

Supplemental Tables

Supplemental Table 1. Isolates with characterized genetic lesions in biosynthesis or accessory genes.

Isolate collection	PFE Isolate	rt-PCR Result	WGS Result	Comment	Sequence Type	Clonal Complex
Invasive	PFE-I-0006	MnW	MnW	IS1016 in <i>cssF</i>	11	ST-11 complex/ET-37 complex
	PFE-I-0089	MnW	MnW	<i>cssF</i> partial deletion	11	ST-11 complex/ET-37 complex
	PFE-I-0050	MnC	MnC	IS1301 in <i>cssE</i>	11	ST-11 complex/ET-37 complex
	PFE-I-0059	MnC	MnC	IS1301 in <i>cssE</i>	11	ST-11 complex/ET-37 complex
	PFE-I-0060	MnC	MnC	<i>cssE</i> partial deletion	11	ST-11 complex/ET-37 complex
	PFE-I-0008	MnW	MnW	IS1301 in <i>cssF</i>	1158	ST-22 complex
	PFE-I-0074	MnY	MnY	IS1016 in <i>cssF</i>	1625	ST-23 complex/Cluster A3
	PFE-I-0097	MnW	MnW	<i>cssF</i> deletion	NST	NST
	PFE-I-0022	MnC	MnC	IS1301 in <i>cssE</i>	NST	NST
Carriage	PFE-C-0005	MnW	MnW	IS1301 in <i>cssF</i>	184	ST-22 complex
	PFE-C-0008	MnW	MnW	IS1301 in <i>cssF</i>	184	ST-22 complex
	PFE-C-0042	MnW	MnW	IS1301 in <i>cssF</i> , <i>csw</i>	184	ST-22 complex
	PFE-C-0064	MnW	MnW	IS1301 in <i>cssF</i>	5389	ST-22 complex
	PFE-C-0065	MnW	MnW	IS1301 in <i>cssF</i>	5389	ST-22 complex
	PFE-C-0071	MnW	MnW	IS1301 in <i>cssF</i> , <i>csw</i>	184	ST-22 complex
	PFE-C-0073	MnW	MnW	IS1301 in <i>cssF</i>	184	ST-22 complex
	PFE-C-0081	MnW	MnW	IS1301 in <i>cssF</i> , <i>csw</i>	184	ST-22 complex
	PFE-C-0087	MnW	MnW	IS1301 in <i>cssF</i>	184	ST-22 complex
	PFE-C-0020	MnY	MnY	IS1301 in <i>cssA</i>	23	ST-23 complex/Cluster A3
	PFE-C-0047	MnY	MnY	IS1301 in <i>cssA</i>	23	ST-23 complex/Cluster A3
	PFE-C-0067	MnY	MnY	IS30 family insertion element in <i>cssA</i>	23	ST-23 complex/Cluster A3
	PFE-C-0056	MnB	MnB deletion	<i>csb</i> partial, <i>cssA</i> - <i>cssC</i> deletion; IS1301 in <i>csb</i>	269	ST-269 complex
	PFE-C-0002	MnB	MnB deletion	<i>csb</i> partial, <i>cssA</i> - <i>cssC</i> deletion; IS1301 in <i>csb</i>	269	ST-269 complex
	PFE-C-0038	MnB	MnB	<i>csb</i> partial, <i>cssA</i> - <i>cssC</i> deletion;	NST	NST

		deletion			
PFE-C-0084	MnB	MnB deletion	<i>csb</i> partial, <i>cssA</i> - <i>cssC</i> deletion; IS 1301 in <i>csb</i>	NST	NST
PFE-C-0085	MnY	MnY	IS 1301 in <i>cssA</i>	NST	NST
PFE-C-0010	MnB	NG	<i>csb</i> deletion, <i>cssA</i> - <i>cssC</i> deletion	43	ST-41/44 complex/Lineage 3
PFE-C-0015	MnB	NG	<i>csb</i> deletion, <i>cssA</i> - <i>cssC</i> deletion	43	ST-41/44 complex/Lineage 3
PFE-C-0025	MnB	MnB deletion	<i>csb</i> partial deletion	6473	ST-41/44 complex/Lineage 3
PFE-C-0028	MnB	NG	<i>csb</i> deletion, <i>cssA</i> - <i>cssC</i> deletion	43	ST-41/44 complex/Lineage 3

Supplemental Table 2. Line listing of capsular genogrouping and serogrouping results for IMD isolates, n=97.

PFE Isolate	WGS	rt-PCR	FACS	LCPA	Dotblot	SASG 1	SASG 2
PFE-I-0001	MnW	MnW	MnW	MnW	MnW	MnW	MnW
PFE-I-0002	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0003	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0004	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0005	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0006	MnW*	MnW	MnW	MnW	MnW	MnW	MnW
PFE-I-0008	MnW*	MnW	NG	MnW	MnW	MnW	MnW
PFE-I-0009	MnY	MnY	MnY	MnY	MnW	MnY	MnY
PFE-I-0011	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0012	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0013	MnA	MnA	MnA	MnA	MnA	MnA	MnA
PFE-I-0014	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0015	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0016	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0017	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0018	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0019	MnA	MnA	MnA	NG	MnA	MnW	MnA
PFE-I-0020	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0021	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0022	MnC*	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0023	MnW	MnW	MnW	MnW	MnW	MnW	MnW
PFE-I-0024	MnB	MnB	MnB	MnB	MnB	MnB	MnB
PFE-I-0025	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0026	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0027	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0028	MnB	MnB	MnB	MnB	MnB	NG	NG

PFE Isolate	WGS	rt-PCR	FACS	LCPA	Dotblot	SASG 1	SASG 2
PFE-I-0029	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0030	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0031	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0032	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0033	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0034	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0010	MnB	NG	MnB	MnB	MnB	NG	MnB
PFE-I-0035	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0036	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0037	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0038	MnB	MnB	MnB	MnB	MnB	NG	MnA
PFE-I-0039	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0040	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0041	MnB	MnB	MnB	MnB	MnB	MnB	MnB
PFE-I-0042	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0043	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0044	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0045	MnC	MnC	MnC	MnC	MnC	NG	MnC
PFE-I-0046	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0047	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0048	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0049	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0050	MnC*	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0051	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0052	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0053	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0054	MnC	MnC	MnC	MnC	MnC	NG	MnA
PFE-I-0055	MnC	MnC	MnC	MnC	MnC	MnC	MnC

PFE Isolate	WGS	rt-PCR	FACS	LCPA	Dotblot	SASG 1	SASG 2
PFE-I-0056	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0057	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0058	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0059	MnC*	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0060	MnC*	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0061	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0062	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0063	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0064	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0065	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0066	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0067	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0068	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0069	MnY	MnY	NG	NG	NG	MnY	MnY
PFE-I-0070	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0071	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0072	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0073	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0074	MnY*	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0075	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0076	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0077	MnB	MnB	MnB	NG	NG	MnW	MnB
PFE-I-0078	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-I-0079	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0080	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0081	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-I-0082	MnA	MnA	MnA	MnA	MnA	MnA	MnA
PFE-I-0083	MnA	MnA	MnA	MnA	MnA	MnA	MnA

PFE Isolate	WGS	rt-PCR	FACS	LCPA	Dotblot	SASG 1	SASG 2
PFE-I-0084	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0085	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0086	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0087	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0088	MnC	MnC	MnC	MnC	MnC	MnC	MnC
PFE-I-0089	MnW*	MnW	MnW	MnW	MnW	MnW	MnW
PFE-I-0090	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0091	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0092	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0093	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0094	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0095	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-I-0096	MnW	MnW	MnW	MnW	MnW	MnW	MnW
PFE-I-0097	MnW*	MnW	MnW	MnW	MnW	MnW	MnW
PFE-I-0098	MnY	MnY	MnY	MnY	MnY	MnY	MnY

* These *cps* operons are mutated; see Supplemental Table 1

Supplemental Table 3. Line listing of capsular genogrouping and serogrouping results for carriage isolates, n=93.

PFE Isolate	WGS	rt-PCR	FACS	LCPA	Dotblot	SASG 1	SASG 2
PFE-C-0001	NG <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	NG	NG	MnY	MnY
PFE-C-0002	NG- <i>ctrA</i> pos (MnB*)	MnB	NG	NG	NG	NG	NG
PFE-C-0003	NG- <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	NG	NG	MnA	MnA
PFE-C-0004	NG- <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	NG	NG	NG	NG
PFE-C-0005	MnW*	MnW	NG	MnW	NG	NG	NG
PFE-C-0006	NG- <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	NG	NG	MnA	MnA
PFE-C-0007	MnB	MnB	MnB	MnB	MnB	MnB	MnB
PFE-C-0008	MnW*	MnW	MnW	MnW	MnW	NG	NG
PFE-C-0009	NG- <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	MnW	NG	MnW	MnW
PFE-C-0010	NG- <i>ctrA</i> neg	MnB	NG	NG	NG	MnW	MnW
PFE-C-0011	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-C-0012	NG- <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	NG	NG	NG	NG
PFE-C-0013	NG- <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	NG	NG	MnA	MnA
PFE-C-0014	NG- <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	NG	NG	NG	NG
PFE-C-0015	NG- <i>ctrA</i> neg	MnB	NG	NG	NG	MnZ	NG
PFE-C-0016	MnB	MnB	MnB	NG	NG	NG	NG
PFE-C-0017	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-C-0018	MnB	MnB	MnB	MnB	MnB	NG	NG
PFE-C-0019	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-C-0020	NG- <i>ctrA</i> pos (MnY*)	MnY	ND	NG	NG	NG	NG
PFE-C-0021	NG- <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	NG	NG	NG	NG
PFE-C-0022	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-C-0023	NG- <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	NG	NG	NG	NG
PFE-C-0024	NG- <i>ctrA</i> neg [^]	NG - <i>ctrA</i> neg	NG	NG	NG	NG	NG
PFE-C-0025	NG- <i>ctrA</i> pos (MnB*)	MnB	NG	NG	NG	NG	NG

PFE Isolate	WGS	rt-PCR	FACS	LCPA	Dotblot	SASG 1	SASG 2
PFE-C-0026	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0027	MnC	MnC	NG	NG	NG	NG	NG
PFE-C-0028	NG-ctrAneg	MnB	NG	NG	NG	MnB	MnB
PFE-C-0029	NG-ctrAneg^	NG-ctrApos	NG	NG	NG	NG	NG
PFE-C-0030	NG-ctrAneg^	NG-ctrApos	NG	MnY	NG	NG	NG
PFE-C-0031	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0032	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-C-0033	MnY	MnY	MnY	NG	MnY	NG	NG
PFE-C-0034	MnB	MnB	NG	NG	NG	NG	NG
PFE-C-0035	MnB	MnB	NG	NG	NG	NG	NG
PFE-C-0036	MnC	MnC	NG	NG	NG	NG	NG
PFE-C-0037	NG-ctrAneg^	NG -ctrAneg	NG	MnB	NG	NG	NG
PFE-C-0038	NG-ctrApos (MnB*)	MnB	NG	NG	NG	NG	NG
PFE-C-0039	MnY	MnY	NG	NG	NG	NG	NG
PFE-C-0040	NG-ctrAneg*	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0041	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-C-0042	MnW*	MnW	NG	NG	NG	MnC	NG
PFE-C-0043	MnB	MnB	MnB	MnB	MnB	MnB	NG
PFE-C-0044	MnB	MnB	NG	NG	NG	MnC	NG
PFE-C-0045	NG-ctrApos	NG-ctrApos	NG	NG	NG	MnC	NG
PFE-C-0046	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0047	NG-ctrApos (MnY*)	MnY	NG	NG	NG	MnA	NG
PFE-C-0048	MnB	MnB	MnB	MnB	NG	NG	MnB
PFE-C-0049	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-C-0050	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0051	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0052	MnB	MnB	NG	NG	NG	NG	NG

PFE Isolate	WGS	rt-PCR	FACS	LCPA	Dotblot	SASG 1	SASG 2
PFE-C-0053	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	MnA	NG
PFE-C-0054	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0055	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0056	NG-ctrApos (MnB*)	MnB	NG	NG	NG	NG	NG
PFE-C-0057	MnB	MnB	NG	NG	NG	NG	NG
PFE-C-0058	NG-ctrAneg*	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0059	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0060	MnB	MnB	NG	NG	NG	NG	NG
PFE-C-0061	MnY	MnY	ND	MnY	MnY	MnY	NG
PFE-C-0062	NG-ctrAneg	NG-ctrApos	NG	NG	NG	NG	NG
PFE-C-0063	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0064	MnW*	MnW	NG	NG	NG	NG	NG
PFE-C-0065	MnW*	MnW	NG	NG	NG	NG	NG
PFE-C-0066	MnB	MnB	NG	NG	NG	NG	NG
PFE-C-0067	NG-ctrApos (MnY*)	MnY	NG	NG	NG	MnC	NG
PFE-C-0068	NG-ctrAneg^	NG-ctrApos	NG	NG	NG	NG	NG
PFE-C-0069	MnY	MnY	NG	NG	NG	MnC	NG
PFE-C-0070	MnB	MnB	NG	NG	NG	MnX	NG
PFE-C-0071	MnW*	MnW	NG	NG	NG	NG	NG
PFE-C-0072	NG-ctrAneg*	NG-ctrApos	NG	NG	NG	NG	NG
PFE-C-0073	MnW*	MnW	MnW	NG	NG	NG	NG
PFE-C-0074	MnB	MnB	NG	NG	NG	NG	NG
PFE-C-0075	NG-ctrAneg^	NG-ctrApos	NG	NG	NG	NG	NG
PFE-C-0076	NG-ctrAneg^	NG-ctrApos	NG	NG	NG	NG	NG
PFE-C-0077	NG-ctrAneg^	NG-ctrApos	NG	MnW	NG	NG	NG
PFE-C-0078	MnB	MnB	MnB	MnB	MnB	MnB	MnB
PFE-C-0079	MnB	MnB	NG	NG	NG	MnZ	NG

PFE Isolate	WGS	rt-PCR	FACS	LCPA	Dotblot	SASG 1	SASG 2
PFE-C-0080	MnC	MnC	NG	NG	NG	NG	NG
PFE-C-0081	MnW*	MnW	NG	NG	NG	NG	NG
PFE-C-0082	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-C-0083	MnB	MnB	NG	NG	NG	NG	NG
PFE-C-0084	NG-ctrApos (MnB*)	MnB	NG	NG	NG	NG	NG
PFE-C-0085	NG-ctrApos (MnY*)	MnY	NG	NG	NG	MnA	NG
PFE-C-0086	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-C-0087	MnW*	MnW	NG	NG	NG	MnC	NG
PFE-C-0088	MnC	MnC	NG	NG	NG	NG	NG
PFE-C-0089	MnY	MnY	MnY	MnY	MnY	MnY	MnY
PFE-C-0090	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	NG	NG
PFE-C-0091	NG-ctrAneg^	NG -ctrAneg	NG	NG	NG	MnZ	NG
PFE-C-0092	NG-ctrAneg^	NG -ctrAneg	ND	NG	NG	MnA	MnC
PFE-C-0093	NG-ctrAneg^	NG -ctrAneg	ND	NG	NG	NG	NG

* These *cps* operons are mutated; see Supplemental Table 1

^ capsule null