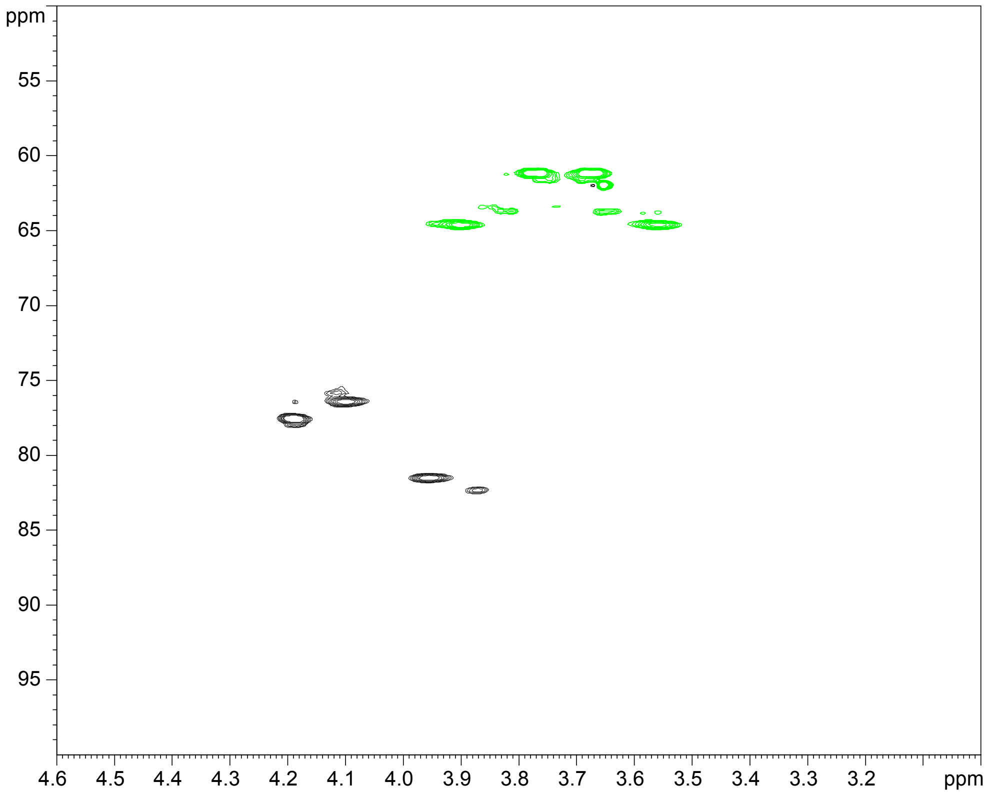
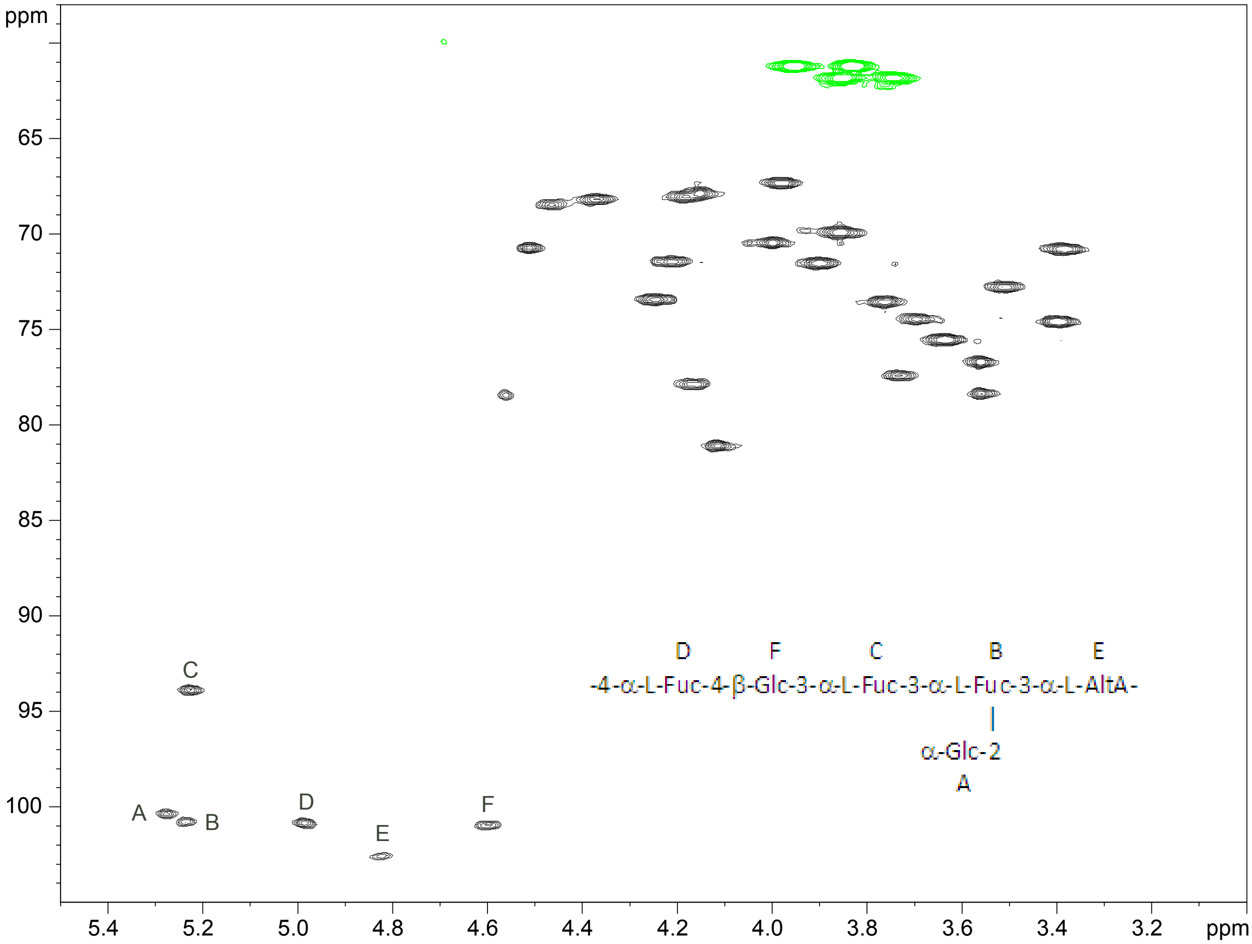
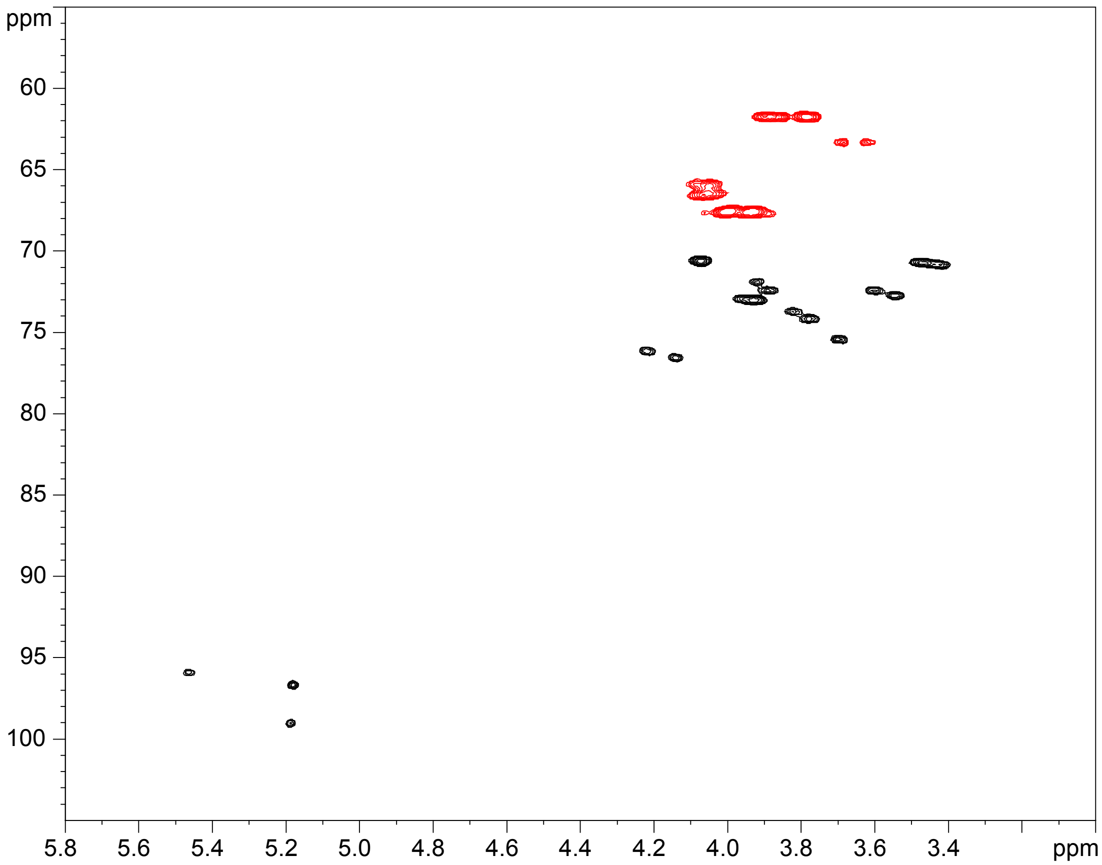


SUPPLEMENTAL FIGURE S1. **^{1}H-^{13}C HSQC spectrum of the Pf1 (Levan) polysaccharide.**



SUPPLEMENTAL FIGURE S2. **Fragment of the ^{1}H-^{13}C HSQC spectrum of the Pf2 polysaccharide.**



SUPPLEMENTAL FIGURE S3. **^{1}H-^{13}C HSQC spectrum of PF3 (LTA).**

SUPPLEMENTAL TABLE S1. **Genotype and surveillance data of T.E.S.T. strain isolates.**

	T.E.S.T			MFI ratio (immune/ pre-immune @ 1:500 dilution)				Subject										
#	Strain ID	ST	Lineage*	Pf2	Pf3	Pf4	Country	Age	Sex	Date	Body location	Facility	Ampicillin	Levofloxacin	Linezolid	Minocycline	Tigecycline	Vancomycin
1	463653	412	78	++	+	++	United States	68	M	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	2	8.0001	0.12	32.0001
2	493843	753		-	-	-	Thailand	73	M	2009	CVS: Blood	Medicine ICU	16.0001	4.0001	2	8.0001	0.12	1
3	496565	62		-	+	-	Venezuela	43	M	2009	CVS: Blood	Medicine ICU	0.5	2	2	8.0001	0.12	0.25
4	511780	17	17	++	+	++	South Korea	68	F	2009	CVS: Blood	Surgery ICU	16.0001	32.0001	1	0.2499	0.12	1
5	511781	78	78	-	-	-	South Korea	51	M	2009	CVS: Blood	Medicine General	16.0001	32.0001	2	0.2499	0.25	32.0001
6	512238	78	78	++	++	+++	Turkey	67	F	2009	CVS: Blood	Medicine General	16	8	1	0.2499	0.12	1
7	512442	117	17	++	+	++	Italy	76	F	2009	CVS: Blood	Surgery General	0.25	4.0001	4	0.4999	0.12	16.0001
8	512672	279	17	+	+	++	Bulgaria	59	M	2009	CVS: Blood	Medicine ICU	16.0001	4.0001	4	0.4999	0.06	1
9	517928	22		-	++	+	Israel	83	F	2009	CVS: Blood	Medicine General	4	16	2	8	0.06	2
10	518555	18	18	+	+	++	Turkey	53	F	2009	CVS: Blood	Surgery General	16.0001	32.0001	2	8.0001	0.12	0.5
11	518783	203	78	++	+	++	Italy	52	F	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	2	1	0.25	2
12	518971	769		++	+	+++	Hungary	75	M	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	0.4999	0.2499	0.03	0.5
13	519198	203	78	++	+	++	Australia	73	F	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	2	8.0001	0.06	32.0001
14	522817	754		-	+	+	United States	87	M	2009	CVS: Blood	Surgery General	1	1	4	0.4999	0.06	0.4999
15	523972	203	78	++	+	++	Spain	64	M	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	2	0.2499	0.03	0.5
16	525060	412	78	++	-	++	United States	86	F	2009	CVS: Blood	Medicine General	16.0001	32.0001	1	0.2499	0.06	32.0001
17	543924	17	17	++	+	++	Spain	92	M	2009	CVS: Blood	Medicine General	16	32.0001	2	0.2499	0.12	1
18	544386	203	78	++	+	++	Malaysia	0	M	2009	CVS: Blood	Medicine General	16.0001	32.0001	2	8	0.06	0.5
19	544389	203	78	++	+	+++	Malaysia	0	M	2009	CVS: Blood	Pediatric General	16.0001	32.0001	1	4	0.06	0.5
20	551711	755		+	+	-	Israel	73	M	2009	CVS: Blood	Surgery General	16.0001	16	0.4999	4	0.12	4
21	554973	192	78	++	++	++	Germany	69	M	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	2	0.2499	0.25	1
22	555619	279	17	-	+	-	Poland	75	M	2009	CVS: Blood	Surgery General	16.0001	32.0001	2	0.2499	0.12	1
23	555653	192	78	+	+	++	Poland	59	M	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	2	0.2499	0.06	1
24	557827	18	18	++	+	++	United States	83	M	2009	CVS: Blood	Medicine General	16.0001	32.0001	4	8	0.25	32.0001
25	557837	18	18	++	+	++	United States	59	F	2009	CVS: Blood	Medicine General	16.0001	32.0001	4	8	0.25	32.0001
26	557838	412	78	++	+	+++	United States	76	F	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	2	0.2499	0.25	32.0001
27	557841	17	17	+	-	++	United States	68	F	2009	CVS: Blood	Surgery ICU	16.0001	32.0001	2	8.0001	0.25	32.0001
28	563002	736		-	+	-	United States	79	M	2009	CVS: Blood	Medicine General	16.0001	32.0001	2	8.0001	0.12	32.0001
29	565646	78	78	++	+	++	Croatia	67	M	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	2	0.2499	0.06	1
30	566553	262	18	+	++	+	United States	32	F	2009	CVS: Blood	Medicine ICU	16.0001	4.0001	2	8.0001	0.5	0.4999
31	566555	262	18	++	++	++	United States	65	M	2009	CVS: Blood	Medicine ICU	16.0001	4.0001	2	8.0001	0.5	0.4999
32	568359	17	17	-	+	-	United States	61	M	2009	CVS: Blood	Medicine General	16.0001	32	2	8.0001	0.12	32.0001
33	573361	17	17	++	-	++	Romania	31	M	2009	CVS: Blood	Surgery ICU	16.0001	32.0001	2	0.2499	0.06	0.5
34	586887	18	18	++	+	++	United States	64	M	2009	CVS: Blood	Medicine General	16.0001	32.0001	1	8	0.5	32.0001
35	586892	412	78	++	+	++	United States	68	F	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	1	0.2499	0.03	32.0001
36	587580	262	18	-	+	-	Mexico	73	F	2009	CVS: Blood	Medicine General	4	16	0.4999	4	0.25	1
37	587583	770		-	-	-	Mexico	0	F	2009	CVS: Blood	Medicine General	16.0001	32.0001	0.4999	2	0.12	1
38	589479	192	78	++	+	++	Greece	1	M	2009	CVS: Blood	Pediatric ICU	16	4.0001	2	0.4999	0.12	16.0001
39	589878	78	78	-	-	++	Germany	70	M	2009	CVS: Blood	Medicine General	16.0001	32.0001	2	0.2499	0.12	1
40	589883	78	78	+	+	++	Germany	30	M	2009	CVS: Blood	Medicine General	16.0001	32.0001	2	0.2499	0.12	0.5
41	596027	17	17	++	++	++	South Korea	0	F	2009	CVS: Blood	Surgery General	16.0001	32.0001	2	0.2499	0.06	1
42	598027	117	17	++	+	++	Germany	65	M	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	2	0.2499	0.06	1
43	601683	78	78	+	+	+	Croatia	69	M	2009	CVS: Blood	Medicine General	16.0001	32.0001	2	0.2499	0.06	1
44	602798	17	17	++	+	++	South Korea	71	M	2009	CVS: Blood	Medicine General	16.0001	32	2	0.2499	0.06	1
45	602803	262	18	-	+	-	South Korea	71	M	2009	CVS: Blood	Medicine General	16.0001	32.0001	2	8.0001	0.06	1
46	604520	78	78	+	+	+	Ireland	66	M	2009	CVS: Blood	Medicine ICU	16.0001	32	2	0.2499	0.06	32.0001
47	604541	17	17	+	+	++	Ireland	78	F	2009	CVS: Blood	Surgery General	16.0001	32.0001	2	8.0001	0.06	1
48	604999	18	18	-	+	+	France	64	M	2009	CVS: Blood	Surgery General	16.0001	2	2	8.0001	0.12	1
49	609667	64	18	-	+	-	Chile	32	F	2009	CVS: Blood	Medicine General	16.0001	32.0001	2	0.2499	0.03	16
50	609670	756		-	+	-	Chile	55	M	2009	CVS: Blood	Medicine General	0.5	2	2	0.2499	0.25	4

SUPPLEMENTAL TABLE S1 (Continued). **Genotype and surveillance data of T.E.S.T. strain isolates.**

51	612975	117	17	++	++	++	Austria	63	M	2009	CVS: Blood	Medicine ICU	16.0001	32.0001	2	0.2499	0.06	1
52	615230	21		-	-	-	Brazil	3	M	2009	CVS: Blood	Pediatric General	4	1	2	8.0001	0.12	4
53	615236	412	78	++	+	+++	Brazil	16	M	2009	CVS: Blood	Pediatric General	16.0001	32.0001	2	0.2499	0.12	32.0001
54	615238	412	78	+	++	++	Brazil	41	M	2009	CVS: Blood	Medicine ICU	16.0001	32	2	0.2499	0.03	32.0001
55	628727	203	78	++	+	++	Canada	48	F	2009	CVS: Blood	Medicine General	16.0001	32.0001	2	0.2499	0.25	32.0001
56	628728	663		-	+	-	Canada	70	F	2009	CVS: Blood	Surgery General	16.0001	32.0001	2	0.2499	0.03	32.0001
57	628738	203	78	++	-	++	Canada	83	F	2009	CVS: Blood	Surgery General	16.0001	32.0001	2	0.2499	0.25	1
58	637760	18	18	+	-	++	United States	82	M	2010	CVS: Blood	Medicine General	16.0001	32.0001	1	8	0.12	32.0001
59	638437	117	78	++	++	++	Italy	71	F	2010	CVS: Blood	Medicine General	16.0001	32.0001	2	0.2499	0.06	2
60	638638	80	78	++	+	++	France	56	M	2010	CVS: Blood	Medicine ICU	16.0001	32.0001	2	8.0001	0.25	1
61	642149	412	78	++	+	+++	Brazil	29	F	2009	CVS: Blood	Medicine General	16.0001	4.0001	2	0.4999	0.03	16.0001
62	643485	771		-	+	++	United States	64	M	2010	CVS: Blood	Medicine General	0.25	4	1	0.4999	0.06	0.5
63	643488	178		-	+	-	United States	80	M	2010	CVS: Blood	Medicine General	0.5	2	2	0.4999	0.06	0.4999
64	643495	18	18	+	-	+	United States	73	M	2010	CVS: Blood	Medicine General	16.0001	4.0001	2	8	0.06	32.0001
65	649843	280		-	-	-	United States	81	M	2010	CVS: Blood	Medicine General	64.0001	4.0001	1	8.0001	0.06	32.0001
66	652219	203	78	++	++	++	Australia	79	F	2010	CVS: Blood	Medicine General	16.0001	32.0001	2	8	0.06	1
67	652671	18	18	-	+	+	United States	86	F	2010	CVS: Blood	Medicine General	16.0001	32.0001	1	0.2499	0.06	32.0001
68	654486	52		-	-	-	Belgium	76	M	2010	CVS: Blood	Medicine General	1	2	2	0.2499	0.06	1
69	655442	17	17	-	-	-	Spain	86	F	2010	CVS: Blood	Medicine ICU	16.0001	4.0001	1	4	0.06	1
70	660482	18	18	-	-	+	United States	60	M	2010	CVS: Blood	Medicine ICU	16.0001	32.0001	2	8	0.12	32.0001
71	660483	412	78	+	+	+	United States	62	M	2010	CVS: Blood	Medicine General	16.0001	4.0001	2	8.0001	0.25	32.0001
72	660488	18	18	++	+	+++	United States	49	M	2010	CVS: Blood	Surgery General	16.0001	4.0001	1	8	0.12	32.0001
73	661350	117	78	++	+	++	Germany	66	M	2009	CVS: Blood	Surgery ICU	16.0001	32.0001	2	0.2499	0.06	1
74	661354	117	78	+	+	++	Germany	49	F	2009	CVS: Blood	Surgery ICU	16.0001	32.0001	2	0.2499	0.06	1
75	667286	18	18	+	-	+	China	44	M	2010	CVS: Blood	Medicine ICU	16.0001	4.0001	1	8.0001	0.12	1
76	667717	17	17	-	+	-	Latvia	84	F	2010	CVS: Blood	Medicine ICU	16.0001	32.0001	2	0.2499	0.06	1
77	667723	550		++	++	+	Latvia	0	M	2010	CVS: Blood	Surgery General	16.0001	32.0001	2	0.2499	0.06	2
78	672024	18	18	-	+	-	United Kingdor	88	F	2009	CVS: Blood	Medicine General	16.0001	32.0001	2	8.0001	0.12	1
79	672713	192	78	-	+	-	South Korea	56	M	2010	CVS: Blood	Surgery General	16.0001	32.0001	2	0.2499	0.06	1
80	672955	17	17	++	+	+++	France	61	F	2010	CVS: Blood	Surgery ICU	16.0001	32	2	0.2499	0.06	16
81	672960	739		-	+	-	France	66	F	2010	CVS: Blood	Surgery ICU	1	32.0001	1	8.0001	0.12	1
82	674273	203	78	+	+	++	Germany	70	M	2010	CVS: Blood	Medicine General	16.0001	32.0001	2	8.0001	0.12	1
83	675580	117	78	-	-	-	Italy	70	F	2010	CVS: Blood	Surgery ICU	16.0001	32.0001	1	2	0.03	1
84	676915	17	17	++	+	++	Ireland	69	M	2010	CVS: Blood	Surgery ICU	16.0001	32.0001	2	8.0001	0.12	1
85	688246	598		-	++	-	Argentina	80	M	2011	CVS: Blood	Medicine ICU	16.0001	2	2	0.2499	0.03	1
86	688474	132	18	++	+	++	Argentina	86	F	2010	CVS: Blood	Medicine ICU	16	32	1	4	0.12	32
87	688483	599		+	+	+	Argentina	61	M	2010	CVS: Blood	Medicine ICU	16	4	2	8.0001	0.12	1
88	691544	203	78	+	+	++	Singapore	58	M	2010	CVS: Blood	Medicine General	16.0001	32.0001	2	8	0.06	1
89	691586	18	18	-	-	-	Singapore	61	M	2010	CVS: Blood	Surgery General	16.0001	32.0001	2	8	0.06	1
90	691587	18	18	-	-	-	Singapore	79	M	2010	CVS: Blood	Medicine General	16.0001	32.0001	2	8	0.06	1
91	692671	772		++	+	++	Israel	70	F	2010	CVS: Blood	Medicine ICU	16.0001	32.0001	1	8	0.06	32.0001
92	692677	412	78	+	++	+	Israel	51	F	2010	CVS: Blood	Medicine General	16.0001	16	0.4999	0.5	0.25	32.0001
93	694143	757		-	+	-	Mexico	69	F	2010	CVS: Blood	Medicine General	16.0001	32.0001	1	0.2499	0.03	32.0001
94	694152	18	18	+	+	+	Mexico	31	M	2010	CVS: Blood	Medicine General	8	2	2	8	0.06	0.5
95	696045	117	78	+	+	++	Germany	29	F	2010	CVS: Blood	Medicine General	16.0001	32.0001	4	0.2499	0.03	32.0001
96	697695	78	78	+	++	++	Greece	73	F	2010	CVS: Blood	Medicine General	16.0001	32.0001	2	0.2499	0.06	1
97	703595	773		-	-	-	United States	30	F	2010	CVS: Blood	Medicine General	0.5	2	4	0.4999	0.03	0.5
98	705755	78	78	+	+	++	Germany	77	M	2010	CVS: Blood	Surgery ICU	16.0001	32.0001	1	0.2499	0.03	1
99	706186	755		-	-	-	Romania	85	F	2010	CVS: Blood	Medicine ICU	4	2	2	8.0001	0.12	4
100	706635	758		-	+	-	United States	86	M	2010	CVS: Blood	Medicine ICU	16.0001	32.0001	2	8.0001	0.25	32.0001
101	708193	203	78	++	++	++	Canada	57	F	2010	CVS: Blood	Medicine ICU	16.0001	32.0001	2	0.5	0.25	1
		New STs	*ref 24 hospital lineages	> 3x background			U.S. isolate						Above EUCAST MIC breakpoint					
				Key:	+, >3-10x													
					++, 11-100x													
					+++, >100x													

SUPPLEMENTAL TABLE S2. **Annotation of the 17 genes associated with the putative *E. faecium* Tx16 legionaminic biosynthesis gene cluster.** Orthologues of Tx16 open reading frames (ORFs) were identified using TBLASTN queries of representative complete *C. jejuni*, *S. agalactiae* and *S. aureus* genomes (accessible via the NCBI Microbial nucleotide database).

	Tx16 gene homologues (E values)		
***E. faecium Tx16* gene**[1] [gene ID]	***Campylobacter jejuni***[2] [locus tag]	***Streptococcus agalactiae***[3] [gene ID]	***Staphylococcus aureus***[4] [gene ID]
*epa*R, Undecaprenyl-phosphate galactose-phosphotransferase [HMPREF0351_10907]	Undecaprenyl-phosphate diacetylBac PhosphoTransferase $(10^{-38})^{\dagger}$ [Cj1124c]	Galactosyl transferase CpsE $(10^{-31})^{\dagger}$ [1013978]	CPS biosynthesis protein Cap8M $(10^{-42})^{\dagger}$ [3919835]
Family 2 glycosyl transferase [HMPREF0351_10908]	glucosyltransferase $(10^{-10})^{\dagger}$ [Cj1146c]	Glycosyl transferase CpsO(V) (10^{-14})* [1013971]	Glycosyltransferase family 2 $(10^{-13})^{\dagger}$ [446898095]
Group 1 glycosyl transferase [HMPREF0351_10909]	N'-diacetylBac-diphospho-undecaprenol-acetylgalactosaminyltransferase $(10^{-6})^{\dagger}$ [Cj1125c]	Glycoside hydrolase (10^{-7})* [1013514]	Glycosyltransferase family 1 [446615158] (10^{-10})*
Family 14 glycosyl transferase [HMPREF0351_10910]	ND	ND	ND
Polysaccharide polymerase [HMPREF0351_10911]	ND	ND	ND
Hypothetical protein [HMPREF0351_10912]	ND	ND	ND
Hypothetical protein [HMPREF0351_10913]	ND	ND	ND
cpsL, CPS synthesis protein [HMPREF0351_10914]	ND	cpsL $(10^{-14})^{\dagger}$ [1013969]	ND
capD, UDP-N-acetylglucosamine 4,6-dehydratase [HMPREF0351_10915]	UDP-N-acetylglucosamine 4,6-dehydratase (10^{-76}) [Cj1293]	dTDP-glucose 4,6-dehydratase (10^{-9})* [1014005]	CPS biosynthesis protein Cap5D (10^{-61})* [3919826]
N-acetylneuraminate synthase (legI) [HMPREF0351_10916]	legI[5] (10^{-98})* [Cj1327]	neuB (10^{-87})* [1013968]	ND

SUPPLEMENTAL TABLE S2 (Continued)

	Tx16 gene homologues (E values)		
***E. faecium Tx16* gene (Continued)**[1] [gene ID]	***Campylobacter jejuni***[2] [locus tag]	***Streptococcus agalactiae***[3] [gene ID]	***Staphylococcus aureus***[4] [gene ID]
UDP-N-acetylglucosamine 2-epimerase (legG) [HMPREF0351_10917]	legG[5] (10^{-56})* [Cj1328]	neuC (10^{-47})* [1013967]	UDP-N-acetylglucosamine 2-epimerase (10^{-12})* [3919838]
IpsB, hexapeptide transferase [HMPREF0351_10918]	Unknown (10^{-18}) [Cj1328]	neuD (10^{-14})* [1013966]	Acetyl transferase (10^{-5})† [447147537]
Glutamine-scyllo-inositol transaminase (legC) [HMPREF0351_10919]	legC[5] (10^{-96})* [Cj1320]	ND	ND
Dehydrogenase [HMPREF0351_10920]	ND	ND	Unknown (10^{-5})† [3919494]
Dehydrogenase (PtmF) [HMPREF0351_10921]	PtmF[5] (10^{-37})* [Cj1330]	ND	ND
N-acylneuraminate Cytidylyltransferase (LegF) [HMPREF0351_10922]	legF[5] (10^{-33})* [Cj1331]	neuA (10^{-13})* [1013965]	ND
UDP-glucose-4-epimerase [HMPREF0351_10923]	Epimerase/dehydratase (10^{-41}) [Cj1319]	galE UDP-glucose 4-epimerase (10^{-23})* [1014733]	NAD-dependent dehydratase (10^{-81})* [3919466]

[1] Reference 22, Genbank NC_017960; [2] strain NCTC11168, Genbank NC_002163; [3] strain 2603V/R, Genbank NC_004116; [4] strains NCTC8325 or N315, Genbank NC_007795 or NC_002745.

[5] Annotation based on biochemical activities described in reference 36.

"ND" – not detected (E value < 0.001)

*E value reflects Tx16 ORF query coverage of >75% with BLAST orthologue.

† E value reflects Tx16 ORF query coverage of <75% with BLAST orthologue (partial or discontinuous).