One-dimensional principal component analysis (PCA) of the proteins found in aerobically and anaerobically grown samples reveals that skin infection samples do not cluster with either.



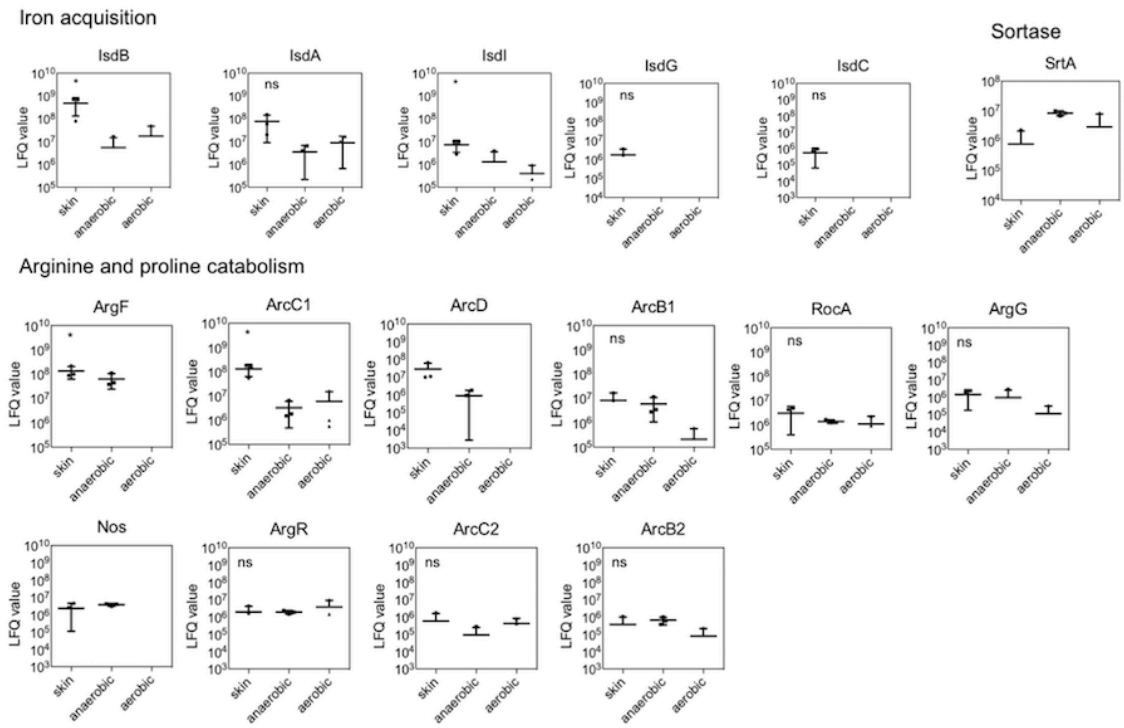
Supplemental Figure S7: Heatmaps of log_2(LFQ) values.



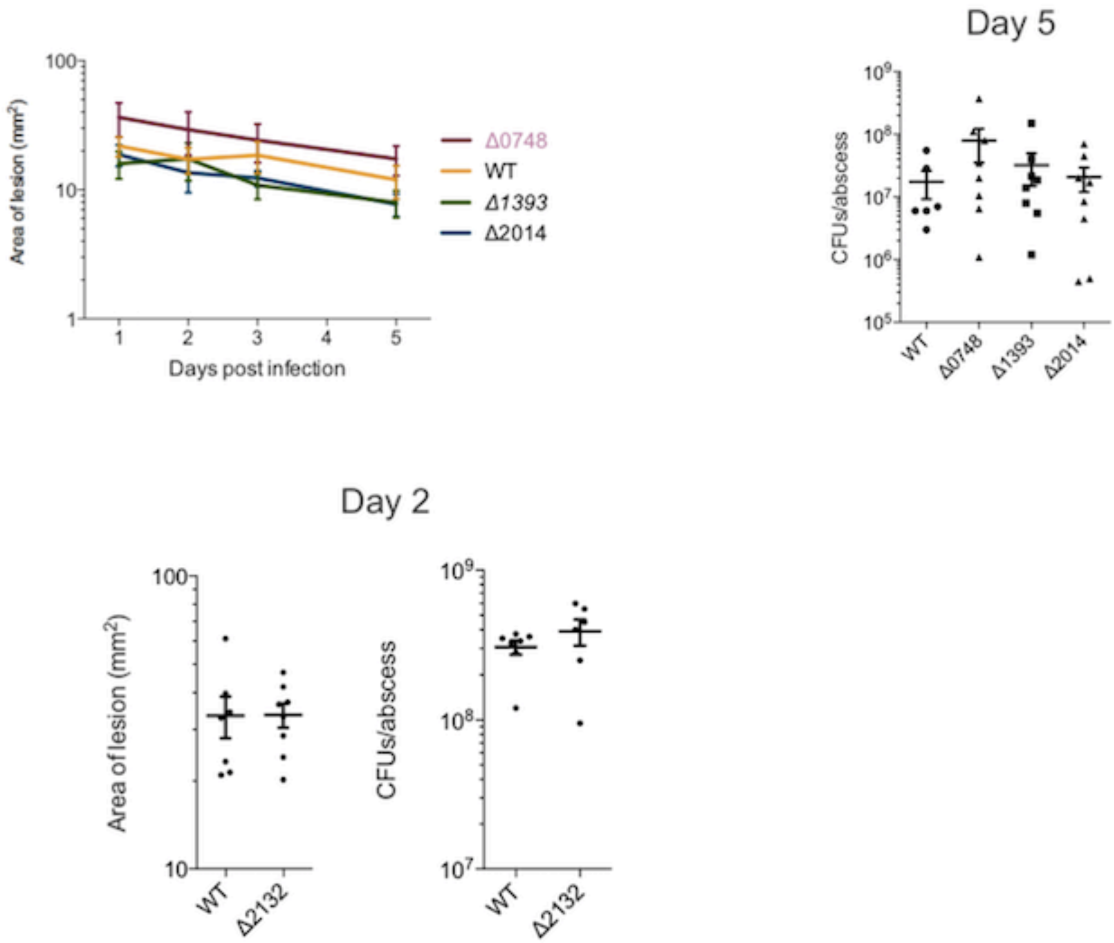
Supplemental Figure S8: LFQ values of proteins annotated as important for pathogenesis/virulence. Some proteins were not found in all samples.



Supplemental Figure S9: LFQ values of proteins annotated as important for iron acquisition or arginine/proline catabolism. Some proteins were not found in all samples.



Supplemental Figure S10: In addition to the mutants mentioned in the main text, we also tested other insertional mutants from the NARSA transposon library in a subcutaneous model of skin infection. There was no statistical differences between wild-type (WT) and the mutants tested in the area of the lesion or the number of CFUs.

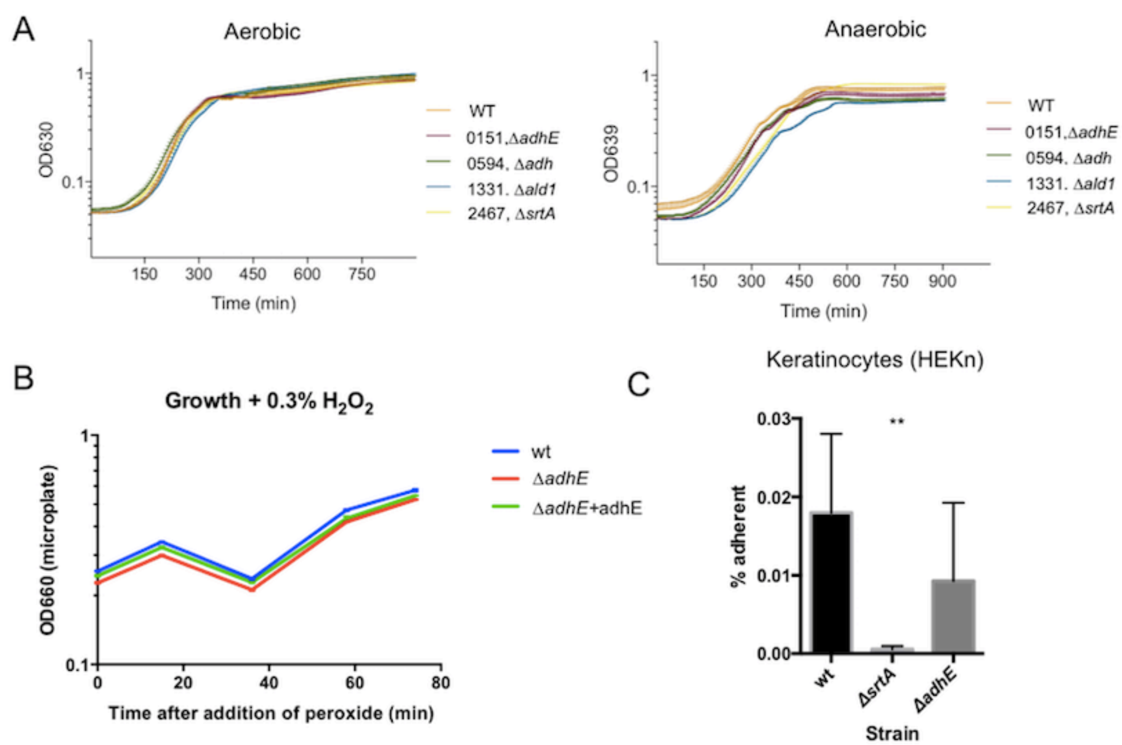


Supplementary Figure S11;

A) No difference in growth of MRSA wild-type, adhE mutant, or other tested mutants during aerobic growth. Some other mtuant strains show slight differences during anaerobic growth.

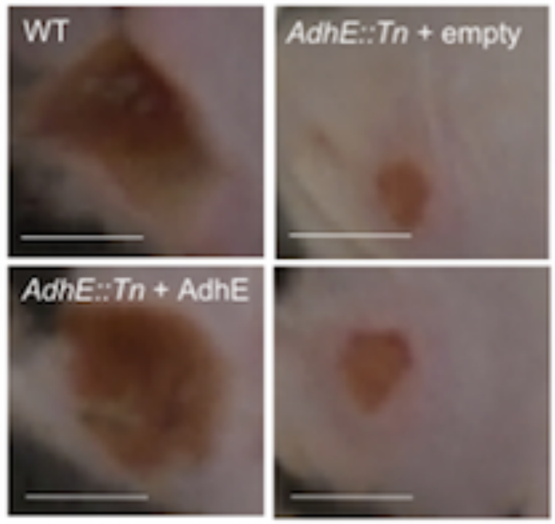
B) No difference in growth between wild-type, AdhE mutant, or complemented AdhE after exposure to peroxide

C) No difference in adhesion to HEKn cells, although a sortase mutant (2467, Δ srtA) displayed significant growth defects.



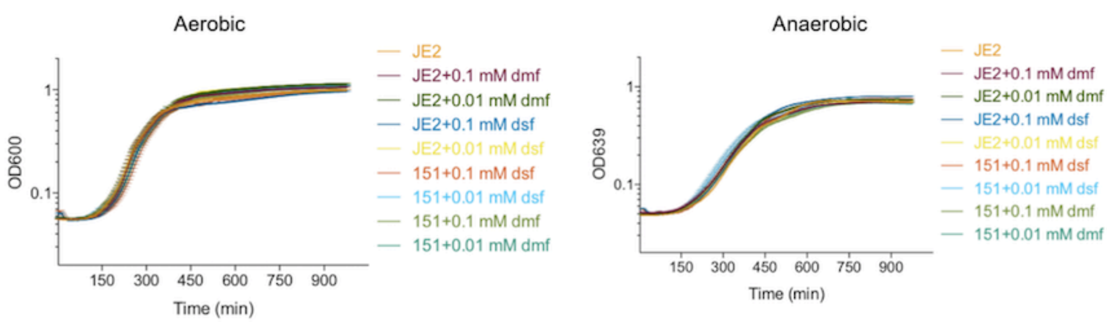
Supplementary Figure S12:

Representative lesions formed over time after subcutaneous injection with 2e7 CFUs of wild-type USA300 compared to Δ*AdhE* mutant complemented with empty vector, full-length AdhE, or AdhE with a single point mutation C258A (Δ*AdhE*+ C258A). Lesions on day 2 of infection. Scale bar is 5 mm.

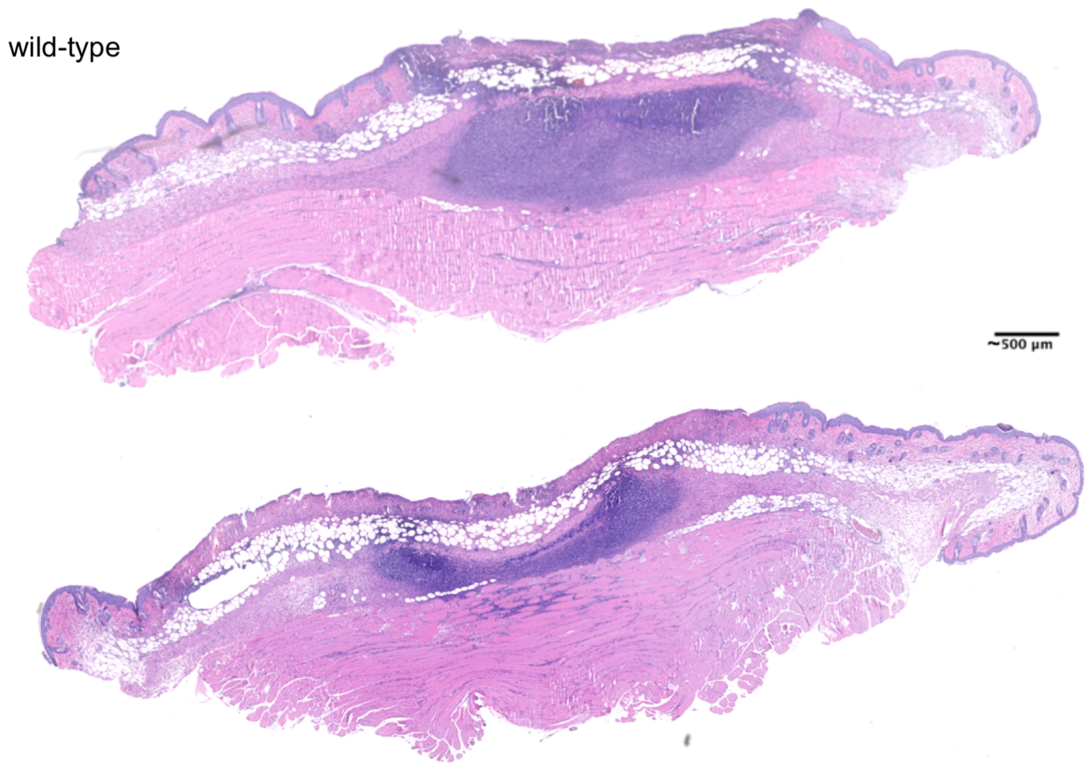


Supplementary Figure S13:

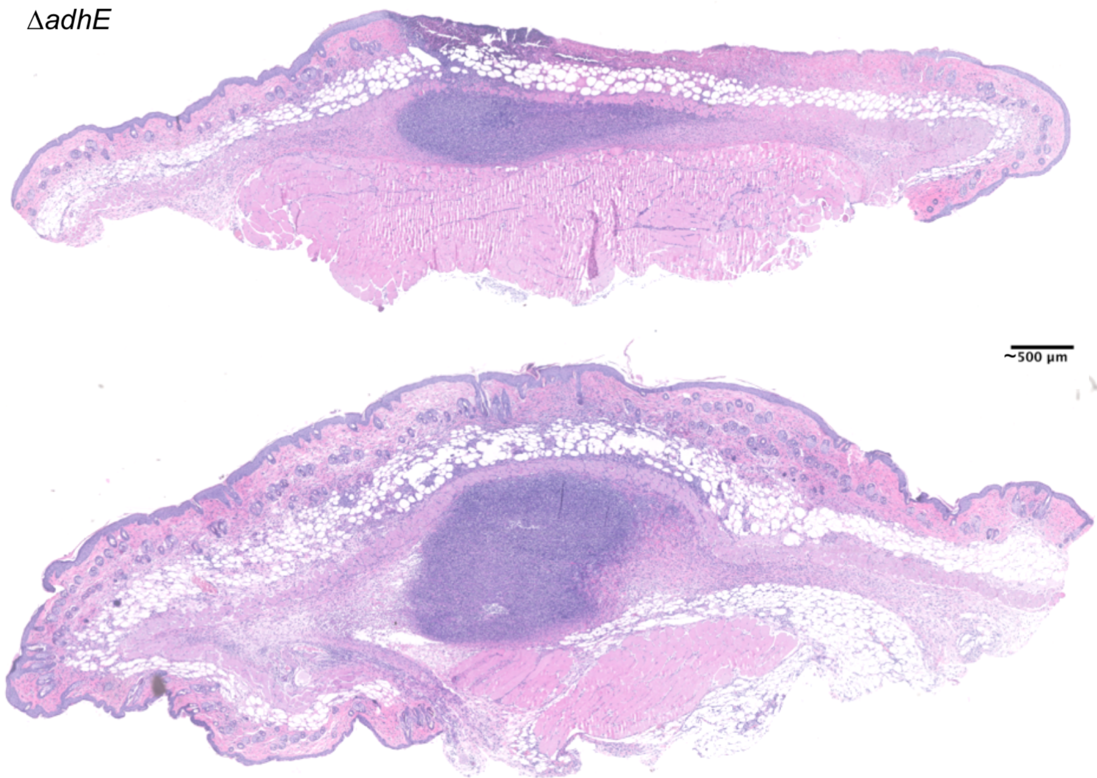
We saw no differences in growth between MRSA USA300 wild-type or Δ*adhE* with disulfiram (DSF) or vehicle (DMF) in TSB.



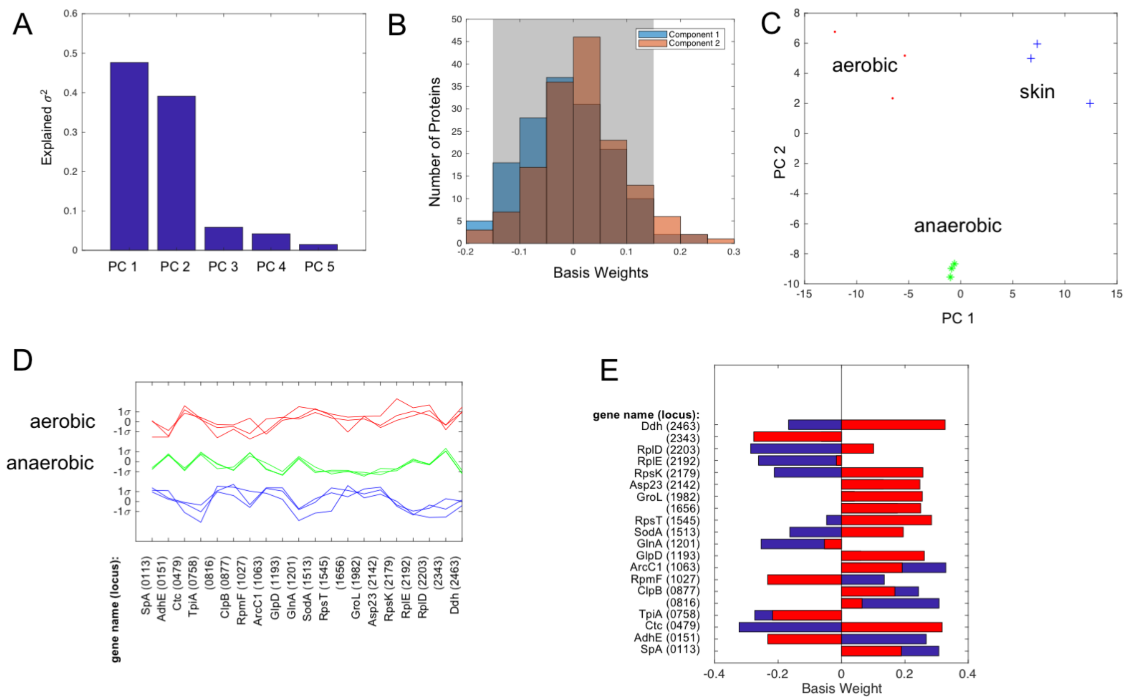
Supplementary Figure S14: H & E stained MRSA abscesses (wild-type) on Day 2 of infection



Supplementary Figure S15: H & E of MRSA abscesses (Δ*adhE*) on Day 2 of infection



Supplementary Figure S16: Further insight into infection using principal component analysis (PCA). A) The first two components of this 20-protein-PCA explains most of the variance. B) Only 20 proteins in principal components 1 and 2 have magnitudes above 0.15 (unshaded part of the histogram). C) PCA on only these 20 proteins reveals they cluster similarly to PCA on the entire data set. D) Expression profiles of these 20 proteins in each of the 3 conditions. E) Relative weight contributed by each protein to the first two principle components in the 20-protein-PCA. Blue = PC1, Red = PC2.



Supplemental Table 1. Strains used in Chapter 3.

Name	Organism	Resist-ance	Notes	Reference / Source
DH10B	*E. coli*	-	Strain for cloning and plasmid maintenance	NEB
RN4220	*S. aureus*	-	Restriction-deficient cloning strain	Olaf Schneewind
USA300 (JE2)	*S. aureus*	-	Base strain for Tn insertions	NARSA
CYL12349	*S. aureus* RN4220	Cm	RN4220 with engineered attB2 site,+ plasmid pYL112Δ19	31
CYL12376	*S. aureus* RN4220	Tet	CYL12349, pLL102	31
R_LLadhE	*S. aureus* RN4220	Tet/Cm	CYL12349, integrated pLL102_adhE	This work
R_LLadhE_C258A	*S. aureus* RN4220	Tet/Cm	CYL12349, integrated pLL102_adhE_C258A	This work
R_LL102	*S. aureus* RN4220	Tet/Cm	CYL12349, integrated pLL102_empty	This work
151_LLadhE	*S. aureus* JE2	Erm/Tet	NE114, integrated pLL102_adhE	This work
151_LLadhE_C258A	*S. aureus* JE2	Erm/Tet	NE114, integrated pLL102_adhE_C258A	This work
151_LL102	*S. aureus* JE2	Erm/Tet	NE114, integrated pLL102_empty	This work
JE2_LL102	*S. aureus* JE2	Tet	JE2, integrated pLL102_empty	This work
R_20_empty	*S. aureus* RN4220	Cm	pSS20_noMetRS	This work
R_20_tetR	*S. aureus* RN4220	Cm	pSS20_tetR+NLL_MetR S	This work
R_20_hprK	*S. aureus* RN4220	Cm	pSS20_hprk+NLL_Met RS	This work
R_20_agr	*S. aureus* RN4220	Cm	pSS20_agr+NLL_MetR S	This work

R_20_sarR	*S. aureus* RN4220	Cm	pSS20_sarR+NLL_MetRS	This work
JE2_20_empty	*S. aureus* JE2	Cm	pSS20_noMetRS	This work
JE2_20_tetR	*S. aureus* JE2	Cm	pSS20_tetR+NLL_MetRS	This work
JE2_20_hprk	*S. aureus* JE2	Cm	pSS20_hprk+NLL_MetRS	This work
JE2_20_agr	*S. aureus* JE2	Cm	pSS20_agr+NLL_MetRS	This work
JE2_20_sarR	*S. aureus* JE2	Cm	pSS20_sarR+NLL_MetRS	This work
NE1382	*S. aureus* JE2	Erm	Tn: SAUSA300_0594	NARSA (BEI Resources)
NE114	*S. aureus* JE2	Erm	Tn: SAUSA300_0151	NARSA (BEI Resources)
NE515	*S. aureus* JE2	Erm	Tn: SAUSA300_1330	NARSA (BEI Resources)
NE1136	*S. aureus* JE2	Erm	Tn: SAUSA300_1331	NARSA (BEI Resources)
NE1673	*S. aureus* JE2	Erm	Tn: SAUSA300_2132	NARSA (BEI Resources)
NE619	*S. aureus* JE2	Erm	Tn: SAUSA300_0307	NARSA (BEI Resources)
NE1039	*S. aureus* JE2	Erm	Tn: SAUSA300_0312	NARSA (BEI Resources)
NE1835	*S. aureus* JE2	Erm	Tn: SAUSA300_0315	NARSA (BEI Resources)
NE54	*S. aureus* JE2	Erm	Tn: SAUSA300_2375	NARSA (BEI Resources)
NE1787	*S. aureus* JE2	Erm	Tn: SAUSA300_2467	NARSA (BEI Resources)
NE47	*S. aureus* JE2	Erm	Tn: SAUSA300_1393	NARSA (BEI Resources)
Ec_20_tetR	*E. coli* DH10B	Amp	pSS20_tetR	This work
Ec_20_hprK	*E. coli* DH10B	Amp	pSS20_hprk	This work
Ec_20_agr	*E. coli* DH10B	Amp	pSS20_agr	This work

Ec_20_sarR	*E. coli* DH10B	Amp	pSS20_sarR	This work
Ec_102_adhE	*E. coli* DH10B	Spec	pLL102_adhE	This work
Ec_102_adhE_C258A	*E. coli DH10B*	Spec	pLL102_adhE_C258A	This work
Ec_102_empty	*E. coli DH10B*	Spec	pLL102_empty	This work

Supplemental Table 2. Plasmids used in Chapter 3.

Name	**Organism**	**Resistance**	**Notes**	**Reference Lab**
pmRFPmars	*E coli / S aureus*	Amp, Cm	tetracycline-inducible, mRFP, pALC2084 backbone, Addgene	Addgene plasmid # 26252
pWW412	*E coli / S aureus*	Cm	Empty complementation plasmid	Schneewind O
pSS20_empty	*E coli / S aureus*	Cm	pmRFPmars with mRFP removed	this work
pSS20_tet	*E coli / S aureus*	Amp, Cm	pmRFPmars with codon-optimized Ec NLL-MetRS inserted	this work
pSS20_hprk	*E coli / S aureus*	Amp, Cm	pmRFPmars with codon-optimized *Ec* NLL-MetRS inserted and hprK promoter instead of tetracycline	this work
pLL102	*E coli / S aureus*	Spec/Tet	chromosomal integration vector for use with pYL112Δ19	Lee CY
pYL112Δ19	*S. aureus*	Cm	integrase strain	Lee CY

Supplemental Table 3. Primers used in Chapter 3.

Name	**Sequence**
Cloning MetRS	
pSS20_insert_F	CCAGATCCTAGGAAAGGAGGATGATAAAATGAGAGGATCGCATCACCATCAC
pSS20_insert_R	GCAGAGAAACCTTGTTTTACAAGGTTTATTTAACTTGATGACCTGGTTTAGCAC
pSS20_vector_F	GTGCTAAACCAGGTCATCAAGTTAAATAAACCTTGTAAAACAAGGTTTCTCTGC
pSS20_vector_R	GTGATGGTGATGCGATCCTCTCATTTTATCATCCTCCTTTCCTAGGATCTGG
EcoRI_metrs_R	TAATGTAGAATTCGGCTTAACTGCAGAGA
SalI_hprk_F	ATTACAGTCGACGTGAGGCTCAACGTGTGAAA
KpnI_hprk_R	TGCTTGGTACCGTCCTTCTTCACCAGCGATT
Complementing AdhE and making mutants	
pLL_adhE_R	TGTCGATACCTATCAACAGATGCCGACAGTAAGACGGGTAAG
pLL_adhE_F	TGCCACATAAACTTTAAGTCGATAGAATTCGAGCTCGGTACCCG
adhE_F_pLL	CTTACCCGTCTTACTGTCGGCATCTGTTGATAGGTATCGACA
adhE_R_pLL	CGGGTACCGAGCTCGAATTCTATCGACTTAAAGTTTATGTGGCA
AdhE_C258A_F	TGCTTCTGAACAAGTTGTAGTC
AdhE_C258A_R	GCAATCATACCATTATCAAATGTTTTTG
Testing Tn insertions (with corresponding "Buster" or "Upstream" primer)(96)	
Tn_nanA_seq	GCATCAATGCCACGATGACGTA
Tn_2374_seq	TCTAAACGTTCTTTCGCACTCA
Tn_2375_seq	AGGGAGACGCATTAATTTTTGA
Tn_psuG_seq	GAACAATCAACCGATTGTAGCA
Tn_tdcB_seq	GGTGTTCGACGAATAAATGGTT
Tn_ald1_seq	TGGCGCTAATAATTCTGCTTTT
Tn_adh_seq	TTGGTGATGTTACAGGCGTTAC
Tn_1393_seq	CTGCTTCTGTACTGCGTCA
Tn_0748_seq	GGTTTATCTGGCGCAGGTAA
Tn_2132_seq	CATGCAGTTCCTAAATTAGACAGC
Tn_0307_seq	AGCAGAACTTTTGGCAAACG

Tn_adhE_seq	CAGCACACATTAAACGTGCAG
Tn_srtA_seq	GAACTCCTACATCTGTAGGCT

Testing chromosomal insertion of pLL102

OU9R10	CATACTACATATCAACGAAATCAG
scv4	ACCCAGTTTGTAATTCCAGGAG
OU9R7	ATGGGTGGTAAAACACAAATTTC
scv8	GCACATAATTGCTCACAGCCA

Supplemental Table 4: Log2 LFQ Values from skin

gene	lfq_skin 1	lfq_skin 2	lfq_skin 3	lfq_anaer1	lfq_anaer2	lfq_anaer3	lfq_aer 1	lfq_aer 2	lfq_aer 3
SAUSA300_pUSA010 001	NA	NA	NA	21.0	21.1	22.4	NA	NA	NA
NLL-MetRS	26.8	25.3	27.2	25.8	26.0	26.1	26.4	27.0	26.0
dnaA SAUSA300_0001	21.1	20.9	NA	24.2	23.2	24.2	21.6	24.0	NA
dnaN SAUSA300_0002	27.0	26.5	25.8	25.9	25.6	26.7	24.9	24.6	NA
SAUSA300_0003	23.2	23.4	NA	22.1	21.8	20.7	21.2	22.2	21.4
recF SAUSA300_0004	NA	NA	NA	18.9	18.6	19.2	NA	18.3	NA
gyrB SAUSA300_0005	22.6	22.9	22.5	25.0	24.7	24.6	21.7	24.8	22.6
gyrA SAUSA300_0006	NA	NA	NA	25.3	25.4	25.3	26.1	25.5	25.1
nnrD SAUSA300_0007	NA	NA	NA	23.3	23.4	23.4	NA	19.4	NA
serS SAUSA300_0009	25.6	28.4	26.7	27.3	27.8	28.4	25.3	26.8	25.9
SAUSA300_0014	NA	NA	NA	22.2	21.7	22.0	20.0	23.5	NA
rplI SAUSA300_0015	23.7	NA	22.2	25.8	26.1	26.5	26.4	25.1	24.4
dnaB SAUSA300_0016	NA	NA	NA	23.7	23.5	23.7	21.9	21.6	NA
purA SAUSA300_0017	NA	NA	NA	20.1	NA	20.7	19.5	23.4	19.9
walR SAUSA300_0020	NA	NA	NA	23.2	23.5	24.8	NA	NA	NA
walK SAUSA300_0021	NA	NA	NA	20.6	21.0	19.5	NA	NA	NA
SAUSA300_0022	NA	NA	NA	18.6	18.0	NA	NA	NA	NA
SAUSA300_0023	NA	NA	NA	19.6	19.1	19.8	NA	19.5	NA
adsA SAUSA300_0025	22.1	NA	NA	22.4	22.8	22.5	21.9	22.8	21.2
rlmH SAUSA300_0026	NA	NA	NA	20.5	20.1	19.9	NA	NA	NA
SAUSA300_0027	NA	NA	NA	20.4	20.9	21.1	NA	NA	NA
mecA SAUSA300_0032	23.7	24.4	NA	24.2	24.2	24.9	22.4	24.9	22.5
SAUSA300_0042	NA	NA	NA	21.7	21.4	21.9	NA	21.7	NA
SAUSA300_0044	NA	23.2	NA	NA	NA	NA	NA	NA	NA
arcB argF SAUSA300_0062	20.1	NA	NA	19.2	18.5	20.0	17.8	NA	NA
SAUSA300_0067	22.0	25.4	NA	22.5	22.5	21.8	NA	23.6	NA
SAUSA300_0070	21.9	NA	21.7	NA	NA	NA	NA	17.6	NA
SAUSA300_0073	NA	NA	NA	NA	NA	NA	NA	20.7	NA
copB SAUSA300_0078	NA	NA	NA	21.6	21.1	21.9	NA	NA	NA
SAUSA300_0079	21.2	NA	20.6	NA	NA	NA	17.2	17.0	NA
SAUSA300_0089	NA	NA	19.9	21.2	20.9	20.6	21.0	23.7	NA
SAUSA300_0093	NA	NA	NA	NA	NA	NA	NA	19.2	NA
SAUSA300_0095	NA	NA	NA	17.7	17.6	NA	16.9	NA	NA
plc SAUSA300_0099	NA	NA	NA	NA	NA	16.4	NA	NA	NA
SAUSA300_0105	NA	NA	NA	NA	18.3	19.9	NA	NA	NA
SAUSA300_0107	NA	NA	NA	NA	NA	NA	NA	17.1	NA
SAUSA300_0108	26.9	26.2	25.2	NA	NA	NA	NA	NA	NA
SAUSA300_0113	30.0	28.8	29.3	24.2	23.7	23.7	26.4	26.1	21.5
sarS SAUSA300_0114	NA	NA	NA	21.7	22.0	22.4	21.7	24.4	NA
sirA SAUSA300_0117	24.6	23.9	23.2	NA	NA	NA	22.4	22.1	NA
SAUSA300_0119	20.2	21.2	NA	NA	NA	NA	NA	NA	NA
SAUSA300_0128	NA	NA	NA	20.6	20.4	NA	NA	21.1	NA
SAUSA300_0129	26.4	25.9	26.2	24.2	24.2	24.6	23.1	21.0	NA
sodM SAUSA300_0135	19.9	20.6	NA	21.8	22.6	21.9	19.2	21.7	NA
sasD SAUSA300_0136	22.6	23.5	21.6	21.1	21.3	NA	22.2	18.5	NA
SAUSA300_0137	NA	NA	NA	NA	NA	19.4	NA	NA	NA

deoD SAUSA300_0138	NA	NA	NA	19.4	19.1	20.3	NA	NA	NA
deoC SAUSA300_0140	NA	21.5	NA	24.0	24.0	24.4	NA	NA	NA
deoB SAUSA300_0141	24.0	24.5	26.0	25.1	25.3	25.5	23.7	21.5	26.0
SAUSA300_0145	NA	NA	NA	NA	NA	NA	NA	15.7	NA
adhE SAUSA300_0151	29.7	29.4	31.7	30.6	30.9	30.6	25.0	26.5	24.7
isdI SAUSA300_0168	23.2	23.2	21.4	NA	NA	21.9	19.9	17.8	NA
SAUSA300_0172	NA	NA	NA	NA	NA	19.4	NA	NA	NA
SAUSA300_0173	NA	NA	NA	24.1	23.7	24.3	25.2	26.1	24.5
SAUSA300_0175	NA	NA	NA	NA	NA	NA	NA	18.2	NA
SAUSA300_0177	NA	NA	NA	19.3	19.1	19.7	21.7	23.2	21.9
SAUSA300_0181	NA	23.0	NA	NA	NA	NA	NA	NA	NA
ipdC SAUSA300_0190	21.9	20.7	NA	22.1	21.4	22.1	NA	20.9	NA
ptsG glcA SAUSA300_0191	24.0	23.9	NA	23.8	23.5	23.6	22.8	24.1	NA
hsdR SAUSA300_0196	NA	NA	NA	21.4	21.5	20.8	21.0	22.4	NA
azoR SAUSA300_0206	NA	NA	NA	18.8	19.3	19.2	NA	NA	NA
SAUSA300_0212	NA	20.9	19.3	21.6	21.4	21.3	19.8	20.5	18.2
SAUSA300_0214	NA	NA	NA	20.4	NA	NA	NA	NA	NA
SAUSA300_0215	NA	NA	NA	NA	NA	NA	19.4	NA	NA
SAUSA300_0217	NA	NA	NA	NA	NA	NA	NA	18.4	NA
pflB SAUSA300_0220	29.4	32.1	32.4	31.4	31.5	31.6	29.7	27.9	31.5
pflA SAUSA300_0221	25.4	24.2	NA	24.0	24.1	24.3	NA	23.5	NA
SAUSA300_0230	NA	NA	NA	21.4	21.2	20.7	NA	21.6	NA
SAUSA300_0231	NA	NA	NA	21.1	21.2	21.8	NA	20.0	NA
SAUSA300_0234	NA	21.4	NA	26.0	26.5	26.4	21.4	26.4	NA
ldh1 SAUSA300_0235	26.4	26.4	25.9	30.2	29.7	29.3	29.2	29.2	30.4
SAUSA300_0236	NA	NA	NA	19.2	19.5	19.0	NA	NA	NA
tarI SAUSA300_0245	NA	NA	NA	NA	NA	19.7	NA	NA	NA
SAUSA300_0248	NA	NA	NA	20.9	20.6	21.8	NA	17.2	NA
tarI1 SAUSA300_0249	24.6	24.3	NA	25.2	25.5	25.6	23.4	26.2	24.1
tarJ SAUSA300_0250	NA	NA	NA	23.1	23.0	22.8	23.8	22.4	NA
SAUSA300_0251	NA	NA	23.5	23.7	24.4	24.7	NA	24.5	22.3
SAUSA300_0252	23.7	23.8	23.8	24.1	24.2	24.3	23.5	23.8	NA
scdA SAUSA300_0253	24.5	23.4	21.6	24.2	23.6	25.7	22.2	21.4	22.2
lytR SAUSA300_0255	NA	NA	NA	21.0	21.4	21.3	NA	NA	NA
lrgA SAUSA300_0256	NA	NA	NA	19.8	19.1	19.2	19.6	NA	NA
SAUSA300_0261	22.6	21.8	NA	NA	NA	NA	NA	NA	NA
rbsK SAUSA300_0262	NA	NA	NA	19.8	20.6	20.7	20.0	20.8	NA
SAUSA300_0266	NA	NA	NA	21.9	21.3	22.2	NA	NA	NA
SAUSA300_0271	NA	NA	NA	NA	NA	NA	NA	18.1	NA
SAUSA300_0274	22.0	21.3	NA	21.5	21.2	21.5	24.3	24.1	26.0
esxA SAUSA300_0278	26.9	25.3	22.6	23.0	22.5	23.3	23.6	22.6	24.2
SAUSA300_0279	NA	NA	NA	21.7	21.6	21.1	21.7	22.6	NA
essB SAUSA300_0282	19.7	NA	NA	17.9	NA	17.6	19.0	19.7	NA
SAUSA300_0283	NA	NA	19.1	NA	NA	NA	NA	18.6	NA
esxB SAUSA300_0285	NA	NA	NA	NA	NA	NA	NA	18.1	NA
essD esaD SAUSA300_0288	20.6	NA	NA	NA	NA	NA	NA	18.1	NA
SAUSA300_0289	23.2	22.5	NA	21.8	21.3	21.8	NA	NA	NA
SAUSA300_0297	23.6	23.1	NA	19.9	20.2	NA	NA	NA	NA
SAUSA300_0303	NA	NA	NA	NA	NA	NA	NA	18.0	NA
SAUSA300_0307	24.0	23.8	23.3	22.8	21.5	22.9	23.1	23.4	20.6
SAUSA300_0308	NA	NA	NA	20.1	19.4	NA	NA	NA	NA
psuG SAUSA300_0312	23.1	22.9	NA	NA	NA	NA	NA	NA	NA
nanA	23.3	22.2	NA	NA	NA	NA	NA	NA	NA

SAUSA300_0315									
SAUSA300_0316	18.5	NA	NA	NA	NA	NA	NA	NA	NA
SAUSA300_0329	NA	NA	NA	21.5	21.2	20.3	NA	19.9	NA
SAUSA300_0331	NA	NA	NA	NA	NA	21.6	NA	NA	NA
SAUSA300_0345	NA	NA	NA	NA	NA	NA	17.3	20.2	NA
SAUSA300_0352	18.6	NA	NA	NA	NA	NA	NA	NA	NA
SAUSA300_0355	23.9	23.1	NA	22.9	23.1	23.0	26.4	24.2	24.8
SAUSA300_0362	NA	NA	NA	17.0	NA	NA	NA	19.8	17.8
SAUSA300_0363	NA	NA	NA	18.4	18.0	18.3	NA	18.7	NA
ychF SAUSA300_0364	20.4	20.0	NA	23.7	24.4	23.8	26.4	24.5	26.1
rpsF SAUSA300_0366	NA	NA	NA	29.2	29.1	28.8	27.1	27.8	27.9
ssb SAUSA300_0367	NA	22.6	NA	24.3	24.2	25.1	25.0	25.4	23.4
rpsR SAUSA300_0368	NA	NA	NA	19.3	19.1	19.3	18.4	23.9	NA
SAUSA300_0372	24.2	24.1	20.9	22.0	21.0	21.1	22.2	24.3	21.3
SAUSA300_0373	NA	NA	NA	21.0	20.1	21.0	NA	20.0	NA
SAUSA300_0377	21.2	21.1	NA	21.0	20.9	21.7	21.3	22.5	20.6
ahpF SAUSA300_0379	23.6	25.6	NA	24.3	24.0	24.7	22.8	23.8	22.9
ahpC SAUSA300_0380	26.4	27.0	29.7	26.5	26.1	26.2	28.4	23.2	25.2
SAUSA300_0382	NA	NA	NA	NA	NA	NA	19.8	18.3	NA
SAUSA300_0383	25.3	24.6	28.6	24.9	24.9	24.4	25.7	25.3	23.4
SAUSA300_0385	25.0	24.2	NA	NA	NA	21.1	NA	22.2	NA
xpt SAUSA300_0386	21.7	NA	NA	26.1	25.5	25.7	NA	22.4	NA
guaB SAUSA300_0388	26.8	26.7	27.4	28.2	27.8	27.8	28.8	28.7	27.1
guaA SAUSA300_0389	25.5	25.0	24.6	26.5	25.4	25.2	26.4	25.8	23.8
SAUSA300_0394	NA	NA	NA	21.6	21.9	22.8	NA	NA	NA
SAUSA300_0401	20.9	20.2	NA	NA	NA	NA	NA	NA	NA
SAUSA300_0419	NA	NA	NA	21.2	20.5	21.0	20.9	20.6	21.2
SAUSA300_0420	19.5	NA	NA	20.1	20.7	20.4	NA	18.9	NA
SAUSA300_0421	NA	NA	NA	19.0	18.9	20.4	NA	NA	NA
SAUSA300_0427	NA	NA	NA	22.8	22.8	22.9	NA	NA	NA
cysM SAUSA300_0433	NA	NA	NA	NA	NA	NA	NA	17.1	NA
metB SAUSA300_0434	NA	NA	NA	21.9	21.7	19.8	NA	NA	NA
SAUSA300_0437	NA	NA	NA	NA	NA	NA	18.1	19.3	20.3
sle1 aaa SAUSA300_0438	NA	NA	NA	NA	16.8	NA	20.5	18.7	16.6
SAUSA300_0443	NA	NA	NA	18.6	18.8	18.3	NA	NA	NA
gltB SAUSA300_0445	22.0	NA	NA	NA	NA	NA	NA	NA	NA
treP SAUSA300_0448	NA	NA	NA	20.4	21.1	21.1	20.0	21.2	NA
treC SAUSA300_0449	NA	NA	NA	20.7	21.0	22.7	NA	20.2	20.8
dnaX SAUSA300_0452	23.2	22.3	23.4	21.0	21.2	21.5	21.8	21.4	NA
SAUSA300_0453	NA	NA	NA	25.3	25.7	25.4	25.1	24.6	23.3
recR SAUSA300_0454	NA	NA	NA	18.3	18.7	18.4	NA	NA	NA
SAUSA300_0458	NA	NA	NA	NA	18.7	18.9	NA	NA	NA
tmk SAUSA300_0459	NA	NA	NA	19.2	20.8	NA	NA	NA	NA
SAUSA300_0460	21.7	21.3	NA	21.0	21.1	23.0	NA	20.1	NA
holB SAUSA300_0461	NA	NA	NA	NA	17.8	18.6	NA	19.3	NA
SAUSA300_0462	17.1	NA	NA	17.0	17.4	NA	NA	19.6	NA
SAUSA300_0463	NA	NA	NA	NA	NA	17.3	NA	NA	NA
SAUSA300_0464	NA	NA	NA	20.0	20.2	19.9	NA	18.5	NA
metS metG SAUSA300_0467	23.8	NA	NA	25.7	26.2	26.3	25.2	26.5	24.8
SAUSA300_0468	NA	NA	NA	22.1	22.0	21.8	NA	22.5	NA
rnmV SAUSA300_0469	NA	NA	NA	19.4	19.6	19.4	NA	17.5	NA
rsmA ksgA SAUSA300_0470	NA	NA	NA	22.3	22.3	22.8	NA	NA	NA
ispE SAUSA300_0472	NA	NA	NA	21.4	20.9	21.0	NA	NA	NA
purR SAUSA300_0473	20.4	NA	NA	24.0	24.1	24.3	23.6	22.2	23.9

SAUSA300_0474	19.9	20.1	NA	19.7	20.3	20.3	NA	NA	NA
spoVG SAUSA300_0475	25.9	25.5	NA	23.1	22.8	22.0	23.5	20.3	21.7
glmU SAUSA300_0477	21.7	21.5	NA	23.6	23.5	23.5	22.9	23.3	NA
prs SAUSA300_0478	25.1	24.3	NA	25.3	24.9	25.6	24.2	25.7	24.1
rplY ctc SAUSA300_0479	25.5	25.2	22.1	23.7	22.8	23.1	29.9	28.7	31.3
pth SAUSA300_0480	NA	NA	NA	19.6	19.5	20.1	NA	19.6	NA
mfd SAUSA300_0481	NA	NA	NA	21.1	20.9	20.7	NA	20.3	NA
SAUSA300_0483	NA	NA	NA	NA	NA	NA	20.3	19.7	NA
SAUSA300_0484	NA	NA	NA	22.3	22.4	22.3	20.0	21.6	22.9
SAUSA300_0485	NA	NA	NA	20.0	20.4	20.8	NA	20.8	NA
SAUSA300_0486	18.8	NA	21.6	23.2	22.9	21.8	23.1	24.6	NA
hpt SAUSA300_0488	23.7	24.0	NA	25.1	25.4	22.8	23.0	24.4	24.7
ftsH SAUSA300_0489	23.8	23.9	23.5	25.8	26.0	26.0	26.5	27.1	28.2
hslO SAUSA300_0490	NA	NA	NA	23.3	22.9	23.4	22.4	22.6	21.1
cysK SAUSA300_0491	24.5	24.7	NA	26.1	26.0	26.2	28.3	29.1	29.0
folP SAUSA300_0492	NA	NA	NA	20.1	20.4	21.5	20.9	21.8	NA
lysS SAUSA300_0496	27.1	26.2	25.7	26.5	27.0	26.8	27.1	26.1	25.4
SAUSA300_0503	NA	NA	NA	NA	19.5	20.1	NA	NA	NA
pdxS SAUSA300_0504	24.3	NA	25.4	27.3	27.7	28.0	24.5	25.7	21.1
pdxT SAUSA300_0505	NA	NA	NA	24.3	24.6	24.7	23.5	22.5	NA
nupC SAUSA300_0506	21.6	21.7	NA	16.2	17.2	16.5	16.9	20.5	NA
ctsR SAUSA300_0507	NA	NA	NA	21.4	21.0	20.9	NA	18.2	NA
SAUSA300_0508	NA	NA	NA	NA	NA	NA	NA	18.6	NA
mcsB SAUSA300_0509	NA	NA	NA	20.0	21.1	NA	20.8	18.8	NA
clpC SAUSA300_0510	28.8	28.8	28.0	25.0	24.7	25.0	26.1	25.1	25.3
radA SAUSA300_0511	NA	NA	NA	NA	NA	NA	NA	21.9	NA
SAUSA300_0512	NA	NA	NA	21.9	21.7	22.3	NA	NA	NA
gltX SAUSA300_0513	25.9	25.1	NA	25.8	25.9	26.1	25.4	26.4	NA
cysE SAUSA300_0514	20.6	20.0	NA	21.0	20.1	18.8	NA	NA	NA
cysS SAUSA300_0515	23.1	23.5	NA	25.5	25.2	25.7	23.5	22.9	24.9
mrnC SAUSA300_0516	NA	NA	NA	NA	NA	16.8	NA	NA	NA
SAUSA300_0517	20.7	NA	NA	23.0	23.9	24.2	21.3	24.3	22.6
SAUSA300_0518	NA	NA	NA	20.8	21.0	21.1	NA	21.5	NA
nusG SAUSA300_0521	NA	NA	NA	23.6	24.2	25.3	25.2	23.1	25.4
rplK SAUSA300_0522	24.6	26.0	NA	24.6	24.4	24.6	26.7	26.8	28.3
rplA SAUSA300_0523	26.3	26.0	24.8	26.7	26.8	27.4	27.9	28.1	29.8
rplJ SAUSA300_0524	27.1	26.8	NA	25.7	25.8	25.9	28.9	29.3	29.6
rplL SAUSA300_0525	26.3	25.2	26.6	25.8	25.1	27.4	30.9	29.1	29.8
SAUSA300_0526	NA	NA	NA	18.1	18.5	19.2	NA	NA	NA
rpoB SAUSA300_0527	27.5	26.6	23.8	28.1	28.2	28.4	27.9	28.4	27.7
rpoC SAUSA300_0528	26.4	26.2	27.0	28.6	29.0	29.1	28.2	28.5	28.0
rpsL SAUSA300_0530	27.2	25.5	25.6	24.0	24.1	23.5	26.4	27.7	25.4
rpsG SAUSA300_0531	22.6	24.9	NA	25.8	25.4	25.7	28.2	24.9	29.5
fusA SAUSA300_0532	28.7	28.6	30.0	30.4	30.1	30.2	30.9	31.0	31.2
tuf SAUSA300_0533	29.4	30.9	31.0	31.7	31.7	31.3	33.2	29.8	32.7
SAUSA300_0534	NA	NA	NA	21.6	21.6	21.6	NA	NA	NA
SAUSA300_0535	25.4	23.1	NA	24.8	24.6	24.4	23.9	25.4	22.1
hchA SAUSA300_0536	24.8	23.8	23.9	23.9	24.2	24.5	26.4	25.8	26.6
araB SAUSA300_0537	NA	NA	NA	NA	18.1	NA	NA	NA	NA
SAUSA300_0538	NA	NA	NA	21.0	20.7	21.2	NA	19.3	23.8
ilvE SAUSA300_0539	21.9	22.1	NA	23.2	22.8	23.1	23.5	22.7	22.5
SAUSA300_0540	NA	NA	NA	21.3	20.9	21.4	NA	NA	NA
SAUSA300_0541	NA	NA	NA	22.7	22.0	22.2	NA	NA	NA

SAUSA300_0542	NA	NA	NA	20.5	20.4	19.6	NA	NA	NA
SAUSA300_0544	22.2	22.3	22.8	24.7	24.4	23.8	21.7	23.7	21.8
azo1 SAUSA300_0545	20.1	19.1	NA	NA	NA	NA	NA	NA	NA
sdrD SAUSA300_0547	19.4	24.7	27.2	NA	NA	NA	22.8	22.2	23.0
sdrE SAUSA300_0548	NA	19.8	NA	19.7	NA	19.3	19.2	20.2	NA
SAUSA300_0549	18.7	NA	18.3	NA	NA	NA	17.3	18.2	NA
SAUSA300_0550	NA	NA	NA	22.1	22.5	22.9	21.4	20.7	NA
folE2 SAUSA300_0551	19.6	22.1	19.6	19.3	19.4	19.8	24.1	23.1	21.0
SAUSA300_0552	NA	NA	NA	19.6	19.2	19.3	NA	NA	NA
nagB SAUSA300_0554	NA	NA	NA	21.3	21.7	21.9	NA	21.1	NA
SAUSA300_0555	23.6	23.5	23.8	23.4	23.6	22.9	24.3	24.3	27.6
SAUSA300_0556	21.0	19.4	NA	NA	NA	NA	NA	NA	NA
SAUSA300_0557	20.1	20.0	NA	21.0	21.3	21.9	23.1	18.2	NA
thiD SAUSA300_0562	23.5	22.6	25.7	23.7	23.8	24.6	24.6	25.0	25.9
ung SAUSA300_0563	NA	NA	NA	19.4	19.7	20.7	NA	20.4	NA
SAUSA300_0564	NA	NA	NA	19.2	19.1	18.2	17.8	17.3	NA
SAUSA300_0566	NA	NA	NA	NA	NA	NA	17.6	18.7	NA
SAUSA300_0568	NA	NA	NA	18.3	18.2	NA	NA	NA	NA
SAUSA300_0569	23.4	23.2	23.1	22.4	22.8	23.4	23.8	22.9	25.6
pta SAUSA300_0570	23.7	23.8	NA	25.4	25.9	26.3	26.9	26.2	26.5
mvk SAUSA300_0572	NA	NA	NA	21.2	21.2	21.8	NA	NA	NA
mvaD SAUSA300_0573	NA	NA	NA	NA	NA	19.7	NA	20.9	NA
SAUSA300_0574	NA	NA	NA	23.2	22.4	22.5	NA	21.1	NA
SAUSA300_0576	NA	NA	NA	20.4	20.9	21.3	NA	20.3	NA
SAUSA300_0589	22.2	21.9	NA	20.7	20.0	20.5	NA	20.8	NA
SAUSA300_0593	NA	NA	NA	16.5	16.5	16.9	15.6	20.3	NA
adh SAUSA300_0594	31.8	31.1	30.6	30.2	30.3	30.0	28.2	27.4	31.0
argS SAUSA300_0596	23.7	23.5	NA	25.6	25.5	25.8	26.8	25.6	NA
SAUSA300_0598	NA	NA	NA	NA	NA	NA	NA	18.4	NA
SAUSA300_0600	NA	NA	NA	21.5	21.3	21.6	NA	20.7	NA
SAUSA300_0601	23.2	23.2	NA	22.1	22.6	23.3	20.5	22.4	20.8
SAUSA300_0602	23.4	24.0	21.5	NA	20.4	NA	20.5	20.6	18.8
sarA SAUSA300_0605	26.0	24.3	25.4	21.3	21.5	21.8	24.4	22.1	24.3
SAUSA300_0617	NA	NA	NA	20.3	19.4	19.8	NA	18.0	NA
SAUSA300_0618	27.0	27.3	25.5	25.5	26.2	26.0	25.4	26.7	27.0
SAUSA300_0620	21.1	NA	NA	19.8	19.8	21.0	20.4	18.6	19.3
SAUSA300_0621	NA	NA	NA	22.4	22.2	22.7	NA	NA	NA
tagH SAUSA300_0624	22.6	22.0	NA	23.4	23.4	23.7	NA	NA	NA
tagG SAUSA300_0625	NA	NA	NA	18.8	18.3	NA	NA	NA	NA
tagB SAUSA300_0626	NA	NA	NA	20.3	20.8	20.4	18.9	18.0	NA
tagX SAUSA300_0627	NA	NA	NA	22.2	22.3	22.8	NA	NA	NA
SAUSA300_0628	NA	NA	NA	21.4	21.5	20.6	NA	17.8	NA
pbp4 SAUSA300_0629	NA	NA	NA	20.2	20.2	19.7	NA	21.0	NA
SAUSA300_0630	22.8	22.5	NA	22.6	22.1	21.7	23.1	23.5	NA
SAUSA300_0632	NA	NA	NA	NA	NA	NA	NA	19.6	NA
fhuA SAUSA300_0633	21.1	23.5	NA	NA	NA	24.0	NA	NA	NA
SAUSA300_0636	NA	NA	NA	20.9	20.9	21.2	NA	20.2	18.8
SAUSA300_0637	19.9	19.7	NA	NA	NA	NA	NA	NA	NA
SAUSA300_0641	NA	NA	NA	NA	NA	NA	NA	17.1	NA
SAUSA300_0648	NA	NA	NA	NA	NA	NA	NA	17.6	NA
SAUSA300_0649	22.2	22.6	NA	25.9	25.0	24.8	NA	NA	NA
SAUSA300_0655	22.8	23.5	NA	23.1	23.4	24.2	22.2	23.1	21.7
SAUSA300_0658	NA	21.7	NA	20.1	19.7	19.6	NA	NA	NA
SAUSA300_0662	NA	NA	NA	NA	18.1	18.2	NA	21.2	NA
SAUSA300_0664	NA	NA	NA	24.9	24.6	25.0	NA	NA	NA
SAUSA300_0666	22.5	NA	NA	22.5	23.2	22.0	21.7	20.6	NA
SAUSA300_0668	26.3	NA	23.0	21.7	22.0	22.3	20.5	24.3	22.0
uppP SAUSA300_0669	18.3	NA	NA	19.5	20.5	20.5	21.8	23.1	19.3

SAUSA300_0672	27.5	27.0	27.4	26.5	26.6	27.1	26.9	24.8	25.4
SAUSA300_0674	NA	NA	NA	19.1	NA	20.2	NA	NA	NA
SAUSA300_0676	NA	NA	NA	18.1	18.6	17.8	NA	NA	NA
SAUSA300_0683	NA	NA	NA	23.2	23.1	23.5	NA	21.5	NA
fruB SAUSA300_0684	20.6	20.0	NA	26.6	26.1	26.2	NA	NA	24.4
fruA SAUSA300_0685	24.4	24.4	26.2	25.1	25.6	25.4	24.1	25.1	26.0
nagA SAUSA300_0686	NA	NA	NA	22.3	22.4	22.9	NA	NA	NA
SAUSA300_0688	23.0	23.6	NA	22.7	23.3	24.0	20.0	22.3	22.4
saeS SAUSA300_0690	NA	NA	NA	22.1	21.8	21.7	22.1	21.2	NA
saeR SAUSA300_0691	NA	NA	NA	21.8	21.8	21.9	20.8	22.1	NA
SAUSA300_0692	21.5	22.2	NA	22.3	22.5	23.0	NA	21.0	NA
SAUSA300_0693	22.7	24.8	NA	23.1	22.9	23.2	20.4	24.5	NA
queE SAUSA300_0695	NA	NA	NA	22.2	22.5	22.9	NA	NA	NA
SAUSA300_0696	22.6	23.2	NA	23.8	23.9	24.2	NA	21.7	NA
queC SAUSA300_0697	21.2	NA	NA	25.1	26.2	25.2	22.7	23.3	NA
SAUSA300_0699	NA	NA	NA	17.3	17.2	16.1	NA	16.0	NA
SAUSA300_0701	NA	NA	NA	23.1	23.0	22.3	19.3	NA	NA
SAUSA300_0702	NA	NA	NA	22.1	21.2	22.0	22.3	NA	NA
ltaS SAUSA300_0703	22.2	NA	NA	21.8	21.3	22.6	20.9	20.1	21.5
SAUSA300_0704	NA	NA	21.2	20.8	20.2	20.9	NA	20.9	NA
SAUSA300_0707	NA	NA	NA	20.3	21.2	21.7	NA	18.4	NA
SAUSA300_0709	NA	NA	NA	NA	NA	NA	NA	16.7	NA
queF SAUSA300_0713	NA	NA	NA	20.8	20.3	21.2	NA	NA	NA
SAUSA300_0716	23.9	23.5	NA	25.5	25.8	26.2	25.2	24.0	24.6
SAUSA300_0717	21.2	23.6	NA	25.0	25.2	25.3	22.6	25.1	23.7
SAUSA300_0721	22.8	23.5	NA	NA	NA	NA	22.5	23.8	22.0
murB SAUSA300_0722	22.1	22.5	NA	23.0	22.9	23.2	NA	22.4	NA
SAUSA300_0724	NA	NA	NA	NA	NA	NA	NA	18.2	NA
SAUSA300_0726	NA	NA	NA	21.5	21.9	22.7	NA	20.4	NA
pepT SAUSA300_0727	NA	NA	NA	18.9	18.7	NA	18.0	17.3	NA
SAUSA300_0730	NA	NA	NA	20.9	20.2	20.5	NA	20.1	NA
SAUSA300_0733	22.3	22.3	NA	22.5	22.4	22.5	NA	21.4	NA
hpf SAUSA300_0736	27.1	25.7	27.1	24.4	23.9	23.0	23.5	24.0	21.8
secA1 SAUSA300_0737	25.2	25.1	23.9	27.1	27.0	27.4	26.5	25.6	23.6
SAUSA300_0740	NA	NA	NA	NA	NA	NA	NA	18.9	NA
uvrB SAUSA300_0741	NA	NA	NA	21.9	22.3	23.1	20.2	22.0	NA
uvrA SAUSA300_0742	23.8	25.2	NA	25.3	25.3	25.0	23.0	23.2	NA
hprK SAUSA300_0743	21.0	22.0	NA	21.3	21.5	21.4	NA	22.6	21.3
trxB SAUSA300_0747	24.5	24.7	NA	26.3	26.5	27.4	24.8	25.0	24.7
SAUSA300_0748	NA	NA	NA	22.6	22.0	22.9	NA	NA	NA
SAUSA300_0749	NA	NA	NA	19.3	19.7	20.8	NA	NA	NA
whiA SAUSA300_0750	NA	NA	NA	NA	NA	NA	NA	19.9	NA
clpP SAUSA300_0752	24.5	25.9	NA	NA	NA	NA	17.8	22.1	23.8
SAUSA300_0753	NA	NA	NA	20.6	20.7	21.3	NA	NA	NA
SAUSA300_0754	NA	NA	NA	NA	NA	NA	NA	16.2	NA
SAUSA300_0755	22.3	NA	NA	21.8	22.3	22.8	20.8	23.0	20.3
gap SAUSA300_0756	28.0	28.0	27.0	29.3	29.6	28.7	31.4	30.4	31.8
pgk SAUSA300_0757	25.4	25.5	NA	26.7	26.7	27.7	28.2	27.7	30.4
tpiA SAUSA300_0758	26.5	24.6	21.6	29.5	29.9	30.3	28.1	28.8	28.4
gpmI SAUSA300_0759	27.3	27.3	NA	27.3	28.0	27.0	26.1	28.0	26.4
eno SAUSA300_0760	24.4	25.6	NA	29.8	29.7	30.0	31.2	30.7	32.8
SAUSA300_0761	22.3	NA	NA	NA	NA	NA	NA	NA	NA
secG SAUSA300_0762	NA	19.8	NA	21.1	20.2	20.8	NA	NA	NA
est SAUSA300_0763	NA	NA	NA	21.7	21.3	21.3	NA	NA	NA

rnr SAUSA300_0764	NA	NA	23.7	23.7	23.3	23.5	23.0	23.1	NA
smpB SAUSA300_0765	NA	NA	NA	18.2	18.9	NA	NA	NA	NA
SAUSA300_0767	NA	NA	NA	20.4	20.5	21.0	NA	NA	NA
SAUSA300_0769	NA	NA	NA	22.2	22.9	22.5	22.1	24.2	16.8
SAUSA300_0770	NA	NA	NA	21.5	21.6	23.0	NA	NA	NA
clfA SAUSA300_0772	20.9	19.7	21.5	NA	NA	NA	20.1	18.7	17.1
nuc SAUSA300_0776	NA	NA	NA	18.8	NA	17.6	NA	18.3	NA
SAUSA300_0777	23.3	26.4	NA	24.4	24.6	23.3	NA	25.1	NA
SAUSA300_0781	NA	19.3	NA	NA	NA	NA	NA	NA	NA
SAUSA300_0789	23.6	23.1	NA	24.1	23.8	23.8	23.6	21.8	NA
SAUSA300_0790	23.3	23.7	22.5	23.2	22.7	24.3	22.7	21.7	NA
gcvH SAUSA300_0791	22.5	22.2	21.1	21.4	20.9	21.8	28.3	26.1	NA
SAUSA300_0793	NA	NA	NA	22.5	22.7	23.8	NA	NA	NA
SAUSA300_0798	NA	NA	NA	NA	NA	NA	20.0	21.1	20.7
int SAUSA300_0799	NA	NA	NA	NA	NA	NA	NA	18.8	NA
SAUSA300_0812	18.4	NA	NA	19.7	19.9	20.3	NA	22.5	NA
SAUSA300_0814	NA	NA	NA	NA	NA	NA	NA	19.7	NA
SAUSA300_0816	26.6	26.4	27.8	22.2	23.5	23.3	22.5	23.3	20.0
sufC SAUSA300_0818	NA	20.9	NA	24.6	23.9	24.5	22.9	25.8	25.1
sufD SAUSA300_0819	22.5	NA	NA	23.3	23.2	23.0	24.1	25.2	NA
sufS SAUSA300_0820	NA	NA	NA	22.4	22.2	21.4	NA	NA	NA
SAUSA300_0821	NA	NA	NA	19.6	20.2	19.2	19.9	19.3	NA
SAUSA300_0822	24.7	24.4	NA	23.4	23.1	23.4	24.9	24.2	23.9
SAUSA300_0826	NA	NA	NA	NA	NA	19.3	NA	NA	NA
lipA SAUSA300_0829	NA	NA	NA	23.1	23.4	23.1	23.5	24.5	22.0
SAUSA300_0832	21.2	19.2	NA	17.2	17.5	NA	19.7	18.8	NA
nagD SAUSA300_0833	24.4	24.6	NA	24.2	24.2	24.2	24.8	23.8	22.2
SAUSA300_0834	NA	NA	NA	22.1	21.9	21.5	NA	NA	NA
dltA SAUSA300_0835	23.5	24.0	22.0	23.3	23.4	23.0	23.7	23.6	NA
dltC SAUSA300_0837	21.1	22.0	NA	23.1	23.2	22.7	NA	NA	NA
dltD SAUSA300_0838	21.8	NA	NA	22.7	22.5	22.4	22.8	24.2	21.3
SAUSA300_0839	NA	NA	NA	20.5	19.9	20.6	NA	NA	NA
SAUSA300_0841	NA	NA	NA	21.8	20.4	20.9	NA	NA	NA
SAUSA300_0843	NA	NA	NA	NA	NA	NA	NA	20.4	NA
SAUSA300_0844	26.9	26.2	26.1	24.9	25.0	25.1	26.7	24.6	26.1
ampA SAUSA300_0845	NA	NA	NA	23.3	23.3	23.8	21.7	20.6	NA
mnhG1 SAUSA300_0849	NA	NA	NA	21.5	21.1	20.9	NA	NA	NA
mnhD1 SAUSA300_0852	NA	NA	NA	21.7	21.4	21.2	NA	NA	NA
mnhC1 SAUSA300_0853	NA	NA	NA	17.9	19.5	NA	NA	NA	NA
SAUSA300_0856	NA	NA	NA	20.9	20.9	21.6	NA	NA	NA
SAUSA300_0857	22.5	22.6	26.8	21.9	22.1	23.7	25.1	23.2	23.1
SAUSA300_0859	NA	19.5	NA	21.1	21.1	21.4	21.0	20.0	25.3
rocD argD SAUSA300_0860	19.9	20.4	NA	NA	19.9	20.0	NA	NA	NA
gudB SAUSA300_0861	22.6	22.1	23.1	23.9	24.4	24.5	23.7	23.2	23.8
glpQ SAUSA300_0862	22.1	21.6	NA	NA	NA	NA	NA	NA	NA
argG SAUSA300_0864	20.9	21.2	NA	21.4	NA	NA	NA	18.4	NA
pgi SAUSA300_0865	27.4	27.3	27.3	27.3	27.3	27.7	28.4	27.7	28.7
spsB SAUSA300_0868	23.0	NA	NA	23.9	24.4	25.0	23.5	23.7	21.6
addB rexB SAUSA300_0869	NA	NA	NA	NA	NA	NA	NA	17.7	NA
addA rexA SAUSA300_0870	NA	NA	NA	18.3	18.5	18.9	NA	17.8	NA
SAUSA300_0871	26.7	26.4	26.2	25.6	25.1	25.9	24.6	26.0	26.2
cdr SAUSA300_0873	24.1	23.1	NA	25.1	24.3	24.4	24.3	24.7	NA
SAUSA300_0874	NA	NA	NA	21.9	22.0	22.4	NA	22.7	NA

clpB SAUSA300_0877	29.6	27.1	29.0	24.4	23.6	23.8	24.6	24.9	24.0
SAUSA300_0882	NA	NA	NA	18.0	18.7	17.8	NA	NA	NA
fabH SAUSA300_0885	23.4	24.0	NA	25.7	25.9	26.0	24.9	26.7	24.0
fabF SAUSA300_0886	24.6	24.1	NA	25.9	25.2	26.3	25.6	24.9	26.1
trpS SAUSA300_0897	22.9	22.3	NA	22.6	22.6	23.9	22.1	25.5	22.9
spxA SAUSA300_0898	NA	NA	NA	NA	17.4	18.5	NA	18.3	20.0
mecA SAUSA300_0899	NA	NA	NA	22.5	22.5	23.0	NA	18.8	NA
pepF SAUSA300_0902	24.9	25.1	NA	25.2	25.2	25.0	25.1	23.4	NA
SAUSA300_0905	NA	21.3	NA	20.0	20.0	20.1	21.4	17.9	NA
SAUSA300_0907	NA	NA	NA	20.3	NA	20.3	NA	NA	NA
nadK SAUSA300_0908	NA	NA	NA	20.9	21.5	21.6	19.6	21.2	NA
SAUSA300_0912	22.9	22.3	22.2	26.5	26.7	26.8	25.9	27.2	23.2
SAUSA300_0913	NA	NA	NA	21.8	21.4	21.2	18.0	21.6	NA
SAUSA300_0916	23.5	25.0	NA	23.8	23.7	24.2	NA	24.7	NA
murE SAUSA300_0919	22.3	NA	NA	24.2	23.9	23.5	24.4	23.4	NA
prfC SAUSA300_0921	21.6	21.2	NA	25.4	25.5	26.8	23.0	24.0	24.4
SAUSA300_0923	24.4	NA	NA	24.4	24.4	24.4	23.3	23.9	22.6
SAUSA300_0925	NA	20.3	NA	20.0	19.3	NA	NA	NA	NA
SAUSA300_0930	NA	NA	NA	23.5	23.1	23.5	24.7	24.8	NA
SAUSA300_0938	23.3	NA	NA	NA	NA	NA	20.4	19.6	20.7
SAUSA300_0939	22.9	23.0	NA	22.4	21.8	22.2	24.6	23.4	21.1
menA SAUSA300_0944	NA	NA	NA	21.2	20.8	20.8	NA	20.3	NA
menD SAUSA300_0946	NA	NA	NA	19.9	20.8	21.3	18.2	21.8	NA
menB SAUSA300_0948	28.2	NA	NA	24.1	24.3	25.0	23.1	22.0	26.0
atl SAUSA300_0955	23.9	24.3	25.2	24.0	23.8	23.7	24.0	24.2	21.9
SAUSA300_0958	NA	NA	NA	22.9	23.0	23.7	NA	23.1	NA
fmt SAUSA300_0959	22.7	NA	NA	24.0	24.3	24.5	23.7	21.8	NA
qoxC SAUSA300_0961	NA	NA	NA	22.3	22.3	21.9	NA	22.6	14.9
qoxB SAUSA300_0962	NA	NA	NA	23.3	22.5	22.8	23.2	23.2	27.7
qoxA SAUSA300_0963	28.2	28.2	24.8	24.6	24.8	24.7	24.3	25.7	24.8
folD SAUSA300_0965	24.2	23.9	23.5	23.2	23.2	23.3	22.4	23.4	NA
purC SAUSA300_0968	19.7	18.8	NA	NA	NA	NA	NA	NA	NA
purS SAUSA300_0969	NA	NA	NA	NA	16.8	16.4	19.2	17.2	NA
purL SAUSA300_0971	20.6	20.8	NA	NA	NA	19.0	NA	18.3	NA
purH SAUSA300_0975	19.9	NA	NA	20.5	20.0	21.8	19.0	18.4	NA
purD SAUSA300_0976	NA	NA	NA	NA	NA	NA	NA	18.1	19.1
SAUSA300_0980	NA	NA	NA	21.7	22.0	21.9	NA	20.5	NA
SAUSA300_0981	NA	NA	NA	21.5	21.3	22.1	NA	NA	NA
SAUSA300_0982	24.6	25.0	NA	21.9	NA	21.7	18.7	23.4	21.7
ptsH SAUSA300_0983	26.5	27.2	NA	24.6	24.8	25.1	23.1	22.7	26.2
ptsI SAUSA300_0984	26.0	25.8	24.3	24.8	25.0	25.7	25.3	26.3	25.6
SAUSA300_0986	NA	NA	19.0	NA	NA	NA	NA	19.7	NA
trkA SAUSA300_0988	NA	NA	NA	NA	NA	20.0	NA	NA	NA
rnj1 SAUSA300_0989	23.6	22.7	NA	24.6	25.1	25.1	25.4	26.2	24.3
def SAUSA300_0991	NA	NA	NA	24.7	24.6	25.0	23.7	22.6	23.5
SAUSA300_0992	22.2	NA	NA	NA	NA	NA	21.1	22.6	21.5
pdhA SAUSA300_0993	25.8	25.1	28.3	26.8	27.0	26.7	28.5	29.9	29.4
pdhB SAUSA300_0994	NA	21.9	NA	28.1	27.8	26.9	31.6	29.6	30.0
SAUSA300_0995	26.6	26.0	NA	27.7	27.8	27.7	28.9	28.6	25.3
lpdA SAUSA300_0996	25.5	25.9	25.0	27.3	27.2	27.0	29.3	28.8	29.5

SAUSA300_0997	NA	NA	NA	19.7	19.6	18.8	NA	NA	NA
SAUSA300_0998	NA	NA	NA	16.6	17.0	16.0	17.9	17.4	NA
potA SAUSA300_0999	NA	NA	NA	NA	NA	NA	19.5	19.4	NA
potD SAUSA300_1002	NA	NA	NA	NA	NA	19.1	NA	NA	NA
SAUSA300_1003	23.3	21.4	NA	21.8	21.5	22.3	22.3	21.0	22.2
SAUSA300_1004	NA	NA	NA	20.6	20.2	20.3	NA	19.6	NA
SAUSA300_1006	NA	NA	20.5	19.9	20.1	19.7	NA	21.1	21.1
SAUSA300_1007	21.2	NA	NA	NA	NA	NA	NA	20.9	NA
typA SAUSA300_1009	23.7	NA	25.3	25.3	25.4	25.0	25.5	25.9	24.6
SAUSA300_1011	NA	NA	NA	20.3	20.2	20.4	21.6	20.3	NA
pyc SAUSA300_1014	25.1	24.0	23.5	22.5	23.7	23.6	24.3	23.9	21.9
SAUSA300_1020	NA	NA	NA	20.6	19.9	20.3	NA	NA	NA
SAUSA300_1021	NA	NA	NA	19.7	19.5	19.1	NA	NA	NA
SAUSA300_1023	NA	NA	NA	NA	NA	NA	18.1	19.4	NA
coaD SAUSA300_1024	NA	NA	NA	22.3	21.9	22.3	NA	NA	NA
SAUSA300_1026	NA	NA	NA	21.8	21.9	22.3	19.8	23.1	21.1
rpmF SAUSA300_1027	20.6	20.0	23.6	23.3	23.3	22.6	18.7	22.1	17.5
isdB SAUSA300_1028	29.3	29.4	26.2	NA	NA	24.0	25.6	NA	NA
isdA frpA stbA SAUSA300_1029	27.2	25.8	24.3	22.6	NA	21.9	23.3	24.0	NA
isdC sirD SAUSA300_1030	19.8	19.5	NA	NA	NA	NA	NA	NA	NA
isdG SAUSA300_1035	21.8	20.7	NA	NA	NA	NA	NA	NA	NA
SAUSA300_1036	21.6	NA	NA	19.9	20.5	19.2	20.9	21.3	21.9
pheS SAUSA300_1037	24.8	NA	NA	25.0	24.3	25.1	24.5	25.0	25.1
pheT SAUSA300_1038	23.0	24.7	NA	25.7	25.5	26.5	25.1	22.8	NA
rnhC SAUSA300_1039	NA	NA	NA	NA	NA	NA	NA	18.3	NA
SAUSA300_1042	NA	NA	NA	18.3	18.9	19.5	18.0	21.1	NA
mutS2 SAUSA300_1043	NA	NA	21.3	21.9	21.7	22.0	20.5	21.7	NA
trxA SAUSA300_1044	25.2	24.7	24.2	19.8	19.8	19.6	23.1	21.3	NA
sdhA SAUSA300_1047	22.0	20.5	NA	23.6	23.5	23.1	22.8	22.2	NA
sdhB SAUSA300_1048	NA	NA	NA	19.9	19.3	20.8	21.0	22.2	NA
murI SAUSA300_1049	NA	NA	NA	22.4	22.3	22.7	22.4	21.7	NA
SAUSA300_1050	23.0	22.3	22.7	22.7	22.2	22.0	NA	20.7	NA
SAUSA300_1057	22.1	22.5	23.2	19.7	18.9	17.8	NA	NA	NA
hla SAUSA300_1058	20.7	20.0	NA	19.7	19.5	19.5	NA	18.3	NA
argF SAUSA300_1062	26.6	27.7	26.4	25.2	25.4	26.7	NA	NA	NA
arcC1 SAUSA300_1063	27.4	27.2	25.7	20.8	20.5	22.6	23.9	19.1	19.9
SAUSA300_1064	23.3	26.0	23.4	NA	19.8	20.8	NA	NA	NA
SAUSA300_1070	NA	20.1	NA	NA	NA	NA	NA	NA	NA
bshC SAUSA300_1071	19.0	NA	NA	22.9	21.6	23.6	NA	NA	NA
rsmH mraW SAUSA300_1073	NA	NA	NA	22.5	23.1	22.6	NA	NA	NA
ftsL SAUSA300_1074	NA	NA	NA	NA	NA	NA	NA	19.5	NA
pbpA SAUSA300_1075	22.6	NA	21.9	21.9	21.4	22.0	21.3	21.0	21.0
murD SAUSA300_1077	NA	NA	NA	22.7	23.5	24.1	20.9	23.5	21.7
divIB SAUSA300_1078	20.5	20.8	NA	21.0	21.5	22.2	NA	20.8	19.6
ftsA SAUSA300_1079	26.3	25.3	NA	23.6	23.6	23.7	25.9	24.8	NA
ftsZ SAUSA300_1080	29.8	29.4	26.9	29.0	28.7	29.0	28.0	28.6	27.1
SAUSA300_1082	NA	NA	NA	21.4	21.3	21.3	NA	NA	NA
sepF SAUSA300_1083	NA	NA	21.7	21.8	21.5	21.3	NA	NA	NA
SAUSA300_1086	22.8	22.7	NA	21.0	21.3	20.8	22.6	23.6	22.7
ileS SAUSA300_1087	25.9	26.5	NA	27.3	27.3	27.0	25.5	27.5	26.7

SAUSA300_1090	NA	NA	NA	24.9	24.6	24.9	23.2	24.5	NA
pyrR SAUSA300_1091	NA	NA	NA	NA	NA	NA	19.6	21.4	20.2
pyrP SAUSA300_1092	NA	NA	NA	NA	NA	NA	17.4	23.6	NA
pyrB SAUSA300_1093	NA	NA	NA	NA	NA	NA	26.1	26.5	24.9
pyrC SAUSA300_1094	23.0	23.9	20.3	NA	NA	22.2	27.7	27.1	29.0
carA SAUSA300_1095	NA	NA	NA	NA	NA	NA	23.9	22.7	21.6
carB SAUSA300_1096	24.1	NA	22.7	NA	23.9	24.1	28.0	28.9	27.4
pyrF SAUSA300_1097	NA	NA	NA	NA	NA	NA	22.6	22.7	21.8
pyrE SAUSA300_1098	NA	NA	NA	NA	NA	NA	23.9	23.3	17.1
SAUSA300_1101	NA	NA	NA	21.2	21.2	20.0	23.6	19.7	NA
gmk SAUSA300_1102	20.3	21.2	NA	25.5	25.6	25.6	22.8	24.3	17.7
rpoZ SAUSA300_1103	23.2	23.5	NA	25.0	25.5	26.1	23.0	25.5	24.3
coaBC SAUSA300_1104	NA	NA	25.6	22.9	22.3	23.2	NA	23.1	NA
priA SAUSA300_1105	NA	NA	NA	19.2	19.7	19.2	NA	NA	NA
def SAUSA300_1108	NA	NA	NA	NA	NA	NA	NA	17.8	NA
fmt SAUSA300_1109	NA	NA	NA	21.9	21.8	22.5	NA	20.9	NA
sun SAUSA300_1110	NA	NA	21.2	20.7	20.1	20.8	NA	NA	NA
rlmN SAUSA300_1111	NA	23.2	NA	23.1	23.2	23.2	24.2	22.4	20.2
SAUSA300_1112	NA	NA	NA	24.9	24.1	24.3	NA	22.8	NA
pknB SAUSA300_1113	23.0	21.9	NA	22.1	22.1	22.5	23.0	21.8	24.0
SAUSA300_1118	NA	NA	NA	21.7	22.0	21.7	21.3	22.4	21.4
SAUSA300_1119	24.9	23.2	24.1	26.2	26.5	26.6	26.0	26.2	21.2
plsX SAUSA300_1122	23.3	23.8	NA	23.3	24.1	22.8	27.1	25.2	22.7
fabD SAUSA300_1123	24.1	23.8	NA	23.5	23.4	23.7	23.3	24.1	NA
fabG SAUSA300_1124	26.3	25.9	NA	25.1	25.8	25.8	25.2	26.3	24.4
acpP SAUSA300_1125	27.4	28.7	24.5	25.5	25.6	26.6	25.2	25.6	24.4
rnc SAUSA300_1126	NA	NA	NA	20.5	20.6	20.8	NA	NA	NA
smc SAUSA300_1127	NA	22.4	NA	21.3	21.2	20.8	21.9	22.4	20.8
ftsY SAUSA300_1128	NA	NA	NA	23.1	23.0	23.0	NA	NA	NA
SAUSA300_1129	NA	NA	18.7	NA	NA	NA	NA	19.2	NA
ffh SAUSA300_1130	NA	NA	NA	24.6	24.7	24.6	24.4	25.0	21.8
rpsP SAUSA300_1131	NA	24.8	NA	22.9	23.5	23.0	24.9	23.0	27.2
rimM SAUSA300_1132	NA	NA	NA	20.2	19.8	NA	19.9	21.0	19.7
trmD SAUSA300_1133	NA	NA	NA	22.0	21.7	NA	NA	NA	NA
rplS SAUSA300_1134	NA	NA	NA	26.1	25.9	25.8	25.6	26.3	26.4
SAUSA300_1135	NA	NA	NA	18.7	18.2	18.9	NA	NA	NA
SAUSA300_1136	NA	NA	19.1	20.5	20.6	20.6	18.6	22.2	NA
sucC SAUSA300_1138	24.2	23.5	NA	22.4	21.6	22.3	22.9	23.9	24.7
sucD SAUSA300_1139	24.9	23.4	25.0	22.5	22.3	23.1	25.8	23.8	25.7
topA SAUSA300_1143	NA	NA	NA	22.9	22.2	23.3	22.8	21.2	23.0
trmFO gid SAUSA300_1144	NA	NA	NA	22.8	23.6	22.4	23.4	23.5	NA
hslV SAUSA300_1146	NA	NA	NA	NA	19.4	NA	20.9	20.5	NA
hslU SAUSA300_1147	25.6	23.9	NA	25.0	25.3	25.6	23.9	24.8	24.2
codY SAUSA300_1148	25.2	24.6	26.8	24.9	25.0	25.6	25.5	25.1	23.0
rpsB SAUSA300_1149	26.2	27.0	26.9	27.8	27.8	27.8	29.7	28.5	30.0
tsf SAUSA300_1150	29.0	28.3	28.9	25.5	25.6	25.6	27.5	28.8	29.1
pyrH SAUSA300_1151	24.5	22.4	21.4	24.6	25.6	25.2	24.7	26.8	27.1
frr SAUSA300_1152	27.7	28.8	NA	24.5	24.6	24.8	25.8	26.0	26.3
uppS SAUSA300_1153	20.5	NA	NA	21.5	22.2	21.8	20.5	23.0	NA
SAUSA300_1155	NA	NA	NA	21.1	21.0	19.9	22.0	20.9	18.7
proS SAUSA300_1156	22.9	23.2	NA	26.7	26.1	25.5	25.4	24.6	22.0
polC SAUSA300_1157	NA	NA	NA	22.6	22.6	23.1	NA	22.2	NA
rimP SAUSA300_1158	NA	NA	NA	20.4	20.5	20.9	NA	16.4	NA
nusA	23.7	23.9	NA	24.9	24.7	25.0	26.6	26.0	23.9

SAUSA300_1159									
SAUSA300_1160	NA	NA	NA	23.4	23.5	23.2	NA	22.7	NA
SAUSA300_1161	NA	NA	NA	19.9	21.0	21.0	NA	20.4	18.8
infB SAUSA300_1162	26.6	25.8	27.6	26.1	26.4	25.7	27.9	26.7	25.3
rbfA SAUSA300_1163	NA	NA	NA	22.7	23.6	23.8	NA	NA	NA
truB SAUSA300_1164	NA	NA	NA	22.0	22.4	21.9	21.0	22.3	19.5
ribF SAUSA300_1165	NA	21.8	NA	21.5	21.5	21.5	NA	NA	NA
rpsO SAUSA300_1166	NA	NA	NA	24.1	23.6	23.5	NA	22.8	NA
SAUSA300_1167	23.6	25.4	23.7	26.5	26.4	26.8	25.9	25.9	26.0
rnj2 SAUSA300_1168	23.5	24.7	21.1	26.0	25.9	25.7	23.5	25.6	23.7
ftsK SAUSA300_1169	20.5	NA	NA	22.5	22.4	22.6	20.6	20.6	20.7
SAUSA300_1170	NA	NA	NA	21.8	20.4	21.4	NA	NA	NA
SAUSA300_1171	19.5	NA	NA	20.0	19.8	20.4	18.4	20.8	NA
SAUSA300_1172	22.6	NA	NA	22.1	21.9	21.1	NA	21.1	20.6
SAUSA300_1174	NA	NA	NA	NA	18.8	18.3	NA	19.2	NA
cinA SAUSA300_1177	NA	NA	NA	NA	NA	NA	NA	19.6	NA
recA SAUSA300_1178	25.8	23.4	NA	24.3	23.8	24.7	25.1	25.0	25.6
rny cvfA SAUSA300_1179	NA	23.0	NA	22.1	22.8	23.0	19.8	23.9	NA
SAUSA300_1180	NA	NA	NA	20.2	20.0	20.7	NA	NA	NA
SAUSA300_1181	NA	NA	NA	25.2	24.9	24.9	22.2	21.3	NA
SAUSA300_1182	24.4	NA	NA	23.7	23.3	23.4	22.2	23.5	NA
SAUSA300_1183	NA	NA	NA	NA	NA	NA	NA	20.3	NA
SAUSA300_1184	23.2	23.0	NA	22.0	21.7	22.5	NA	NA	NA
miaB SAUSA300_1185	NA	NA	NA	23.5	23.8	23.9	NA	22.4	NA
mutS SAUSA300_1188	NA	NA	NA	23.9	23.6	24.1	NA	22.0	22.3
mutL SAUSA300_1189	NA	NA	NA	22.2	21.7	22.1	NA	21.7	NA
glpP SAUSA300_1190	20.2	NA	NA	23.1	23.6	23.7	NA	NA	NA
glpK SAUSA300_1192	22.9	23.3	19.7	19.8	19.6	20.9	22.4	21.6	23.8
glpD SAUSA300_1193	28.0	27.3	25.7	22.7	22.8	23.4	26.2	25.6	26.1
SAUSA300_1194	NA	NA	NA	21.3	20.3	19.6	NA	NA	NA
miaA SAUSA300_1195	NA	NA	NA	19.9	20.0	NA	NA	NA	NA
SAUSA300_1197	NA	NA	NA	24.8	25.0	25.0	NA	19.0	NA
SAUSA300_1199	NA	NA	NA	21.5	21.2	21.5	NA	NA	NA
glnA SAUSA300_1201	24.3	24.1	21.9	26.4	26.6	26.9	26.4	26.7	28.9
SAUSA300_1203	NA	NA	NA	NA	NA	NA	NA	16.9	NA
SAUSA300_1215	22.7	23.3	NA	22.4	21.9	21.7	NA	NA	NA
SAUSA300_1216	NA	NA	NA	21.4	21.4	22.1	NA	21.8	NA
nuc SAUSA300_1222	NA	NA	NA	19.9	20.4	20.0	NA	21.4	NA
SAUSA300_1223	23.2	24.6	NA	24.5	25.1	25.0	21.6	24.2	21.7
SAUSA300_1226	21.0	20.1	19.4	NA	NA	NA	NA	NA	NA
thrC SAUSA300_1227	21.7	21.2	NA	21.1	20.5	21.2	NA	NA	NA
SAUSA300_1229	19.7	21.3	NA	21.6	21.7	21.4	21.9	22.4	23.1
katA SAUSA300_1232	23.4	23.0	NA	22.1	21.5	22.0	21.3	22.8	20.5
rpmG1 SAUSA300_1233	NA	26.7	NA	23.3	23.2	23.2	NA	NA	NA
guaC SAUSA300_1235	24.4	20.0	NA	NA	NA	NA	21.5	20.6	NA
lexA SAUSA300_1237	NA	NA	NA	NA	NA	19.4	NA	NA	NA
SAUSA300_1238	NA	20.5	NA	NA	NA	NA	20.0	20.9	20.0
tkt SAUSA300_1239	28.0	27.2	28.1	29.0	29.2	28.7	28.2	28.4	29.7
SAUSA300_1240	NA	NA	22.6	20.9	21.6	22.6	24.6	21.2	25.0
sbcD SAUSA300_1242	NA	NA	NA	20.7	20.4	20.7	NA	NA	NA
sbcC SAUSA300_1243	NA	NA	NA	NA	NA	NA	21.2	18.7	NA
opuD SAUSA300_1245	22.8	23.0	NA	22.4	22.5	23.0	23.6	20.6	20.7
acnA SAUSA300_1246	24.1	25.6	21.4	26.1	25.2	26.0	26.1	26.5	25.3
SAUSA300_1247	NA	NA	NA	20.3	20.3	NA	19.2	18.0	NA

SAUSA300_1248	20.4	21.6	NA	20.9	20.9	22.5	NA	19.5	NA
plsY SAUSA300_1249	NA	NA	NA	18.0	19.1	18.1	NA	NA	NA
parE SAUSA300_1250	NA	20.9	NA	23.2	23.4	23.7	22.9	23.3	NA
parC SAUSA300_1251	21.8	23.3	NA	22.8	23.4	23.1	20.9	23.4	NA
SAUSA300_1252	NA	NA	NA	19.5	19.4	19.6	NA	NA	NA
glcT SAUSA300_1253	NA	NA	NA	17.6	17.8	17.6	NA	19.0	NA
fmtC mprF SAUSA300_1255	NA	NA	NA	19.1	19.7	20.1	NA	NA	NA
msrR SAUSA300_1257	21.9	23.0	NA	22.5	23.3	22.8	22.4	20.4	NA
SAUSA300_1258	24.4	24.9	NA	20.8	20.7	20.9	NA	NA	NA
SAUSA300_1261	20.9	19.9	19.7	21.0	20.9	21.9	20.8	21.5	21.3
femA SAUSA300_1269	23.6	25.0	NA	23.5	24.2	24.2	23.6	25.8	24.3
femB SAUSA300_1270	23.5	22.6	24.0	23.6	23.5	23.7	NA	22.8	NA
SAUSA300_1272	NA	NA	NA	NA	18.3	19.4	NA	NA	NA
SAUSA300_1277	NA	NA	NA	NA	20.5	21.5	NA	18.6	NA
pepF SAUSA300_1278	NA	NA	NA	21.1	20.8	22.0	NA	20.1	NA
cvfB SAUSA300_1284	NA	NA	22.4	NA	NA	NA	22.8	23.0	NA
SAUSA300_1285	24.3	21.2	NA	25.5	24.7	25.0	25.7	24.7	24.4
lysA SAUSA300_1293	NA	NA	NA	NA	NA	NA	NA	20.6	NA
cspA SAUSA300_1295	24.0	25.4	29.3	26.4	25.4	25.7	27.7	27.3	26.0
acyP SAUSA300_1297	NA	NA	NA	NA	20.4	21.7	NA	NA	NA
SAUSA300_1299	19.3	19.6	NA	20.7	21.1	21.1	NA	18.5	19.9
SAUSA300_1301	NA	NA	NA	NA	17.6	17.1	NA	NA	NA
SAUSA300_1302	NA	NA	NA	21.1	21.3	21.6	19.4	21.4	21.6
SAUSA300_1303	22.6	NA	NA	23.9	24.0	23.0	NA	21.7	NA
SAUSA300_1304	NA	NA	NA	22.1	22.5	22.7	21.6	23.2	21.3
odhB sucB SAUSA300_1305	22.7	21.6	NA	20.4	20.6	20.7	21.7	21.1	21.0
odhA SAUSA300_1306	NA	NA	NA	19.7	19.2	19.4	19.9	21.5	NA
arlR SAUSA300_1308	NA	NA	NA	19.3	18.8	18.7	NA	NA	NA
murG SAUSA300_1311	NA	19.4	NA	18.6	NA	18.6	NA	NA	NA
ctpA SAUSA300_1313	NA	NA	NA	18.6	18.5	20.6	18.2	21.1	NA
crr SAUSA300_1315	25.2	24.3	25.3	23.9	23.7	23.1	26.0	23.0	22.3
msrB SAUSA300_1316	22.8	23.3	NA	21.3	21.1	23.2	NA	NA	NA
msrA SAUSA300_1317	NA	NA	NA	21.9	21.0	21.2	NA	NA	NA
SAUSA300_1318	NA	NA	NA	NA	NA	NA	20.5	18.7	20.1
folA SAUSA300_1319	NA	NA	NA	22.5	22.8	23.3	NA	NA	NA
thyA SAUSA300_1320	NA	NA	NA	23.2	22.8	22.7	NA	NA	NA
SAUSA300_1321	NA	NA	NA	21.7	21.0	21.7	NA	NA	NA
cvfC SAUSA300_1322	NA	NA	NA	NA	20.9	NA	NA	20.4	NA
SAUSA300_1323	21.9	21.9	22.6	22.7	22.9	NA	21.0	22.0	NA
ebh SAUSA300_1327	NA	NA	NA	18.6	19.3	19.3	21.6	NA	NA
norB SAUSA300_1328	NA	NA	NA	NA	18.3	NA	NA	17.6	NA
SAUSA300_1329	NA	NA	NA	21.5	21.2	18.8	NA	23.2	20.3
tdcB SAUSA300_1330	30.2	29.7	31.1	29.1	29.4	29.3	29.3	27.5	28.2
ald1 SAUSA300_1331	27.7	28.7	29.3	30.5	30.2	29.8	27.2	26.0	28.4
SAUSA300_1333	NA	NA	NA	18.9	20.1	19.7	NA	NA	NA
SAUSA300_1334	NA	NA	NA	NA	17.7	NA	NA	19.0	NA
SAUSA300_1336	20.5	NA	NA	23.5	23.7	24.6	22.7	20.1	23.0
SAUSA300_1337	23.9	25.5	24.7	22.8	22.6	24.9	23.2	22.9	26.2
pbp2 SAUSA300_1341	24.4	24.0	NA	25.3	25.1	25.2	25.6	25.0	24.5
asnS SAUSA300_1345	23.5	24.7	NA	25.6	25.9	24.9	26.5	26.0	25.7
dinG SAUSA300_1346	NA	NA	NA	NA	NA	NA	18.9	NA	NA
SAUSA300_1348	NA	NA	NA	17.9	17.7	NA	NA	NA	NA
SAUSA300_1349	NA	NA	NA	21.3	21.1	22.0	NA	20.8	NA
SAUSA300_1350	NA	NA	NA	23.2	23.3	22.8	NA	21.0	NA

SAUSA300_1354	NA	NA	19.9	20.0	19.8	21.1	NA	NA	NA
aroA SAUSA300_1355	NA	NA	NA	21.2	21.4	21.7	NA	21.2	NA
aroC SAUSA300_1357	19.4	NA	NA	22.1	22.5	21.5	22.7	21.0	NA
ndk SAUSA300_1358	NA	NA	NA	22.8	22.1	22.1	NA	NA	NA
SAUSA300_1359	NA	NA	NA	19.8	20.0	19.4	NA	NA	NA
ubiE SAUSA300_1360	NA	20.1	NA	24.3	24.0	24.2	22.3	22.9	NA
SAUSA300_1361	20.3	19.7	NA	21.6	21.6	24.3	NA	NA	NA
hup SAUSA300_1362	28.3	29.5	28.9	30.9	30.4	30.6	28.5	28.0	30.8
gpsA SAUSA300_1363	NA	19.1	NA	NA	20.0	19.7	20.6	20.0	NA
der engA SAUSA300_1364	NA	21.9	NA	23.7	23.2	24.6	23.5	24.2	23.2
rpsA SAUSA300_1365	26.6	27.0	24.7	25.4	25.3	26.0	26.0	25.9	26.3
cmk SAUSA300_1367	23.9	25.3	NA	24.3	24.4	24.2	22.6	23.7	NA
ansA SAUSA300_1368	NA	NA	NA	21.7	21.1	22.3	NA	NA	NA
SAUSA300_1369	20.5	20.9	NA	22.6	22.2	22.1	21.2	20.0	NA
ebpS SAUSA300_1370	24.3	24.5	22.4	22.3	22.4	22.7	23.6	24.0	26.4
recQ SAUSA300_1371	NA	NA	NA	19.4	18.4	19.9	NA	NA	NA
SAUSA300_1373	NA	NA	NA	20.8	20.1	NA	NA	NA	NA
lukF-PV SAUSA300_1381	NA	NA	NA	20.8	21.7	22.4	NA	NA	NA
lukS-PV SAUSA300_1382	20.7	NA	NA	19.8	20.0	20.5	NA	NA	NA
SAUSA300_1393	20.2	20.7	NA	NA	NA	NA	19.6	23.6	NA
SAUSA300_1434	NA	18.5	NA	NA	NA	NA	NA	NA	NA
SAUSA300_1440	19.9	NA	NA	NA	NA	NA	NA	NA	NA
srrB SAUSA300_1441	20.7	NA	NA	22.4	21.7	21.5	NA	NA	NA
srrA SAUSA300_1442	24.1	24.2	NA	25.0	24.6	24.8	23.0	25.4	23.3
rluB SAUSA300_1443	NA	NA	NA	22.9	23.0	22.7	23.0	24.0	21.6
scpB SAUSA300_1444	NA	NA	NA	20.2	NA	NA	NA	NA	NA
scpA SAUSA300_1445	NA	NA	NA	18.3	18.2	18.1	NA	NA	NA
SAUSA300_1448	21.7	22.7	NA	22.2	22.1	21.6	20.6	22.5	NA
SAUSA300_1449	NA	NA	NA	21.3	21.4	20.5	20.5	20.3	20.4
SAUSA300_1450	NA	NA	NA	21.8	22.6	22.9	22.6	23.2	NA
SAUSA300_1451	NA	NA	NA	NA	NA	14.6	NA	NA	NA
proC SAUSA300_1452	NA	NA	NA	20.5	20.6	20.7	NA	18.3	NA
rnz SAUSA300_1453	NA	NA	NA	21.2	20.9	21.0	NA	NA	NA
zwf SAUSA300_1454	24.7	25.0	NA	25.4	25.4	25.7	22.6	25.4	23.6
SAUSA300_1456	20.7	20.0	NA	20.2	20.6	20.2	NA	20.0	NA
SAUSA300_1458	NA	NA	NA	20.2	19.8	20.5	NA	NA	NA
gnd SAUSA300_1459	25.6	23.6	24.8	26.0	26.2	26.9	27.7	26.9	28.7
SAUSA300_1460	21.5	NA	19.0	22.2	21.3	22.1	23.1	23.4	NA
SAUSA300_1463	NA	NA	NA	21.4	21.6	21.2	22.6	20.3	NA
SAUSA300_1464	22.9	NA	22.9	25.0	24.8	24.8	23.0	22.0	19.2
SAUSA300_1465	NA	NA	NA	23.8	24.1	24.2	NA	24.1	NA
SAUSA300_1466	23.6	24.1	23.1	23.1	23.3	22.7	24.7	23.8	NA
lpdA SAUSA300_1467	20.8	NA	NA	21.2	21.2	21.8	NA	22.0	NA
recN SAUSA300_1468	NA	NA	NA	22.9	22.2	21.7	NA	23.2	NA
argR SAUSA300_1469	20.6	22.1	NA	21.2	20.9	20.5	23.3	20.5	NA
SAUSA300_1470	NA	NA	NA	21.5	20.7	21.9	22.2	22.1	NA
xseB SAUSA300_1471	NA	NA	NA	21.7	21.7	22.0	NA	NA	NA
xseA SAUSA300_1472	NA	21.4	NA	NA	NA	NA	NA	20.2	NA
nusB SAUSA300_1473	NA	19.9	NA	20.3	20.5	20.5	NA	20.5	18.6
SAUSA300_1474	NA	NA	NA	19.0	18.4	18.3	19.3	23.0	NA
accC SAUSA300_1475	NA	18.6	NA	23.6	22.8	23.2	20.5	21.1	26.5
accB SAUSA300_1476	22.5	22.2	NA	NA	NA	NA	20.9	23.5	23.7
SAUSA300_1478	21.6	21.4	NA	NA	NA	NA	22.9	22.4	16.5
SAUSA300_1489	NA	NA	NA	18.9	18.7	19.1	NA	18.5	NA
efp SAUSA300_1490	NA	23.0	NA	25.4	26.1	25.7	24.6	25.1	27.6
SAUSA300_1491	22.6	NA	NA	22.6	22.3	22.6	23.5	23.1	NA

lipM SAUSA300_1494	NA	21.1	NA	21.7	21.4	20.7	21.2	22.1	NA
SAUSA300_1495	NA	NA	NA	23.9	24.6	24.1	20.9	22.7	NA
gcvPB SAUSA300_1496	22.0	23.4	NA	21.0	21.4	22.3	22.4	22.6	NA
gcvPA SAUSA300_1497	21.4	20.8	NA	21.0	21.2	19.2	NA	NA	NA
SAUSA300_1505	NA	NA	NA	NA	16.8	NA	NA	17.6	NA
SAUSA300_1506	20.9	20.2	NA	20.0	19.6	20.1	NA	NA	NA
glk SAUSA300_1507	19.5	NA	NA	20.3	19.9	19.5	22.9	22.0	NA
SAUSA300_1509	NA	NA	NA	18.2	18.6	19.3	NA	NA	NA
rpmG2 SAUSA300_1511	NA	NA	NA	23.4	22.9	22.9	NA	23.1	NA
pbp3 SAUSA300_1512	NA	NA	NA	21.2	21.1	21.9	NA	22.6	21.5
sodA SAUSA300_1513	23.4	22.7	20.6	20.7	21.0	21.8	24.7	25.4	25.3
fur SAUSA300_1514	NA	NA	16.5	NA	NA	NA	19.5	19.3	NA
SAUSA300_1516	NA	NA	NA	19.7	19.7	19.4	NA	20.2	NA
nfo SAUSA300_1517	22.8	23.4	NA	23.2	22.9	23.3	22.8	23.9	NA
cshB SAUSA300_1518	22.6	21.7	20.7	21.6	21.7	21.6	22.7	23.2	21.6
SAUSA300_1519	NA	NA	NA	19.1	19.0	NA	NA	20.2	NA
SAUSA300_1520	NA	NA	NA	22.7	22.5	22.2	NA	NA	NA
rpoD sigA SAUSA300_1521	22.5	23.4	NA	24.2	24.2	23.8	23.9	23.1	21.5
dnaG SAUSA300_1522	NA	NA	NA	NA	NA	NA	19.6	NA	NA
SAUSA300_1523	NA	21.2	NA	23.3	23.9	24.3	NA	23.0	21.1
SAUSA300_1524	NA	NA	NA	20.2	20.1	20.3	NA	19.6	NA
glyQS SAUSA300_1525	24.2	23.8	23.1	26.2	26.0	25.6	25.2	27.1	NA
era SAUSA300_1527	22.5	21.6	NA	23.6	23.7	22.9	22.0	21.9	NA
cdd SAUSA300_1528	NA	NA	NA	18.6	18.3	NA	NA	NA	NA
ybeY SAUSA300_1530	NA	NA	NA	20.8	20.5	NA	NA	NA	NA
phoH SAUSA300_1531	18.5	NA	NA	18.9	19.1	19.0	18.9	21.0	19.2
SAUSA300_1532	NA	NA	NA	21.8	21.5	22.2	NA	NA	NA
SAUSA300_1533	27.1	26.4	24.4	26.8	26.7	27.1	25.7	25.7	26.8
rpsU SAUSA300_1535	23.7	23.1	NA	20.8	19.6	NA	NA	19.7	NA
SAUSA300_1536	NA	NA	NA	21.0	20.9	21.9	22.4	21.6	21.7
SAUSA300_1537	NA	NA	NA	19.1	NA	19.1	NA	16.3	NA
dnaJ SAUSA300_1539	22.4	23.2	22.7	22.4	22.2	22.2	23.4	24.3	23.1
dnaK SAUSA300_1540	31.4	31.2	29.5	26.3	26.9	26.8	28.3	27.7	27.4
grpE SAUSA300_1541	26.2	26.1	23.7	NA	NA	NA	21.8	21.8	19.4
hrcA SAUSA300_1542	21.7	21.9	20.8	NA	NA	18.5	NA	NA	NA
lepA SAUSA300_1544	23.1	22.0	NA	23.4	23.1	22.4	24.7	23.0	NA
rpsT SAUSA300_1545	27.8	28.9	23.4	23.7	23.3	22.8	26.6	27.2	27.6
SAUSA300_1548	22.0	NA	NA	21.6	21.0	22.6	20.3	19.1	NA
rsfS SAUSA300_1551	20.7	23.4	NA	24.0	23.5	23.9	22.3	24.4	24.4
SAUSA300_1552	NA	NA	NA	20.6	19.8	20.0	19.9	NA	NA
SAUSA300_1554	21.1	NA	19.9	22.4	22.4	20.9	19.6	24.5	17.1
aroE SAUSA300_1555	NA	NA	21.0	NA	NA	NA	NA	20.3	NA
mtnN SAUSA300_1558	22.3	21.2	23.7	23.3	22.8	22.6	20.9	23.7	21.2
greA SAUSA300_1567	23.9	21.4	NA	24.6	24.6	24.1	26.7	25.6	20.6
udk SAUSA300_1568	NA	NA	21.8	23.2	23.1	23.6	21.7	24.5	22.6
SAUSA300_1569	NA	NA	NA	22.3	22.1	20.8	22.8	22.3	16.9
SAUSA300_1570	NA	NA	NA	19.6	19.4	20.8	20.3	22.4	NA
SAUSA300_1572	NA	20.7	NA	22.0	21.9	21.3	NA	NA	NA
SAUSA300_1573	NA	NA	NA	19.1	19.4	18.6	NA	NA	NA
SAUSA300_1574	NA	NA	NA	NA	22.2	22.7	NA	NA	NA
alaS SAUSA300_1575	23.5	22.8	24.7	24.6	24.8	24.5	24.6	25.3	25.8
recD2 SAUSA300_1576	NA	NA	NA	19.4	19.2	NA	NA	NA	NA

mnmA SAUSA300_1578	NA	NA	NA	22.9	23.4	23.3	NA	23.0	21.4
SAUSA300_1579	NA	NA	NA	19.6	20.8	21.1	NA	21.3	NA
SAUSA300_1580	NA	NA	NA	NA	17.5	NA	NA	16.5	NA
SAUSA300_1581	25.4	24.0	25.9	20.8	20.5	20.6	14.5	17.4	NA
SAUSA300_1582	NA	NA	NA	17.1	17.3	NA	18.9	NA	NA
SAUSA300_1583	NA	NA	21.2	23.1	22.8	23.2	23.2	22.7	NA
SAUSA300_1584	NA	NA	NA	21.1	21.6	22.3	NA	21.2	NA
SAUSA300_1585	NA	NA	NA	23.9	23.5	23.3	22.9	24.3	NA
aspS SAUSA300_1586	24.0	NA	NA	22.8	23.0	23.1	23.2	21.3	22.2
hisS SAUSA300_1587	NA	NA	21.5	22.5	22.6	22.4	24.5	22.7	22.7
lytH SAUSA300_1588	NA	NA	NA	21.1	20.3	21.7	NA	19.8	NA
dtd SAUSA300_1589	NA	NA	NA	21.9	21.7	21.9	NA	20.4	NA
SAUSA300_1590	23.3	22.8	NA	22.7	22.7	22.6	21.2	22.4	NA
apt SAUSA300_1591	19.8	NA	NA	22.2	22.1	23.7	NA	NA	NA
recJ SAUSA300_1592	NA	NA	NA	20.3	21.1	21.4	NA	17.7	NA
secF secD SAUSA300_1593	24.9	24.5	NA	25.9	25.9	26.0	24.9	24.5	24.7
yajC SAUSA300_1594	NA	NA	NA	25.0	25.4	25.8	23.6	25.5	24.0
tgt SAUSA300_1595	22.9	21.5	NA	20.3	19.8	22.5	NA	20.5	NA
queA SAUSA300_1596	NA	NA	NA	23.4	22.9	23.5	20.2	23.2	21.2
ruvB SAUSA300_1597	NA	NA	NA	NA	NA	20.7	NA	19.7	NA
ruvA SAUSA300_1598	NA	NA	NA	21.3	21.7	22.3	NA	23.5	22.5
obg SAUSA300_1600	22.6	22.0	NA	22.6	22.8	23.4	22.3	22.4	22.8
rpmA SAUSA300_1601	NA	NA	18.8	NA	17.0	NA	25.9	27.3	27.1
rplU SAUSA300_1603	26.3	27.7	25.4	27.9	27.4	27.4	28.1	26.7	28.3
mreC SAUSA300_1605	NA	NA	20.5	20.3	20.3	19.9	21.0	22.0	20.0
SAUSA300_1606	NA	NA	NA	17.6	NA	19.6	NA	NA	NA
folC SAUSA300_1610	19.4	NA	NA	23.1	22.4	22.1	NA	NA	NA
valS SAUSA300_1611	25.1	23.9	NA	27.8	28.0	27.0	25.5	26.1	25.3
tag SAUSA300_1612	NA	NA	NA	NA	NA	NA	18.3	NA	19.3
hemL1 SAUSA300_1614	21.9	21.1	NA	23.6	22.8	23.1	25.1	24.5	28.1
hemB SAUSA300_1615	NA	NA	NA	24.7	24.4	24.8	NA	23.7	NA
hemC SAUSA300_1617	24.9	NA	NA	23.6	23.5	24.0	23.1	22.0	NA
engB SAUSA300_1620	NA	NA	NA	20.9	19.9	20.1	NA	NA	NA
clpX SAUSA300_1621	23.7	22.7	NA	24.2	24.5	24.8	27.3	26.5	28.8
tig SAUSA300_1622	27.2	27.4	24.7	27.3	27.5	27.3	29.0	30.3	30.2
SAUSA300_1624	22.7	22.2	NA	22.5	22.0	21.9	22.7	24.3	22.8
rplT SAUSA300_1625	25.2	25.4	23.6	23.4	22.9	24.2	24.5	26.3	25.2
rpmI SAUSA300_1626	20.9	20.0	NA	21.0	20.6	21.4	23.1	20.2	NA
infC SAUSA300_1627	23.5	23.5	23.0	24.6	24.7	24.7	24.4	25.5	28.1
lysP SAUSA300_1628	NA	NA	NA	19.8	20.1	18.8	NA	18.4	NA
thrS SAUSA300_1629	29.0	28.7	29.9	27.8	27.5	27.4	26.7	28.9	27.8
dnaI SAUSA300_1630	NA	18.6	NA	21.1	21.4	21.5	NA	NA	NA
nrdR SAUSA300_1632	NA	NA	NA	19.7	19.9	NA	NA	18.9	NA
coaE SAUSA300_1634	NA	NA	NA	22.8	23.0	23.4	21.4	20.9	NA
polA SAUSA300_1636	22.8	21.8	NA	24.7	24.8	24.9	23.8	24.2	23.8
phoP SAUSA300_1639	19.0	19.4	NA	20.3	20.2	20.3	NA	NA	NA
icd SAUSA300_1640	22.2	20.2	NA	19.9	20.1	20.8	22.5	23.0	NA
gltA SAUSA300_1641	NA	NA	NA	19.8	18.8	19.4	NA	NA	NA
pyk SAUSA300_1644	27.6	26.3	26.8	30.7	30.8	30.8	29.2	29.2	30.6
pfkA SAUSA300_1645	23.5	26.0	NA	26.5	27.3	27.6	24.5	25.9	25.4
accA SAUSA300_1646	NA	NA	NA	22.4	22.5	22.1	21.6	23.2	NA

accD SAUSA300_1647	22.2	NA	NA	21.3	21.7	21.6	22.2	24.3	NA
SAUSA300_1648	24.5	23.6	NA	25.3	25.6	25.5	26.6	25.7	23.3
SAUSA300_1650	NA	NA	NA	23.5	23.3	23.5	22.7	21.6	NA
SAUSA300_1651	NA	NA	NA	19.0	19.8	20.4	19.5	NA	NA
SAUSA300_1652	NA	NA	NA	25.5	25.6	25.8	NA	25.7	24.1
SAUSA300_1653	23.4	23.7	NA	23.5	23.1	21.9	NA	22.4	24.9
SAUSA300_1654	NA	NA	NA	23.2	23.2	23.5	23.8	23.4	NA
ald2 SAUSA300_1655	22.1	21.5	NA	20.8	20.8	21.3	NA	21.2	21.0
SAUSA300_1656	27.8	29.3	30.6	24.4	24.1	24.2	27.0	24.0	27.8
ackA SAUSA300_1657	26.6	26.3	26.3	26.8	26.8	26.7	28.9	28.1	28.3
SAUSA300_1658	NA	NA	NA	17.6	18.1	18.0	20.0	22.9	20.6
tpx SAUSA300_1659	25.7	24.7	NA	24.5	23.9	23.8	NA	NA	NA
thiI SAUSA300_1661	NA	NA	NA	23.2	22.7	22.9	NA	21.9	NA
SAUSA300_1662	NA	NA	NA	NA	NA	NA	20.7	19.0	NA
ezrA SAUSA300_1664	24.1	23.5	NA	27.0	26.6	26.5	25.1	26.0	25.7
SAUSA300_1665	NA	NA	NA	NA	NA	NA	22.7	19.6	NA
rpsD SAUSA300_1666	22.9	24.9	NA	23.7	23.1	24.6	25.7	26.1	28.0
nagE SAUSA300_1672	NA	NA	NA	21.6	21.5	22.1	NA	22.7	NA
SAUSA300_1673	22.0	NA	NA	25.3	25.3	25.6	23.6	23.2	NA
SAUSA300_1674	22.1	20.9	NA	22.1	21.4	21.2	22.0	23.1	20.5
tyrS SAUSA300_1675	24.6	23.4	NA	24.4	24.6	24.5	25.7	25.0	25.3
fhs SAUSA300_1678	21.4	23.5	NA	23.1	23.6	24.4	25.1	25.8	23.5
ccpA SAUSA300_1682	22.6	25.2	NA	22.0	22.3	23.0	22.8	24.4	23.0
SAUSA300_1683	23.7	21.7	NA	22.7	22.8	22.9	NA	20.2	NA
SAUSA300_1684	23.7	23.9	22.9	21.4	20.6	21.4	23.7	25.2	20.9
SAUSA300_1685	25.5	27.5	NA	26.7	26.8	26.5	26.5	26.2	29.2
murC SAUSA300_1686	21.9	21.6	20.2	22.9	23.8	23.5	20.6	21.2	22.2
SAUSA300_1687	23.8	NA	NA	25.0	25.3	25.0	24.7	24.6	22.4
SAUSA300_1688	25.0	25.1	NA	25.5	25.5	25.8	26.3	24.8	26.0
SAUSA300_1689	NA	NA	NA	20.7	19.6	21.1	21.3	21.6	NA
SAUSA300_1690	23.4	NA	22.3	23.8	23.7	22.8	NA	19.2	NA
SAUSA300_1691	24.7	24.2	NA	23.5	23.9	24.7	NA	24.9	NA
SAUSA300_1692	NA	NA	NA	20.6	20.5	19.9	NA	NA	NA
trmB SAUSA300_1694	NA	NA	NA	22.8	22.5	22.8	NA	NA	NA
dat SAUSA300_1696	24.4	23.9	NA	22.9	22.8	22.4	24.0	24.8	22.3
SAUSA300_1697	25.0	24.4	24.9	24.0	24.5	24.1	25.8	25.1	26.8
SAUSA300_1698	23.3	22.5	22.0	18.7	NA	19.0	21.2	22.3	17.4
SAUSA300_1701	NA	NA	NA	19.1	19.3	19.8	NA	NA	NA
SAUSA300_1703	18.8	NA	NA	NA	NA	18.6	20.0	20.8	NA
leuS SAUSA300_1704	24.0	24.1	NA	25.7	26.2	26.3	26.4	25.4	24.6
SAUSA300_1706	NA	NA	NA	18.0	17.9	NA	17.5	18.5	NA
rot SAUSA300_1708	NA	NA	NA	NA	NA	NA	20.5	19.8	24.5
SAUSA300_1710	NA	NA	NA	21.1	21.9	22.0	18.8	22.0	NA
putA SAUSA300_1711	20.3	19.4	NA	NA	NA	NA	NA	NA	NA
ribH SAUSA300_1712	NA	NA	NA	20.1	20.9	21.1	NA	NA	NA
SAUSA300_1720	20.5	NA	NA	21.3	21.2	20.9	NA	21.1	19.6
SAUSA300_1725	22.1	22.0	NA	22.8	21.8	22.8	24.4	23.1	23.2
SAUSA300_1728	NA	NA	NA	20.9	21.8	21.5	NA	19.8	20.1
SAUSA300_1729	25.4	25.2	NA	22.9	23.3	23.6	23.3	21.6	23.7
metK SAUSA300_1730	NA	23.5	NA	24.9	25.0	25.6	24.4	23.4	NA
pckA SAUSA300_1731	24.1	23.2	NA	NA	20.7	NA	NA	NA	NA
SAUSA300_1750	NA	NA	NA	NA	NA	NA	NA	17.0	NA
epiF SAUSA300_1762	21.2	20.6	NA	NA	NA	NA	NA	NA	NA
epiC SAUSA300_1765	NA	NA	NA	NA	NA	23.0	NA	20.1	NA
SAUSA300_1780	NA	NA	NA	21.6	21.2	21.8	NA	NA	NA
hemG	20.5	19.7	NA	23.5	23.1	23.0	22.5	18.6	NA

SAUSA300_1781									
hemH SAUSA300_1782	NA	NA	NA	20.0	20.3	19.7	NA	19.4	NA
hemE SAUSA300_1783	21.2	22.1	NA	24.2	24.8	24.7	22.5	23.8	23.1
traP SAUSA300_1784	NA	NA	NA	20.9	20.6	21.2	23.5	21.5	23.8
SAUSA300_1785	20.4	NA	NA	21.4	20.2	20.9	NA	NA	NA
SAUSA300_1786	19.1	NA	NA	NA	NA	NA	17.6	19.9	NA
SAUSA300_1787	21.3	NA	NA	20.8	20.1	21.4	NA	19.7	NA
SAUSA300_1788	NA	NA	NA	23.8	23.4	23.6	18.5	23.9	NA
prsA SAUSA300_1790	24.2	23.9	24.6	21.9	22.8	22.0	23.1	24.0	22.6
cbf1 SAUSA300_1791	22.7	NA	24.3	21.2	21.3	19.3	21.3	21.8	NA
SAUSA300_1792	23.8	23.8	21.3	24.7	24.4	24.2	22.6	24.6	23.9
SAUSA300_1793	NA	20.4	NA	20.1	20.2	21.1	21.6	22.4	NA
SAUSA300_1795	24.7	25.1	28.2	24.5	24.3	24.9	23.3	22.1	20.8
SAUSA300_1797	NA	NA	21.7	23.7	23.6	23.3	25.0	24.5	23.5
SAUSA300_1800	NA	NA	NA	23.0	22.8	23.0	NA	23.9	21.2
fumC SAUSA300_1801	NA	NA	22.1	NA	NA	20.0	20.1	24.8	NA
SAUSA300_1804	24.9	24.6	23.1	23.4	23.1	23.4	24.8	24.8	18.6
SAUSA300_1805	NA	NA	NA	NA	NA	NA	NA	18.5	NA
SAUSA300_1808	NA	NA	NA	18.5	18.3	19.0	NA	NA	NA
SAUSA300_1844	24.5	23.5	NA	23.5	23.5	24.4	23.5	23.0	24.0
hemL2 gsaB SAUSA300_1845	19.6	19.7	NA	22.2	23.5	22.7	23.5	22.9	17.1
SAUSA300_1848	NA	NA	NA	18.5	18.6	20.1	NA	NA	NA
SAUSA300_1851	NA	NA	NA	18.6	19.4	18.8	17.2	16.6	NA
recX SAUSA300_1854	NA	NA	NA	NA	17.7	NA	NA	16.8	NA
mgt SAUSA300_1855	NA	NA	NA	20.9	20.7	19.4	NA	NA	NA
SAUSA300_1856	22.2	22.0	NA	NA	NA	NA	NA	NA	NA
SAUSA300_1857	NA	NA	NA	NA	NA	NA	19.2	17.9	19.9
SAUSA300_1858	NA	NA	NA	21.4	21.8	22.4	NA	NA	NA
pepS SAUSA300_1860	NA	NA	NA	22.3	21.2	21.7	23.1	23.3	22.6
SAUSA300_1861	NA	NA	NA	20.9	19.9	20.9	NA	NA	NA
ptpA SAUSA300_1862	NA	NA	NA	22.4	22.6	23.6	NA	23.4	NA
SAUSA300_1863	NA	NA	NA	26.2	25.9	26.0	NA	24.3	NA
SAUSA300_1864	20.7	21.2	NA	20.3	21.0	20.6	21.0	20.8	21.5
vraR SAUSA300_1865	21.6	21.9	NA	24.8	24.1	25.0	NA	21.4	NA
vraS SAUSA300_1866	NA	NA	NA	18.3	19.7	19.6	17.0	19.2	NA
SAUSA300_1867	NA	NA	NA	NA	19.8	NA	NA	NA	NA
map SAUSA300_1869	NA	22.6	24.9	25.0	24.8	25.0	24.5	25.0	24.9
SAUSA300_1872	21.8	20.8	NA	22.3	22.0	22.2	NA	24.0	NA
SAUSA300_1873	NA	26.4	NA	24.6	24.6	24.6	NA	23.6	22.0
ftnA SAUSA300_1874	23.2	26.6	22.2	26.4	26.8	28.9	26.8	27.6	NA
rumA SAUSA300_1878	NA	NA	NA	20.6	20.0	21.6	NA	NA	NA
dagK SAUSA300_1879	NA	20.3	18.7	22.3	22.8	22.7	20.0	22.8	20.3
gatB SAUSA300_1880	25.7	26.1	25.8	27.3	27.2	28.3	28.1	27.8	28.8
gatA SAUSA300_1881	23.6	24.9	27.3	25.3	25.2	26.3	26.1	27.4	27.3
gatC SAUSA300_1882	NA	NA	NA	23.6	23.6	24.3	24.4	23.6	NA
SAUSA300_1884	NA	NA	NA	20.7	20.7	21.2	NA	22.5	NA
ligA SAUSA300_1885	NA	NA	NA	21.8	21.8	21.0	21.9	21.5	20.4
pcrA SAUSA300_1886	20.4	NA	NA	24.2	24.1	23.6	22.6	22.1	22.4
SAUSA300_1888	NA	NA	NA	20.3	20.0	21.0	21.8	19.2	18.0
purB SAUSA300_1889	NA	NA	NA	23.9	24.1	24.5	23.6	24.4	NA
SAUSA300_1892	NA	NA	NA	21.7	21.3	21.7	NA	NA	NA
nadE SAUSA300_1893	23.0	22.6	NA	21.7	22.2	22.1	NA	23.7	22.9
SAUSA300_1894	23.6	23.5	NA	25.2	25.3	24.5	25.9	24.1	24.4
SAUSA300_1895	22.1	21.4	NA	22.0	21.6	22.1	NA	NA	NA
pheA SAUSA300_1896	NA	NA	NA	19.1	18.7	NA	NA	NA	NA
SAUSA300_1899	NA	19.4	NA	21.0	20.2	21.5	20.8	19.4	NA

ppaC SAUSA300_1900	25.1	23.4	26.0	24.9	25.1	24.6	27.1	25.5	26.4
aldA2 SAUSA300_1901	21.3	20.9	NA	21.5	21.8	21.7	NA	21.2	NA
SAUSA300_1902	NA	NA	NA	21.6	20.9	22.1	20.1	21.9	NA
SAUSA300_1904	25.2	24.7	25.2	22.8	22.4	25.2	22.5	24.2	22.9
SAUSA300_1906	NA	NA	NA	19.8	20.0	20.0	18.7	21.1	NA
SAUSA300_1909	21.8	23.1	21.6	22.5	21.2	21.4	24.7	23.4	NA
SAUSA300_1911	20.1	21.3	NA	NA	NA	NA	22.8	20.8	NA
SAUSA300_1916	21.5	24.0	NA	23.7	24.0	23.7	21.7	22.2	23.4
SAUSA300_1928	NA	23.9	NA	NA	NA	NA	NA	NA	NA
SAUSA300_1965	NA	20.4	NA	20.2	20.4	22.3	NA	21.4	NA
SAUSA300_1969	NA	NA	NA	23.2	23.0	21.9	18.5	21.9	NA
SAUSA300_1970	21.5	19.9	NA	21.3	21.2	21.4	22.5	20.7	20.9
SAUSA300_1971	NA	NA	NA	NA	19.9	20.5	NA	NA	NA
SAUSA300_1974	22.0	23.3	NA	22.8	22.6	22.7	21.6	23.1	20.1
SAUSA300_1975	21.5	23.6	NA	NA	NA	NA	20.7	20.2	21.6
SAUSA300_1977	19.3	19.5	NA	NA	NA	NA	NA	NA	NA
groL groEL SAUSA300_1982	30.0	29.1	28.3	25.2	25.7	24.9	28.2	28.7	28.7
groS groES SAUSA300_1983	26.7	27.3	23.7	24.3	24.3	24.9	23.7	24.8	23.7
SAUSA300_1987	NA	NA	NA	NA	NA	NA	NA	19.9	NA
SAUSA300_1988	NA	NA	NA	22.7	22.1	NA	NA	NA	NA
agrA SAUSA300_1992	NA	NA	NA	21.5	22.6	23.0	NA	18.9	NA
SAUSA300_1993	NA	NA	NA	18.1	19.1	19.9	NA	NA	NA
scrB SAUSA300_1994	NA	NA	NA	21.1	20.8	20.4	NA	20.6	NA
rex SAUSA300_1999	NA	NA	NA	21.1	21.2	21.3	23.7	20.2	NA
vga SAUSA300_2000	NA	NA	NA	22.3	22.1	22.3	NA	20.7	NA
tsaD gcp SAUSA300_2002	21.3	NA	NA	20.7	20.6	20.3	21.3	20.8	NA
SAUSA300_2004	NA	NA	NA	20.3	19.8	20.8	NA	NA	NA
ilvD SAUSA300_2006	27.4	27.2	NA	NA	NA	NA	NA	NA	NA
ilvC SAUSA300_2009	20.8	20.5	NA	NA	NA	NA	NA	NA	NA
SAUSA300_2021	22.9	NA	NA	23.7	23.3	23.5	24.3	23.2	23.2
rpoF SAUSA300_2022	NA	NA	NA	20.0	19.4	20.4	NA	18.9	NA
rsbW SAUSA300_2023	22.9	23.3	NA	21.3	21.7	21.1	21.7	21.1	22.5
rsbV SAUSA300_2024	NA	NA	NA	23.2	22.6	21.6	NA	NA	NA
rsbU SAUSA300_2025	21.0	20.6	NA	21.3	21.1	21.7	NA	21.2	NA
mazF SAUSA300_2026	NA	NA	NA	18.1	18.5	19.7	NA	NA	NA
alr SAUSA300_2027	NA	NA	NA	22.7	23.0	22.9	NA	21.8	NA
acpS SAUSA300_2028	NA	NA	NA	NA	NA	20.2	NA	NA	NA
SAUSA300_2030	NA	NA	NA	NA	NA	NA	NA	18.2	NA
cshA SAUSA300_2037	25.0	24.0	NA	28.5	27.8	28.4	24.6	28.0	26.8
murF SAUSA300_2038	NA	NA	NA	23.0	23.3	23.9	23.3	22.6	22.6
ddl SAUSA300_2039	23.7	23.8	NA	24.6	24.7	25.0	22.3	25.1	23.5
SAUSA300_2040	NA	NA	NA	20.3	NA	20.4	NA	NA	NA
SAUSA300_2043	NA	NA	NA	NA	NA	NA	NA	19.3	NA
SAUSA300_2045	NA	NA	NA	NA	NA	NA	16.1	16.6	NA
yidC SAUSA300_2046	NA	NA	NA	22.9	22.6	22.2	23.2	22.4	NA
fabZ SAUSA300_2054	21.3	NA	NA	23.5	22.3	23.3	22.8	24.0	22.1
murA SAUSA300_2055	21.8	20.4	NA	24.4	23.5	24.5	24.4	25.7	23.5
atpC SAUSA300_2057	NA	NA	NA	25.0	24.6	25.5	NA	25.3	NA
atpD SAUSA300_2058	26.0	25.6	25.0	27.9	28.1	27.2	28.1	28.7	28.5
atpG SAUSA300_2059	23.3	24.0	NA	23.8	23.6	23.9	25.0	24.8	24.2
atpA SAUSA300_2060	26.0	26.6	NA	25.5	25.3	25.4	29.1	26.7	30.2
atpH SAUSA300_2061	NA	25.3	NA	23.9	23.5	23.7	25.3	25.7	21.7
atpF SAUSA300_2062	NA	NA	21.4	23.0	22.7	22.6	24.5	25.2	24.5
SAUSA300_2065	NA	NA	NA	22.7	22.0	22.7	21.2	22.6	20.9

upp SAUSA300_2066	25.1	26.2	23.4	25.4	26.0	26.5	24.1	26.1	24.4
glyA SAUSA300_2067	24.8	22.4	23.3	22.2	22.3	22.4	23.7	24.2	23.5
SAUSA300_2070	NA	NA	NA	19.0	19.4	20.3	NA	NA	NA
prfA SAUSA300_2072	25.1	24.4	23.1	25.5	25.4	24.9	22.7	24.2	21.5
tdk SAUSA300_2073	NA	NA	NA	23.3	23.1	23.6	NA	NA	NA
rpmE2 SAUSA300_2074	NA	NA	NA	27.8	27.5	27.8	NA	25.8	NA
rho SAUSA300_2075	24.7	22.8	NA	24.3	24.3	24.5	NA	24.9	NA
SAUSA300_2076	25.1	25.2	23.6	23.6	23.5	24.3	23.9	23.3	24.6
SAUSA300_2077	NA	NA	NA	NA	18.6	19.7	NA	NA	NA
murA SAUSA300_2078	21.9	22.5	21.2	22.4	23.0	22.8	22.4	23.9	23.3
fba SAUSA300_2079	27.5	25.8	23.2	26.6	26.5	27.6	26.5	27.6	29.7
pyrG SAUSA300_2081	25.1	24.5	NA	26.0	26.5	26.9	27.6	27.2	25.7
rpoE SAUSA300_2082	21.1	22.4	NA	21.0	21.0	20.7	22.2	19.4	NA
SAUSA300_2083	NA	NA	NA	18.6	NA	18.0	NA	NA	NA
coaW coaA SAUSA300_2084	19.3	18.2	NA	20.6	21.2	20.7	21.6	20.9	17.8
SAUSA300_2085	NA	22.0	NA	24.2	23.8	24.8	NA	21.5	NA
luxS SAUSA300_2088	NA	NA	NA	23.3	23.0	24.3	NA	21.0	NA
pdp pyn SAUSA300_2089	28.2	27.7	28.6	26.4	26.1	26.7	25.7	25.2	24.1
deoC SAUSA300_2090	25.4	25.8	25.0	26.6	26.8	27.3	25.4	26.9	25.4
deoD SAUSA300_2091	23.7	24.7	NA	24.2	24.3	25.4	24.5	25.0	28.7
dps SAUSA300_2092	24.6	24.3	28.7	NA	NA	NA	24.2	23.1	20.6
SAUSA300_2093	20.6	NA	NA	NA	NA	NA	NA	19.5	NA
SAUSA300_2094	NA	NA	NA	21.3	21.2	21.5	21.8	22.7	20.8
manA SAUSA300_2096	NA	17.7	NA	NA	NA	21.0	NA	NA	NA
SAUSA300_2097	24.8	24.0	23.4	22.8	22.7	23.3	21.5	22.7	NA
arsR SAUSA300_2098	NA	NA	NA	NA	NA	NA	NA	17.4	18.7
SAUSA300_2100	26.1	NA	26.1	25.4	25.5	24.8	24.7	25.3	22.4
SAUSA300_2102	21.7	21.5	NA	22.9	23.0	23.3	NA	NA	NA
glmS SAUSA300_2104	25.9	25.8	NA	27.5	27.7	28.2	27.2	26.7	27.8
mtlF SAUSA300_2105	19.5	18.9	NA	NA	NA	20.3	NA	NA	NA
mtlD SAUSA300_2108	22.0	21.3	NA	21.2	20.2	20.3	22.3	18.6	NA
glmM SAUSA300_2111	25.2	24.8	NA	27.1	27.3	26.9	26.4	26.1	26.1
SAUSA300_2112	21.0	21.0	22.7	21.4	21.1	21.6	21.7	21.2	22.5
dacA SAUSA300_2113	19.4	22.0	NA	22.2	21.1	20.6	20.7	19.9	NA
SAUSA300_2125	20.8	NA	NA	23.2	23.5	23.2	23.4	24.5	22.8
SAUSA300_2130	24.2	23.3	NA	24.3	23.5	24.3	24.7	24.8	25.1
SAUSA300_2132	25.7	25.2	25.0	19.7	19.9	18.5	22.5	23.6	NA
SAUSA300_2133	NA	NA	NA	20.9	21.1	20.4	20.4	20.0	NA
SAUSA300_2136	23.2	23.6	NA	NA	NA	NA	20.6	19.9	NA
SAUSA300_2140	NA	NA	NA	NA	NA	NA	NA	17.1	NA
asp23 SAUSA300_2142	31.3	30.7	29.8	26.0	25.3	26.7	27.4	26.9	29.5
SAUSA300_2144	24.9	26.0	22.6	22.1	21.9	22.6	23.6	22.4	NA
SAUSA300_2146	21.6	19.8	NA	20.4	20.1	20.6	20.8	20.5	NA
SAUSA300_2147	23.9	21.9	NA	22.1	22.0	22.4	NA	23.9	NA
SAUSA300_2148	NA	NA	NA	18.7	18.6	NA	19.0	19.8	NA
SAUSA300_2156	NA	NA	NA	21.2	20.8	20.0	NA	NA	NA
SAUSA300_2159	NA	NA	NA	19.1	19.4	19.1	NA	NA	NA
hysA SAUSA300_2161	NA	NA	NA	NA	NA	NA	NA	16.7	NA
SAUSA300_2163	NA	NA	NA	19.3	18.9	18.8	18.3	20.6	NA
SAUSA300_2165	NA	NA	NA	23.8	24.0	24.2	23.6	23.3	23.4

alsS SAUSA300_2166	NA	NA	NA	27.3	28.0	28.0	24.6	25.9	NA
rpsI SAUSA300_2171	NA	21.6	NA	23.2	22.5	24.8	27.2	26.0	23.7
rplM SAUSA300_2172	25.0	26.7	23.5	28.1	27.9	27.5	28.8	28.0	29.0
truA SAUSA300_2173	NA	NA	NA	20.1	19.6	19.4	NA	NA	NA
ecfT SAUSA300_2174	NA	NA	NA	NA	NA	18.0	NA	17.7	NA
ecfA1 cbiO1 SAUSA300_2176	NA	NA	NA	23.5	24.1	24.3	NA	NA	NA
rplQ SAUSA300_2177	26.9	28.8	NA	25.7	25.4	25.4	28.7	26.9	29.5
rpoA SAUSA300_2178	27.4	NA	25.8	26.0	25.0	26.1	28.2	26.4	29.2
rpsK SAUSA300_2179	22.0	22.4	23.4	20.8	21.4	21.3	25.1	23.8	29.8
rpsM SAUSA300_2180	NA	NA	NA	23.3	23.6	23.7	27.9	27.7	28.4
rpmJ SAUSA300_2181	20.1	21.6	NA	25.1	25.0	24.8	NA	22.4	NA
adk SAUSA300_2183	25.3	23.7	22.4	26.9	26.4	25.8	25.4	27.1	24.9
rplO SAUSA300_2185	26.6	25.7	24.4	27.5	26.6	27.7	27.0	27.6	26.5
rpmD SAUSA300_2186	22.1	25.0	NA	25.1	24.9	24.7	25.4	24.8	25.0
rpsE SAUSA300_2187	27.9	26.8	23.7	27.0	26.8	27.0	28.4	29.8	29.3
rplR SAUSA300_2188	28.5	26.9	23.4	27.3	27.0	27.2	28.7	27.1	27.0
rplF SAUSA300_2189	28.0	28.9	NA	26.3	25.1	25.8	26.6	27.3	27.8
rpsH SAUSA300_2190	28.2	28.5	26.8	24.7	24.9	25.4	26.8	26.4	27.2
rpsZ rpsN1 SAUSA300_2191	NA	NA	NA	22.1	22.4	22.1	NA	NA	NA
rplE SAUSA300_2192	24.8	25.6	25.0	28.0	27.7	28.2	29.8	28.9	30.6
rplX SAUSA300_2193	22.6	24.8	28.9	25.5	25.9	25.7	26.2	23.8	26.2
rplN SAUSA300_2194	25.0	24.2	28.0	26.1	25.9	25.6	28.9	26.3	27.2
rpsQ SAUSA300_2195	26.3	25.3	NA	25.5	25.0	24.9	27.4	25.6	NA
rpmC SAUSA300_2196	23.9	28.4	25.3	26.9	26.7	26.0	25.6	25.0	29.9
rplP SAUSA300_2197	25.7	24.9	24.3	27.3	27.1	26.7	27.8	27.9	25.7
rpsC SAUSA300_2198	26.1	27.2	25.5	27.7	27.3	27.8	28.0	28.5	28.1
rplV SAUSA300_2199	27.6	27.1	25.8	27.4	27.1	27.5	28.7	27.6	27.8
rpsS SAUSA300_2200	23.3	25.1	NA	23.8	23.9	24.4	24.9	21.1	28.4
rplB SAUSA300_2201	25.4	24.0	30.0	27.4	27.4	27.2	29.1	28.7	29.7
rplW SAUSA300_2202	24.4	23.4	26.0	27.2	27.0	27.0	28.9	24.9	28.2
rplD SAUSA300_2203	24.8	24.1	21.9	25.1	24.9	24.9	27.2	28.3	29.6
rplC SAUSA300_2204	22.8	22.2	NA	26.2	26.4	26.1	22.5	26.1	28.4
rpsJ SAUSA300_2205	26.9	28.7	23.6	26.7	27.0	26.5	28.5	26.2	30.2
SAUSA300_2206	NA	NA	NA	21.3	20.1	20.3	NA	20.8	NA
topB SAUSA300_2208	NA	NA	NA	22.6	22.0	21.6	NA	NA	NA
SAUSA300_2213	21.7	23.7	NA	22.1	21.9	21.2	22.7	22.2	21.6
femX fmhB SAUSA300_2214	26.2	NA	NA	24.2	23.8	24.1	24.0	25.0	23.5
moaA SAUSA300_2219	NA	NA	NA	NA	NA	NA	18.4	18.0	NA
moaD SAUSA300_2221	NA	NA	NA	20.0	19.8	NA	NA	NA	NA
moaE SAUSA300_2222	NA	NA	NA	19.1	19.8	20.2	NA	21.2	NA
mobB SAUSA300_2223	NA	NA	NA	NA	NA	19.2	NA	NA	NA
moeA SAUSA300_2224	24.6	22.3	23.5	24.1	24.1	24.3	23.5	22.2	26.3
moaB SAUSA300_2226	NA	NA	NA	21.7	21.7	21.5	21.2	22.0	NA
moeB SAUSA300_2227	NA	NA	NA	NA	NA	NA	19.0	19.3	NA
modC SAUSA300_2228	NA	NA	NA	19.3	19.5	19.7	NA	18.1	NA
modA SAUSA300_2230	22.6	23.2	NA	22.4	22.6	23.1	21.4	22.9	NA
SAUSA300_2235	23.5	23.3	21.0	21.5	21.4	21.5	24.2	24.1	26.1

SAUSA300_2236	21.2	NA	NA	21.9	21.9	22.1	22.1	21.5	23.1
ureE SAUSA300_2241	NA	NA	NA	21.4	21.5	22.8	NA	18.4	NA
sarR SAUSA300_2245	24.3	22.7	NA	23.8	23.6	23.7	24.6	23.0	20.4
ssaA SAUSA300_2249	NA	NA	NA	23.9	23.9	22.9	25.6	25.9	25.4
SAUSA300_2251	22.6	23.1	NA	22.6	22.7	22.8	23.8	23.7	NA
SAUSA300_2252	NA	NA	NA	NA	NA	NA	NA	20.0	NA
SAUSA300_2254	24.7	24.5	25.7	25.8	25.5	25.7	24.3	25.9	23.0
SAUSA300_2255	21.8	NA	NA	21.2	21.4	21.0	21.8	22.6	NA
SAUSA300_2257	22.8	20.7	NA	NA	NA	20.1	NA	21.7	NA
SAUSA300_2258	NA	NA	NA	25.4	25.6	24.7	25.1	25.5	23.7
SAUSA300_2259	25.1	25.0	NA	23.6	24.3	24.7	23.0	24.9	NA
SAUSA300_2260	NA	NA	NA	NA	16.9	16.6	NA	NA	NA
SAUSA300_2261	NA	NA	NA	20.5	20.4	19.1	NA	NA	NA
SAUSA300_2264	NA	24.2	NA	20.6	19.6	21.9	NA	21.7	NA
SAUSA300_2265	NA	NA	NA	NA	NA	NA	19.2	NA	NA
SAUSA300_2267	NA	NA	NA	NA	NA	NA	19.8	17.8	NA
SAUSA300_2269	NA	NA	NA	NA	NA	20.1	NA	NA	NA
SAUSA300_2272	NA	NA	NA	22.0	21.5	21.6	NA	21.0	NA
SAUSA300_2273	NA	NA	NA	NA	NA	20.1	NA	16.6	NA
SAUSA300_2275	20.7	20.2	NA	NA	NA	NA	21.7	20.9	NA
hutG SAUSA300_2281	NA	NA	NA	17.1	17.0	NA	18.7	18.9	NA
lyrA SAUSA300_2282	NA	23.1	NA	22.2	22.3	22.6	20.3	23.3	21.0
rpiA SAUSA300_2283	23.2	22.6	NA	23.6	23.7	24.3	NA	22.7	NA
SAUSA300_2284	NA	NA	NA	21.2	21.0	21.5	NA	NA	NA
galM SAUSA300_2285	NA	NA	NA	18.9	19.0	20.1	19.8	20.6	NA
SAUSA300_2287	NA	NA	NA	19.4	20.0	20.1	NA	17.6	NA
SAUSA300_2289	23.6	21.8	NA	22.0	21.8	21.4	22.0	22.0	19.0
SAUSA300_2290	NA	NA	NA	NA	NA	NA	NA	17.8	NA
fni SAUSA300_2292	NA	NA	NA	21.7	21.8	22.0	21.4	20.4	NA
SAUSA300_2295	NA	NA	NA	NA	NA	NA	18.8	18.7	NA
SAUSA300_2296	19.7	NA	NA	22.5	22.2	21.6	22.3	21.8	18.0
SAUSA300_2298	NA	NA	NA	23.8	23.7	23.6	22.1	20.8	NA
SAUSA300_2299	NA	NA	NA	25.0	25.2	24.6	20.6	23.2	NA
tcaA SAUSA300_2302	NA	NA	NA	19.4	19.6	NA	NA	NA	NA
mqo SAUSA300_2312	NA	NA	NA	22.0	22.2	21.3	NA	NA	NA
SAUSA300_2313	25.4	24.4	NA	22.1	21.6	21.7	23.7	26.1	26.4
SAUSA300_2314	NA	NA	NA	22.2	22.5	22.0	NA	20.9	NA
SAUSA300_2315	23.1	23.7	NA	23.7	22.5	22.8	24.9	24.4	NA
SAUSA300_2317	21.4	21.7	NA	22.8	22.4	22.9	24.4	22.4	26.2
SAUSA300_2327	22.8	22.7	NA	21.8	20.0	22.4	NA	19.8	NA
SAUSA300_2328	26.3	23.5	27.6	23.7	23.7	22.8	22.4	20.2	22.9
gltT SAUSA300_2329	NA	NA	NA	NA	NA	NA	NA	19.8	NA
SAUSA300_2330	NA	NA	NA	23.1	22.9	22.9	NA	22.6	NA
sarZ SAUSA300_2331	21.2	24.0	NA	22.6	22.6	22.5	NA	23.4	NA
SAUSA300_2332	19.0	NA	NA	18.1	18.8	19.1	19.9	18.7	19.7
narT narK SAUSA300_2333	NA	NA	NA	21.2	22.2	22.3	NA	NA	NA
nreC SAUSA300_2337	NA	NA	NA	23.4	24.0	22.4	NA	21.8	19.7
nreB SAUSA300_2338	NA	NA	19.2	21.1	20.9	20.1	NA	NA	19.9
narI SAUSA300_2340	NA	NA	NA	23.3	23.0	22.6	18.0	NA	NA
narJ SAUSA300_2341	NA	NA	NA	25.7	25.6	25.6	NA	NA	NA
narH SAUSA300_2342	22.3	22.7	NA	27.4	27.0	27.5	22.6	24.4	22.7
SAUSA300_2343	24.3	26.8	22.4	28.7	29.3	28.6	25.4	25.4	24.3
SAUSA300_2344	NA	NA	NA	20.2	20.0	17.8	NA	NA	NA
nirD SAUSA300_2345	25.2	25.2	NA	25.4	25.4	24.6	NA	NA	NA
nirB SAUSA300_2346	23.0	23.4	25.2	27.5	27.4	28.2	23.9	23.8	NA
nirR SAUSA300_2347	NA	NA	NA	19.8	20.0	20.8	NA	NA	NA
SAUSA300_2348	NA	NA	NA	NA	NA	NA	16.1	19.0	NA
SAUSA300_2349	NA	NA	NA	21.6	21.2	21.3	NA	NA	NA
SAUSA300_2351	NA	NA	NA	20.9	20.6	19.7	21.6	21.9	NA
SAUSA300_2352	NA	NA	NA	NA	NA	18.8	NA	17.6	NA
SAUSA300_2357	NA	25.6	NA	24.3	24.4	24.7	NA	23.6	NA

SAUSA300_2358	NA	NA	NA	22.6	22.3	22.3	NA	NA	NA
SAUSA300_2359	NA	23.0	NA	25.0	25.1	25.0	25.4	27.1	26.9
gpmA SAUSA300_2362	26.1	24.9	NA	26.4	26.3	27.1	25.4	26.0	NA
sbi SAUSA300_2364	19.9	20.4	NA	NA	NA	NA	NA	NA	NA
hlgA SAUSA300_2365	22.2	21.9	23.9	NA	NA	NA	NA	NA	NA
SAUSA300_2370	NA	NA	NA	NA	NA	NA	NA	18.2	NA
SAUSA300_2374	21.4	20.9	NA	NA	NA	NA	NA	NA	NA
SAUSA300_2375	21.4	21.1	NA	NA	NA	NA	NA	NA	NA
SAUSA300_2377	NA	NA	NA	20.0	19.8	20.0	NA	NA	NA
SAUSA300_2378	20.6	NA	NA	20.6	20.4	20.1	19.5	19.1	NA
SAUSA300_2381	NA	NA	NA	20.7	20.1	20.2	NA	NA	NA
SAUSA300_2387	NA	NA	NA	NA	NA	NA	19.2	18.0	NA
panE SAUSA300_2388	NA	NA	NA	21.1	NA	19.6	16.4	20.7	NA
opuCa SAUSA300_2393	NA	NA	NA	23.0	23.4	23.7	NA	21.4	NA
SAUSA300_2394	NA	NA	NA	20.6	20.3	20.4	NA	NA	NA
SAUSA300_2397	NA	NA	NA	17.8	17.1	17.2	NA	NA	NA
SAUSA300_2398	NA	NA	NA	NA	NA	NA	NA	18.6	18.2
SAUSA300_2399	NA	NA	NA	NA	NA	19.7	NA	NA	NA
SAUSA300_2400	23.9	NA	NA	24.1	24.0	23.7	24.3	21.0	NA
SAUSA300_2403	21.7	NA	NA	17.5	18.0	NA	22.3	17.1	NA
SAUSA300_2404	NA	NA	NA	21.6	21.4	20.8	NA	NA	NA
opp-1A SAUSA300_2411	27.1	25.6	27.3	23.1	22.6	23.5	19.3	22.9	NA
SAUSA300_2422	21.4	21.0	NA	19.0	19.1	20.2	NA	20.3	21.4
SAUSA300_2431	NA	NA	NA	NA	NA	NA	20.2	16.1	NA
SAUSA300_2432	20.2	19.2	NA	19.6	20.0	20.5	NA	NA	NA
pgcA SAUSA300_2433	NA	NA	NA	22.1	22.8	23.3	22.7	21.5	NA
gtaB galU SAUSA300_2439	20.7	NA	NA	23.8	23.7	24.0	24.0	22.6	NA
fnbB SAUSA300_2440	NA	NA	NA	NA	NA	NA	17.2	20.0	NA
fnbA SAUSA300_2441	NA	NA	NA	NA	NA	NA	19.2	18.2	NA
gntP SAUSA300_2442	20.7	21.5	21.9	NA	NA	NA	NA	NA	NA
gntK SAUSA300_2443	NA	NA	NA	22.3	22.6	23.3	NA	NA	NA
SAUSA300_2446	NA	NA	NA	22.1	21.7	21.8	NA	NA	NA
SAUSA300_2448	20.0	NA	NA	NA	NA	NA	NA	NA	NA
SAUSA300_2452	NA	NA	NA	NA	NA	NA	NA	18.0	NA
SAUSA300_2453	21.2	19.2	NA	20.1	20.2	19.6	NA	NA	NA
fbp SAUSA300_2455	20.3	20.4	NA	19.7	19.6	20.7	NA	19.3	NA
SAUSA300_2459	NA	NA	NA	NA	NA	NA	NA	18.5	NA
SAUSA300_2460	NA	NA	NA	20.3	20.4	20.6	NA	NA	NA
SAUSA300_2461	NA	NA	NA	NA	NA	NA	NA	18.3	NA
SAUSA300_2462	NA	NA	NA	19.6	19.7	20.1	NA	NA	NA
ddh SAUSA300_2463	23.7	23.4	22.1	20.0	20.8	19.8	26.0	27.5	26.1
srtA SAUSA300_2467	NA	NA	21.1	23.0	22.7	23.3	NA	23.0	NA
sdaAA SAUSA300_2469	NA	NA	NA	18.8	18.7	NA	NA	NA	NA
SAUSA300_2473	NA	NA	NA	21.4	21.2	22.1	NA	20.1	19.7
glcB SAUSA300_2476	NA	22.8	NA	NA	NA	NA	23.1	23.6	NA
cidC SAUSA300_2477	23.1	23.0	20.4	21.8	21.9	22.3	21.9	24.6	22.9
SAUSA300_2480	NA	20.8	NA	NA	NA	NA	NA	NA	NA
SAUSA300_2483	NA	NA	NA	22.4	22.9	23.5	21.5	23.7	22.6
SAUSA300_2484	25.9	24.5	NA	26.3	26.3	26.3	25.6	26.3	28.0
clpL SAUSA300_2486	30.1	29.9	27.5	25.9	25.4	25.8	26.1	25.4	24.9
rocA SAUSA300_2491	22.2	22.0	NA	20.7	20.3	20.3	21.2	19.8	NA
SAUSA300_2492	NA	NA	NA	21.4	20.8	20.3	NA	NA	NA
copA SAUSA300_2494	NA	NA	NA	20.6	21.0	20.8	NA	NA	NA
copZ SAUSA300_2495	NA	NA	NA	19.4	19.3	19.0	NA	22.5	NA

SAUSA300_2496	NA	NA	NA	19.1	19.3	19.3	NA	NA	NA
crtP SAUSA300_2501	21.6	20.2	NA	NA	NA	NA	NA	NA	NA
SAUSA300_2504	NA	NA	NA	22.0	22.3	22.3	21.2	21.7	NA
isaA SAUSA300_2506	NA	NA	NA	22.0	21.9	22.1	25.6	22.1	26.6
SAUSA300_2513	22.1	21.8	NA	21.9	21.3	21.7	22.3	20.4	NA
SAUSA300_2516	NA	NA	NA	19.4	NA	NA	NA	NA	NA
SAUSA300_2517	NA	NA	NA	20.7	20.5	20.8	19.8	20.5	NA
SAUSA300_2518	23.7	24.0	27.7	22.0	21.9	22.2	23.8	25.7	24.0
SAUSA300_2523	NA	NA	NA	24.7	NA	24.3	NA	NA	NA
SAUSA300_2525	NA	NA	NA	19.3	19.3	20.3	NA	NA	NA
pyrD SAUSA300_2526	22.3	21.6	NA	23.8	23.6	22.5	25.4	24.6	27.5
SAUSA300_2527	NA	NA	NA	NA	NA	NA	NA	19.6	NA
SAUSA300_2528	NA	NA	NA	18.1	18.4	18.8	18.3	21.6	NA
SAUSA300_2529	20.6	20.6	NA	NA	NA	20.5	NA	NA	NA
panD SAUSA300_2532	NA	NA	NA	NA	NA	NA	20.4	21.7	19.8
panC SAUSA300_2533	NA	NA	NA	NA	NA	NA	NA	18.8	NA
panB SAUSA300_2534	NA	21.7	NA	23.2	22.8	23.2	24.1	23.9	22.3
ldh2 SAUSA300_2537	29.3	29.6	29.9	28.7	28.8	29.4	26.5	25.8	29.4
fda SAUSA300_2540	29.4	28.9	31.2	27.5	27.3	27.8	28.8	27.9	28.4
mqo SAUSA300_2541	26.2	25.8	26.1	28.6	28.7	28.6	28.3	28.8	30.0
SAUSA300_2542	22.6	NA	NA	22.7	22.9	22.6	23.6	22.7	23.4
betA SAUSA300_2545	NA	NA	NA	18.2	18.1	NA	NA	NA	NA
SAUSA300_2547	NA	NA	NA	NA	NA	NA	NA	NA	18.5
nrdD SAUSA300_2551	NA	21.8	NA	23.2	23.4	23.3	NA	21.4	NA
SAUSA300_2554	NA	NA	NA	21.3	20.8	21.7	NA	NA	NA
SAUSA300_2560	NA	NA	NA	20.5	21.0	20.3	NA	NA	NA
SAUSA300_2562	NA	NA	NA	22.3	22.4	23.1	NA	17.0	NA
estA SAUSA300_2564	NA	NA	NA	21.2	21.7	22.0	NA	NA	NA
clfB SAUSA300_2565	NA	NA	NA	NA	21.6	23.2	23.4	25.4	23.4
arcC2 SAUSA300_2567	20.8	NA	NA	NA	18.1	NA	18.7	19.7	NA
arcB argF SAUSA300_2569	23.0	24.0	NA	21.4	21.7	23.5	NA	19.3	NA
arcA SAUSA300_2570	NA	NA	NA	19.5	19.4	22.0	NA	NA	21.4
isaB SAUSA300_2573	NA	17.1	NA	NA	NA	NA	22.7	21.4	NA
SAUSA300_2576	NA	NA	NA	18.8	18.9	21.7	NA	17.5	NA
SAUSA300_2578	NA	NA	NA	21.1	21.0	21.2	20.6	22.7	20.3
SAUSA300_2580	NA	NA	NA	19.1	19.6	20.0	NA	NA	20.4
SAUSA300_2581	19.8	19.7	NA	NA	NA	NA	NA	NA	NA
sraP SAUSA300_2589	NA	NA	NA	16.0	NA	15.0	NA	NA	NA
tetR SAUSA300_2599	21.2	NA	NA	19.5	19.4	20.3	20.2	19.5	18.7
SAUSA300_2620	24.0	23.2	20.6	19.6	19.4	19.5	NA	19.8	NA
SAUSA300_2627	19.3	NA	NA	24.0	24.2	23.9	NA	20.8	NA
SAUSA300_2639	NA	NA	NA	24.1	22.6	21.6	NA	NA	NA
SAUSA300_2643	NA	NA	NA	20.8	20.2	20.0	21.8	22.9	NA
rsmG SAUSA300_2644	NA	NA	NA	21.4	21.3	21.4	NA	20.8	NA
mnmG gidA SAUSA300_2645	23.3	NA	NA	25.4	25.4	24.8	24.6	25.2	20.2
mnmE trmE SAUSA300_2646	22.1	20.7	NA	20.8	21.0	20.8	22.1	22.7	20.1
traI SAUSA300_pUSA030018	NA	NA	NA	25.3	25.3	NA	NA	NA	NA
psmA4 SAUSA300_0424.1	NA	NA	NA	20.4	20.8	21.4	NA	NA	NA
psmA1 SAUSA300_0424.4	NA	NA	NA	19.8	20.7	20.4	NA	NA	NA

Supplemental Plasmid Annotations

pSS20_tet insert (pmRFPmars backbone)
TetR +tet promoter
his tag
MetRS
cut site

pmRFPmars backbone ---
*GTCGAC*GGTATCGATAACTCGACATCTTGGTTACCGTGAAGTTACCATCACGGAAAAAGGTTA
TGCTGCTTTTAAGACCCACTTTCACATTTAAGTTGTTTTTCTAATCCGCATATGATCAATTCAAG
GCCGAATAAGAAGGCTGGCTCTGCACCTTGGTGATCAAATAATTCGATAGCTTGTCGTAATAA
TGGCGGCATACTATCAGTAGTAGGTGTTTCCCTTTCTTCTTTAGCGACTTGATGCTCTTGATCTT
CCAATACGCAACCTAAAGTAAAATGCCCCACAGCGCTGAGTGCATATAATGCATTCTCTAGTG
AAAAACCTTGTTGGCATAAAAAGGNTAATTGATTTTCGAGAGTTTCATACTGTTTTTCTGTAGG
CCGTGTACCTAAATGTACTTTTGCTCCATCGCGATGACTTAGTAAAGCACATCTAAAACTTTTA
GCGTTATTACGTAAAAAATCTTGCCAGCTTTCCCCTTCTAAAGGGCAAAAGTGAGTATGGTGC
CTATCTAACATCTCAATGGCTAAGGCGTCGAGCAAAGCCCGCTTATTTTTTACATGCCAATACA
ATGTAGGCTGCTCTACACCTAGCTTCTGGGCGAGTTTACGGGTTGTTAAACCTTCGATTCCGAC
CTCATTAAGCAGCTCTAATGCGCTGTTAATCACTTTACTTTTATCTAATCTAGACATCATTAATT
CCTCCTTTTTGTTGACACTCTATCATTGATAGAGTTATTTGTCAAACTAGTTTTTTATTTGGATC
CCCTCGAGTTCATGAAAAACTAAAAAAAATATTGACACTCTATCATTGATAGAGTATAATTAA
AATAAGCTTGAT*GGTACC*AGATCCTAGGAAAGGAGGATGATAAAATGAGAGGATCGCATCAC
CATCACCATCACGGATCGATGACTCAAGTAGCAAAAAAAATTTAGTAACTTGTGCAAATCCT
TATGCAAATGGTAGTATTCATTTAGGTCACATGTTAGAACATATTCAAGCAGATGTTTGGGTTC
GTTATCAACGTATGAGAGGTCATGAAGTTAATTTTATTTGTGCAGATGATGCTCATGGTACACC
AATTATGTTAAAAGCACAACAATTAGGTATTACTCCTGAACAAATGATTGGTGAAATGAGTCA
AGAACATCAAACAGATTTTGCAGGTTTTAATATTTCTTATGATAATTATCATTCTACTCATTCA
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CAACATATAGTCCAACTGAATTAATTGAACCTAAAAGTGTTGTATCTGGTGCTACACCAGTTAT
GCGTGATTCAGAACATTTCTTTTTCGATTTACCTTCTTTTTCAGAAATGTTACAAGCATGGACT
AGAAGTGGTGCTTTACAAGAACAAGTAGCAAATAAAATGCAAGAATGGTTTGAATCAGGTTT
ACAACAATGGGATATTAGTCGTGATGCACCATATTTGGTTTTGAAATTCCAAATGCTCCTGGT
AAATATTTTTATGTATGGTTAGATGCACCAATTGGTTTAATGGGTTCATTTAAAAATTTATGTG
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TGTCAAAAAGTAGAGGTACATTTATTAAAGCTTCTACTTGGTTAAATCATTTTGATGCAGATTC
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CTGGTTTTATTAATAAAAGATTTGATGGTGTTTTAGCATCAGAATTAGCTGATCCACAATTATA
TAAAACATTTACTGATGCAGCTGAAGTTATTGGTGAAGCATGGGAATCTCGTGAATTTGGTAA
AGCTGTAAGAGAAATTATGGCATTAGCTGATTTAGCAAATCGTTATGTTGATGAACAAGCACC
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GAAGCATTTTTAAATACAGAATTAACTTGGGATGGTATTCAACAACCATTATTAGGTCATAAA
GTTAATCCTTTTAAAGCATTATATAATCGTATTGATATGAGACAAGTTGAAGCATTAGTAGAA
GCTTCAAAAGAAGAAGTTAAAGCAGCTGCAGCTCCAGTAACAGGTCCTTTAGCAGATGATCCA
ATTCAAGAAACAATTACTTTTGATGATTTTGCTAAAGTTGATTTACGTGTAGCATTAATTGAAA
ATGCTGAATTTGTAGAAGGTAGTGATAAATTATTAAGATTAACATTAGATTTAGGTGGTGAAA

AACGTAATGTATTTTCAGGTATTAGAAGTGCTTATCCAGATCCTCAAGCATTAATTGGTAG
ACATACAATTATGGTAGCAAATTTAGCTCCACGTAAAATGAGATTTGGTATTTCAGAAGGAAT
GGTTATGGCAGCTGGTCCTGGTGGTAAAGATATTTTTTATTAAGTCCAGATGCAGGTGCTAAA
CCAGGTCATCAAGTTAAATAAACCTTGTAAAACAAGGTTTCTCTGCAGTTAAGCC*GAATTC*---
pmRFPmars backbone

pSS20_hprk insert (pmRFPmars backbone) **"+NLL"**

hprK promoter

his tag

MetRS

pmRFPmars backbone ---
*gtcgac*GTGAGGCTCAACGTGTGAAACTTGCATCTGAACTTCATAAACGTTCAACTGGTAAATCT
ATTTATATCCTAGATGAACCGACAACAGGGTTACATGTTGACGATATTAGTAGATTATTAAAA
GTATTAAACCGATTAGTTGAAAATGGTGATACTGTTGTAATTATTGAACATAACCTAGATGTTA
TCAAAACAGCAGACTATATTATAGACTTAGGTCCTGAAGGTGGTAGTGGCGGTGGTACTATTG
TTGCGACTGGCACACCCGAAGATATTGCTCAGACAAAGTCATCATATACAGGAAAGTATTTAA
AAGAAGTACTTGAACGAGATAAACAAAATACTGAAGATAAATAAGATTAAAAGAAGTGAAGG
ATGTTATAAATTTATCCTTCGCTTCTTTTTATTAATTTAGTAATGAATAGTAGAAAGAAAAGAT
GCGTAAAAAGAATTATGTTAAGATAGGGTCAATCTAGAGTAGTTAAACATAAATCGAACTGG
GAGTGGGACAGAAATGATAAAGAATCACTAATGATTTATTATGTAGTGGTTCTTTGTCATTAG
CCACAGCTATTGTGTACTTAAAAATAGGAATGCATGAGTGCAACTCATGCATAAGAAATACTA
ATTTCTAAAGAAAAAGTATTTCTTTATGTTGGGGCCCCGCCAACTTGCATTGTTTGTAGAATTT
CTTTTCGAAATTCTTTATGTTGGGGCCCCGCCAACTTGCATTGTTTGTAGAATTTCTTTTCGAAA
TTCTTTATGTTGGGGCCCCGCCAACTAATTCCAATATATCATTGTAGAGCTTAGGTCATTGATT
TTTGGCTCGGACTTTTATGGCGATATGAACCATGTAAATTAAGCAAGCAATAAATTAATGATT
GATATTGACTTGTAAAATAATAACAATAATGAACAATTAATATTTATTTTAGCTTTTCAATGTA
GATTGGTGTTATATTTTTGATATGATAAGAAGAGATGTAAGAGTAGGGATAAATACAATTGAG
GTGAACCCATGTTAACGACAGAAAAACTAGTTGAAACATTAAAGTTAGATTTAATCGCTGGTG
AAGAAGGAC*ggtacC*AGATCCTAGGAAAGGAGGATGATAAAATGAGAGGATCGCATCACCATC
ACCATCACGGATCGATGACTCAAGTAGCAAAAAAAATTTTAGTAACTTGTGCAAATCCTTATG
CAAATGGTAGTATTCATTTAGGTCACATGTTAGAACATATTCAAGCAGATGTTTGGGTTCGTTA
TCAACGTATGAGAGGTCATGAAGTTAATTTTATTTGTGCAGATGATGCTCATGGTACACCAATT
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CATCAAACAGATTTTGCAGGTTTTAATATTTCTTATGATAATTATCATTCTACTCATTCAGAAG
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GTACTTGTCCAAAATGTAAATCACCTGATCAATATGGTGATAATTGTGAAGTTTGTGGTGCAA
CATATAGTCCAACTGAATTAATTGAACCTAAAAGTGTTGTATCTGGTGCTACACCAGTTATGCG
TGATTCAGAACATTTCTTTTTCGATTTACCTTCTTTTTCAGAAATGTTACAAGCATGGACTAGA
AGTGGTGCTTTACAAGAACAAGTAGCAAATAAAATGCAAGAATGGTTTGAATCAGGTTTACAA
CAATGGGATATTAGTCGTGATGCACCATATTTTGGTTTTGAAATTCCAAATGCTCCTGGTAAAT
ATTTTTATGTATGGTTAGATGCACCAATTGGTTTAATGGGTTCATTTAAAAATTTATGTGATAA
AAGAGGTGATAGTGTTTCTTTTGATGAATATTGGAAAAAAGATAGTACAGCAGAATTATATCA
TTTTATTGGTAAAGATATTGTATATTTCTTATCTTTATTTTGGCCAGCAATGTTAGAAGGTAGTA
ATTTTCGTAAACCTTCTAATTTATTGTTCATGGTTATGTTACAGTAAATGGTGCAAAAATGTC
AAAAAGTAGAGGTACATTTATTAAAGCTTCTACTTGGTTAAATCATTTTGATGCAGATTCATTA
CGTTATTATTATACAGCTAAATTATCAAGTAGAATTGATGATATTGATTTAAATTTAGAAGATT
TTGTTCAACGTGTAAATGCAGATATTGTAAATAAAGTTGTAAATTTAGCATCTCGTAATGCTGG
TTTTATTAATAAAAGATTTGATGGTGTTTTAGCATCAGAATTAGCTGATCCACAATTATATAAA
ACATTTACTGATGCAGCTGAAGTTATTGGTGAAGCATGGGAATCTCGTGAATTTGGTAAAGCT
GTAAGAGAAATTATGGCATTAGCTGATTTAGCAAATCGTTATGTTGATGAACAAGCACCATGG

GTTGTAGCTAAACAAGAAGGTAGAGATGCAGATTTACAAGCTATTTGTAGTATGGGTATTA
ATTTATTTCGTGTTTTAATGACATATTTAAAACCAGTATTACCTAAATTAACTGAAAGAGCAGA
AGCATTTTTAAATACAGAATTAACTTGGGATGGTATTCAACAACCATTATTAGGTCATAAAGTT
AATCCTTTTAAAGCATTATATAATCGTATTGATATGAGACAAGTTGAAGCATTAGTAGAAGCT
TCAAAAGAAGAAGTTAAAGCAGCTGCAGCTCCAGTAACAGGTCCTTTAGCAGATGATCCAATT
CAAGAAACAATTACTTTTGATGATTTTGCTAAAGTTGATTTACGTGTAGCATTAATTGAAAATG
CTGAATTTGTAGAAGGTAGTGATAAATTATTAAGATTAACATTAGATTTAGGTGGTGAAAAAC
GTAATGTATTTTCAGGTATTAGAAGTGCTTATCCAGATCCTCAAGCATTAATTGGTAGACATAC
AATTATGGTAGCAAATTTAGCTCCACGTAAAATGAGATTTGGTATTTCAGAAGGAATGGTTAT
GGCAGCTGGTCCTGGTGGTAAAGATATTTTTTTATTAAGTCCAGATGCAGGTGCTAAACCAGG
TCATCAAGTTAAATAAACCTTGTAAAACAAGGTTTCTCTGCAGTTAAGCCGAATTC
TGTAAAACAAGGTTTCTCTGCAGTTAAGCC*GAATTC* ---pmRFPmars backbone