Figure 1

aMRSA F1 clone

NB: CDR numbering according to Kabat et al (1991)

Heavy chain

Recombined from gene segments:
IGHV3-23*01
IGHD6-19*01
IGHJ4*02

AMINO ACID:
Fw1 EVQLLESGGGLVQPGGSLRLSCAASGFTLS
CDR1 RFAMS
Fw2 WVRQAPGRGLEWVA
CDR2 SINNGNNPYYARSVQY
Fw3 RFTVSRDVSQNTVSLQMNNLRAEDSATYFCAK
CDR3 DHPSSGWPTFDS
Fw4 WGPGTLVTVSS

NUCLEOTIDE:
Fw1 gag gtg caa ctg ttg gag tcg ggg ggg ggc ttg gtg cag ccg ggg ggg tcc ctg aga ctc tcc tgt gca gcc tct gga ttc acc ctt agc

CDR1 cgc ttt gcc atg agc

Fw2 tgg gtc cgc cag gct cca gga agg gga ctg gaa tgg gtc gca

CDR2 tcg atc aat aat ggg aat aac cca tac tac gca cgg tcg gta caa tac

Fw3 cgc ttc acc gtc tcc cgg gac gtc tcc cag aac act gtg tct ctg cag atg aac aac ctg aga gcc gaa gac tcg gcc aca tat ttc tgt gct aaa

CDR3 gat cac cct agt agt ggc tgg ccc acc ttt gac tcc

Fw4 tgg ggc ccg gga acc ctg gtc acc gtc tcc tcg

Light chain

Recombined from gene segments:
IGKV1-5*03
IGKJ2*01

AMINO ACID:
Fw1 DIQLTQSPSALPASVGDRVSITC
CDR1 RASENVGDWLA
Fw2 WYRQKPGKAPNLLIY
CDR2 KTSILES
Fw3 GVPSRFSGSGSGTEFTLTISSLQPDDFATYYC
CDR3 QHYIRFPYT
Fw4 FGQGTKLEIKRTV

NUCLEOTIDE:
Fw1 gac atc cag ttg acc cag tct cct tcc gcc ctg cct gca tct gtg gga gac aga gtc agc atc act tgt

CDR1 cgg gcc agt gaa aac gtt ggt gac tgg ttg gcc

Fw2 tgg tat cgg cag aaa ccg ggg aaa gcc cct aat ctt ctc atc tat

CDR2 aag aca tct att cta gaa agt

Fw3 ggg gtc cca tca agg ttc agc ggc agt ggg tct ggg aca gaa ttc act ctc acc atc agc agc ctg cag cct gat gat ttt gca act tat tac tgt

CDR3 caa cac tat ata cgt ttc ccg tac act

Fw4 ttt ggc cag ggg acc aag ctg gag atc aaa cga act gtg

Figure 2A

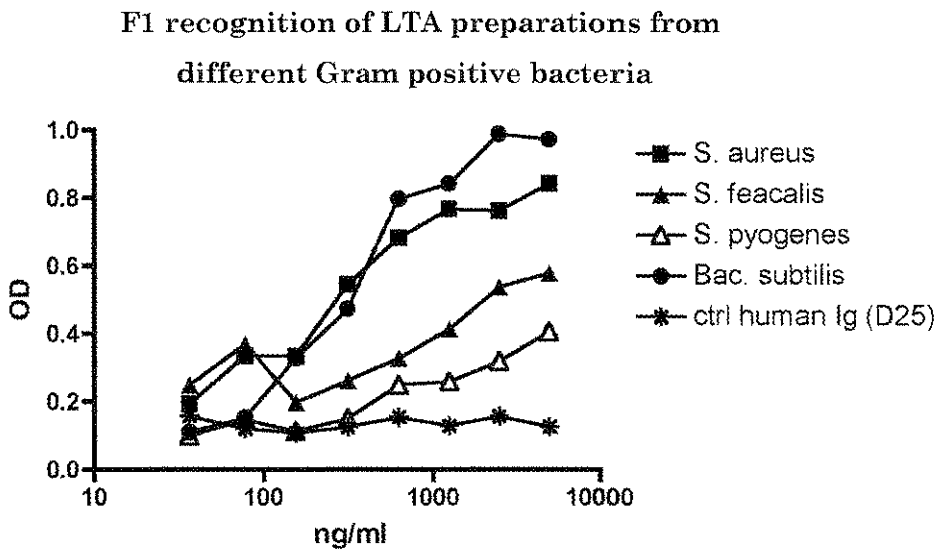


Figure 2B

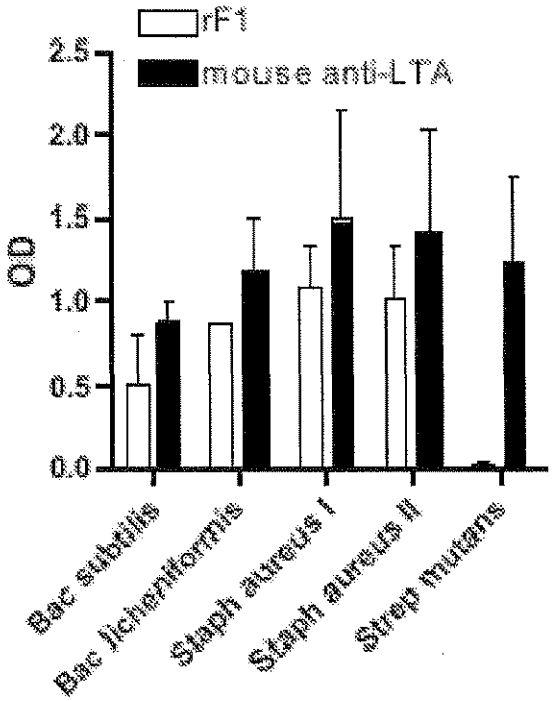


Figure 3A

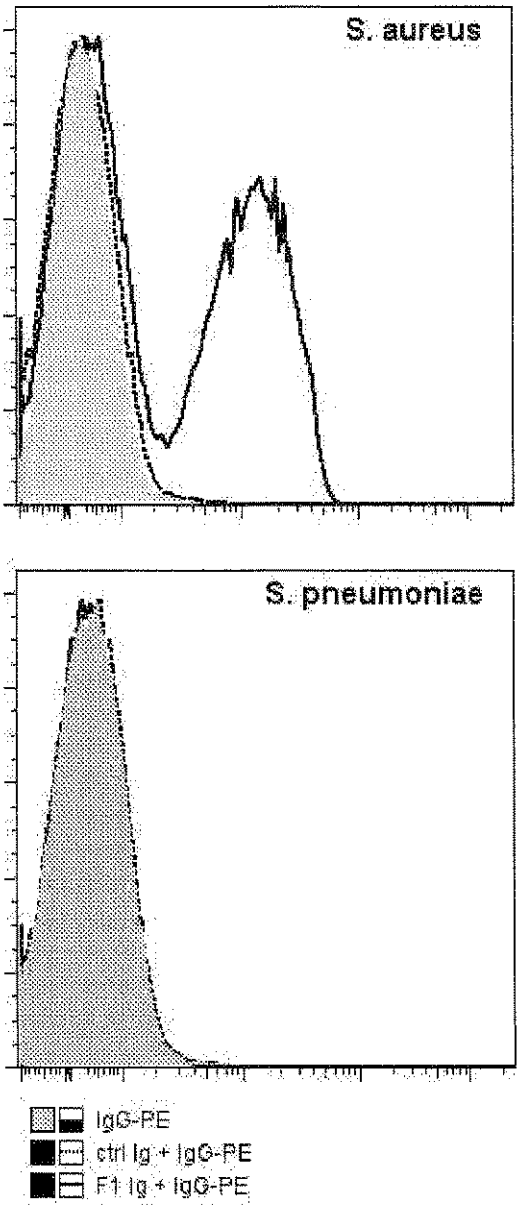


Figure 3B

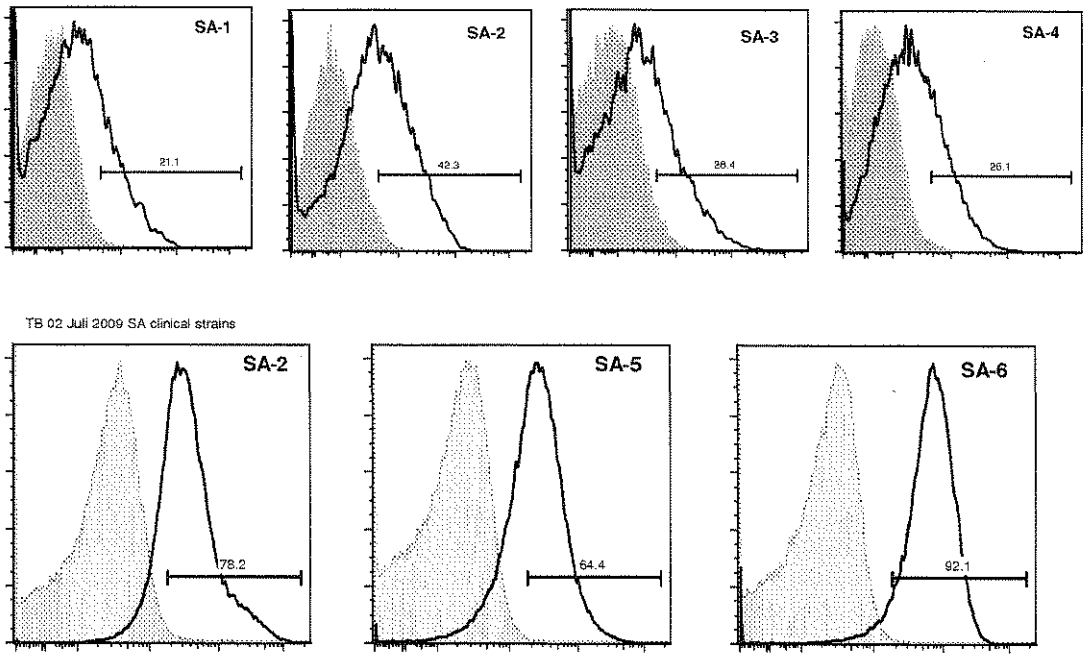

SA-1
21.1
SA-2
42.3
SA-3
28.4
SA-4
26.1
TB 02 Juli 2009 SA clinical strains
SA-2
78.2
SA-5
64.4
SA-6
92.1

Figure 4A

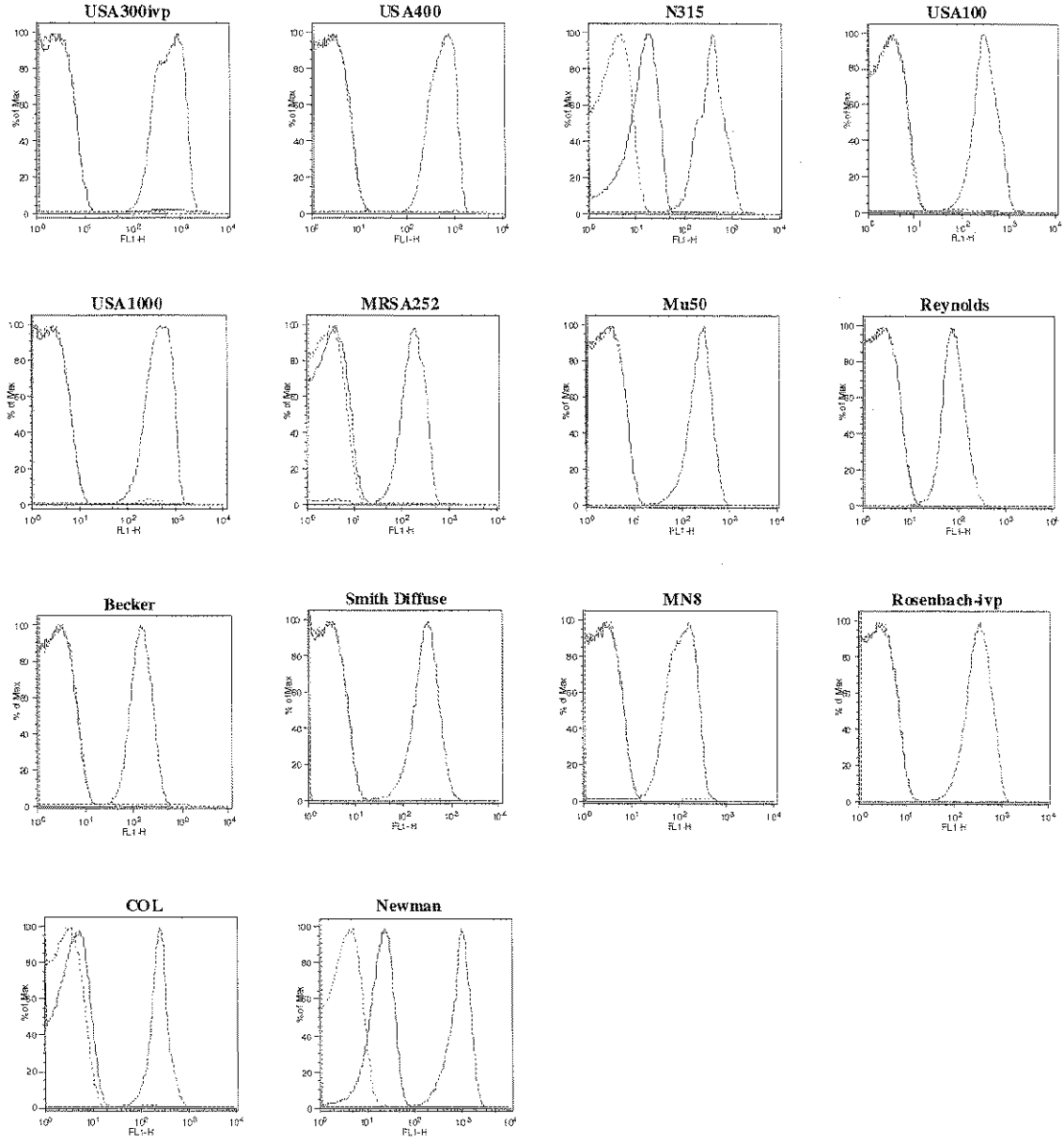

USA300ivp
USA400
N315
USA100
USA1000
MRSA252
Mu50
Reynolds
Becker
Smith Diffuse
MN8
Rosenbach-ivp
COL
Newman
% of Max
FL1-H

Figure 4B

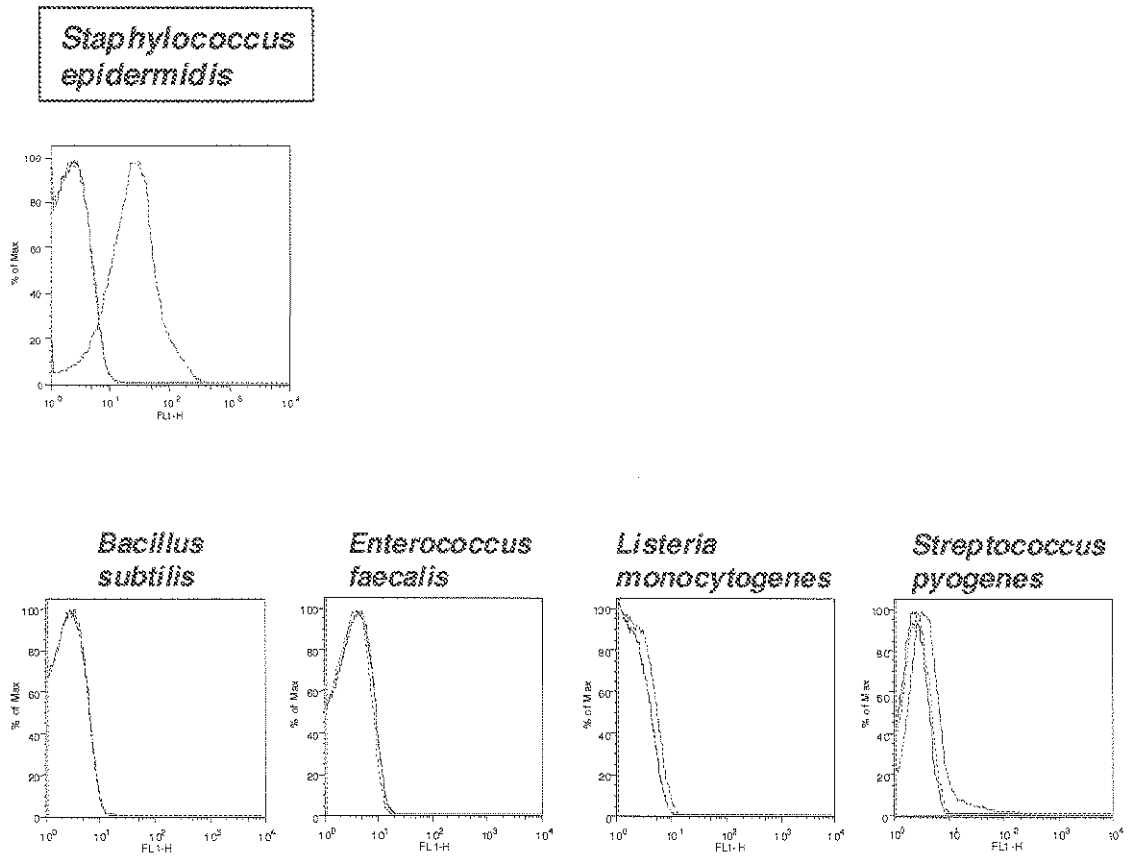
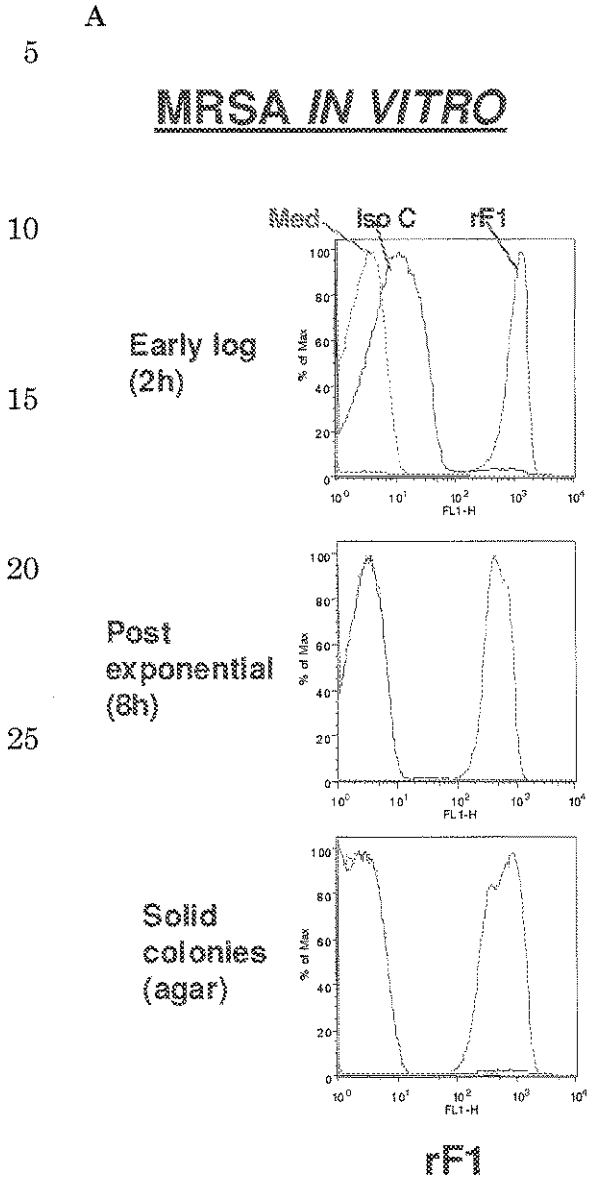

Staphylococcus epidermidis
Bacillus subtilis
Enterococcus faecalis
Listeria monocytogenes
Streptococcus pyogenes
% of Max
FL1-H

Figure 5

A


MRSA IN VITRO
Med
Iso C
rF1
Early log (2h)
Post exponential (8h)
Solid colonies (agar)
% of Max
FL1-H
rF1

B

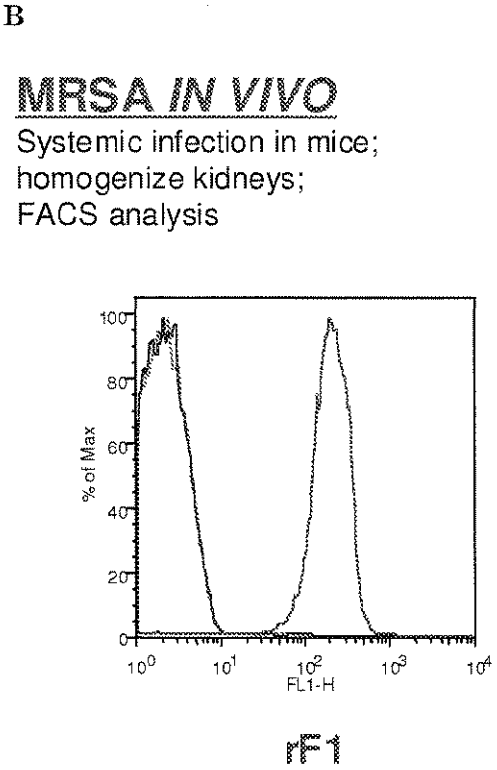
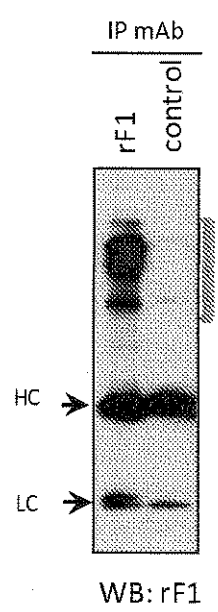

MRSA IN VIVO
Systemic infection in mice;
homogenize kidneys;
FACS analysis
% of Max
FL1-H
rF1

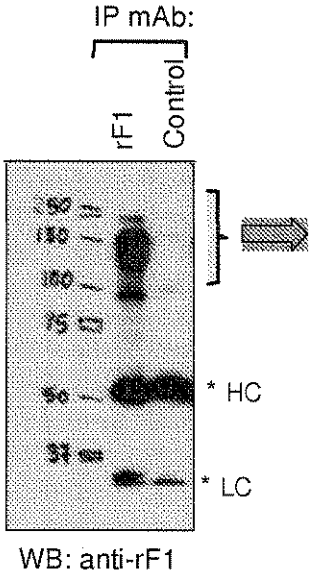
Figure 6A



Mass-spec analysis

Unique antigens	Total peptides identified	
	rF1	Isotype Control mAb
ClfA (SdrA)	3	0
ClfB (SdrB)	4	0
SdrC	24	0
SdrD	57	0
SdrE	108	0

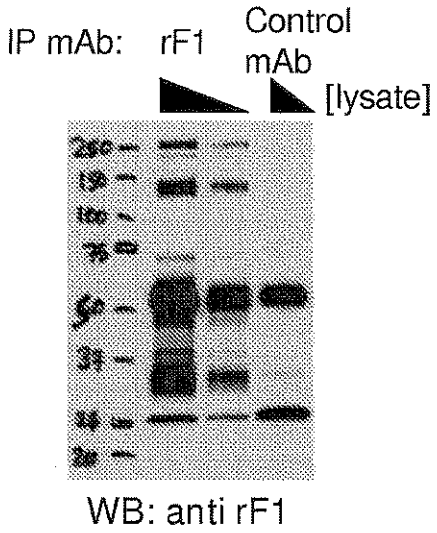
Figure 6B



Mass-spec analysis

Unique antigens	Total peptides identified	
	rF1	Isotype Control mAb
ClfA (SdrA)	95	0
ClfB (SdrB)	145	0
SdrC	0	0
SdrD	3	0
SdrE	0	0

Figure 6C



Mass-spec analysis: Unique/Total peptides

	rF1		rC52 *	
	U	T	U	T
SdrF	27	100		0
SdrG	8	25		0
SdrH	3	4		0

Figure 7A

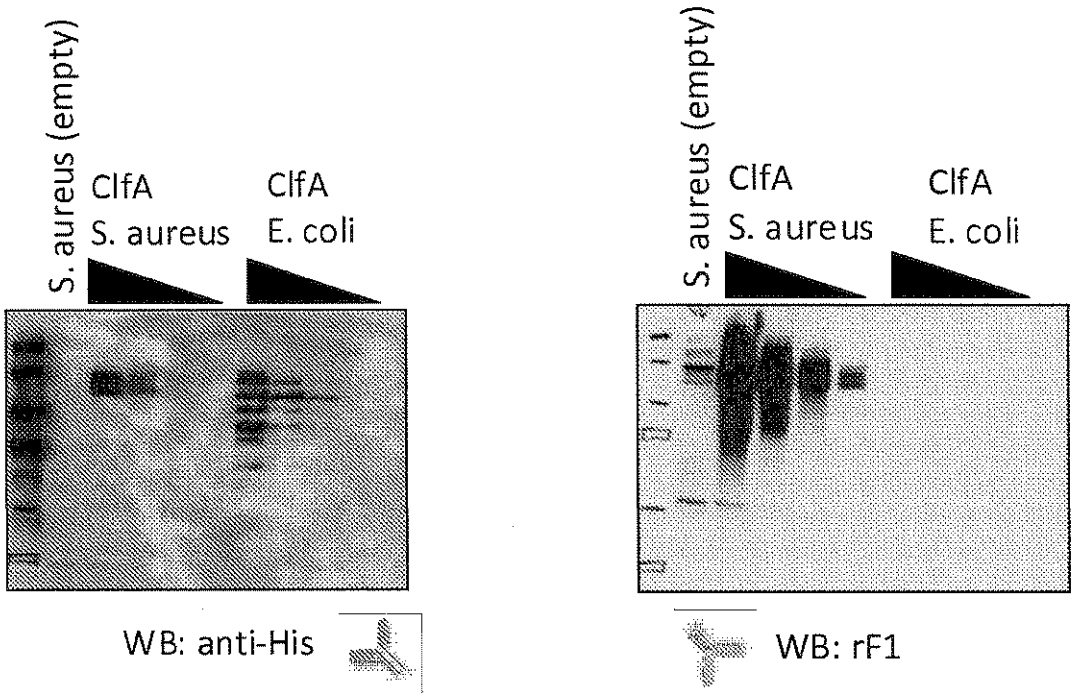


Figure 7B

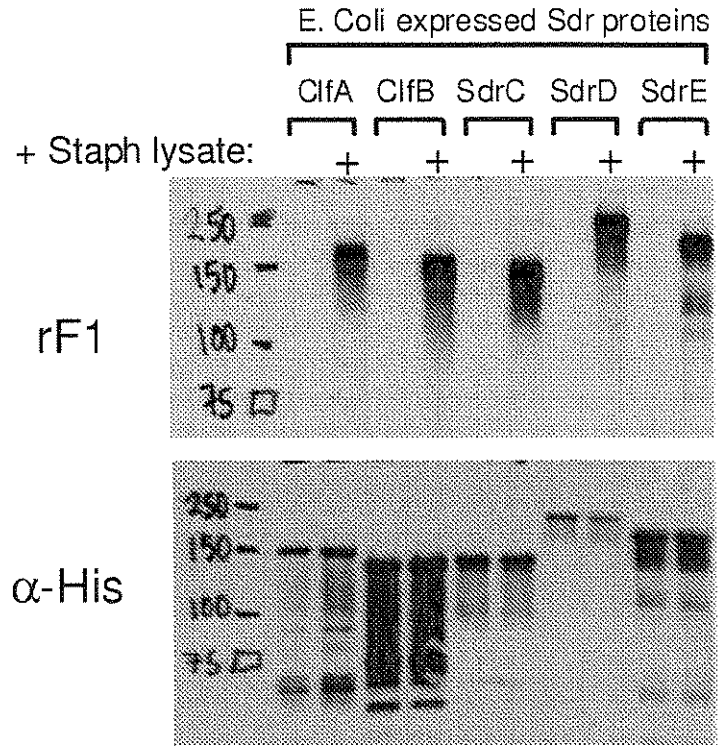


Figure 8

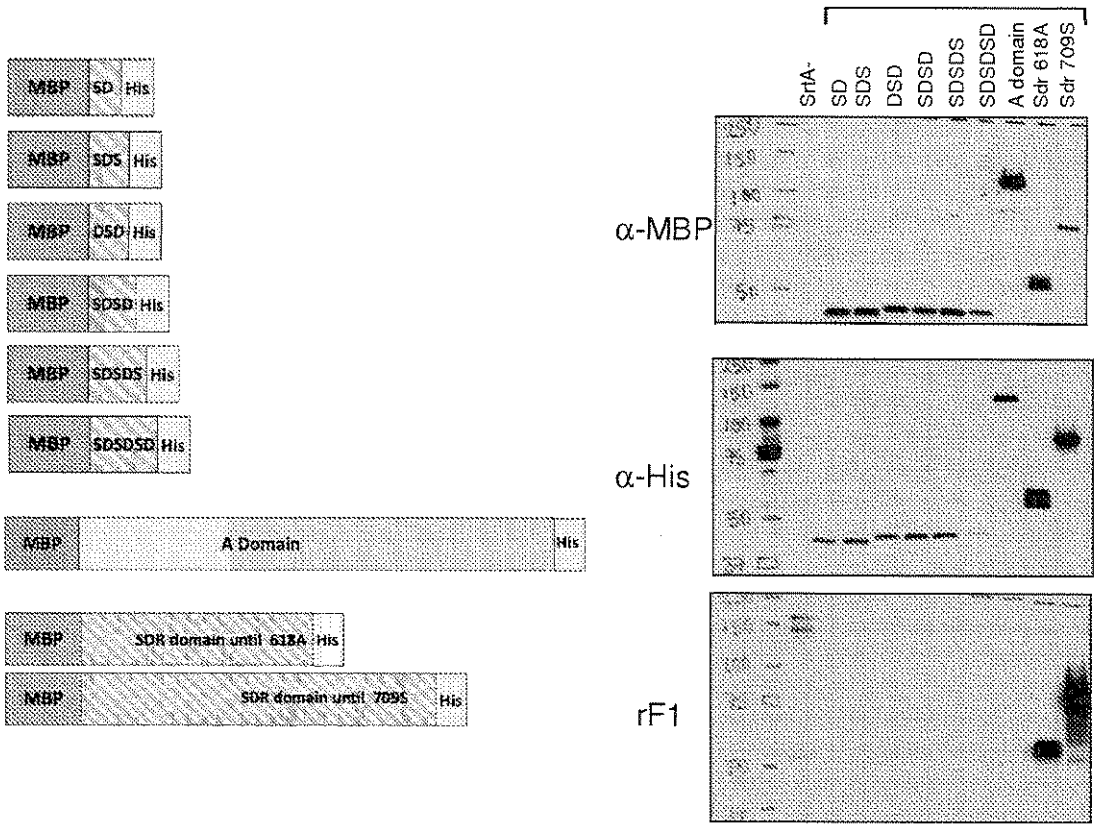

MBP
SD
His
MBP
SDS
His
MBP
DSD
His
MBP
SDSD
His
MBP
SDSDS
His
MBP
SDSDSD
His
MBP
A Domain
His
MBP
SDR domain until 618A
His
MBP
SDR domain until 709S
His
SrtA-
SD
SDS
DSD
SDSD
SDSDS
SDSDSD
A domain
Sdr 618A
Sdr 709S
α-MBP
α-His
rF1

Figure 9A

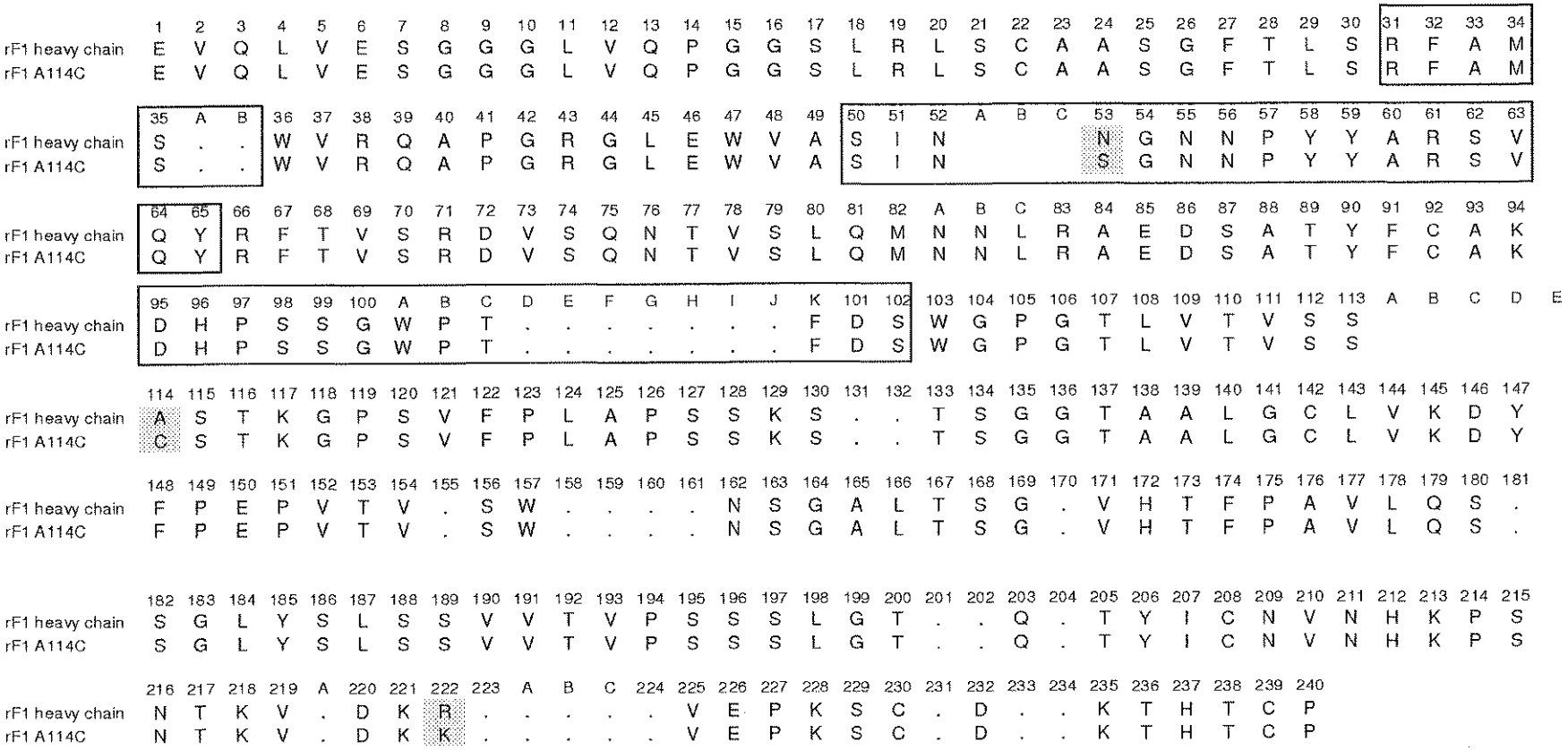
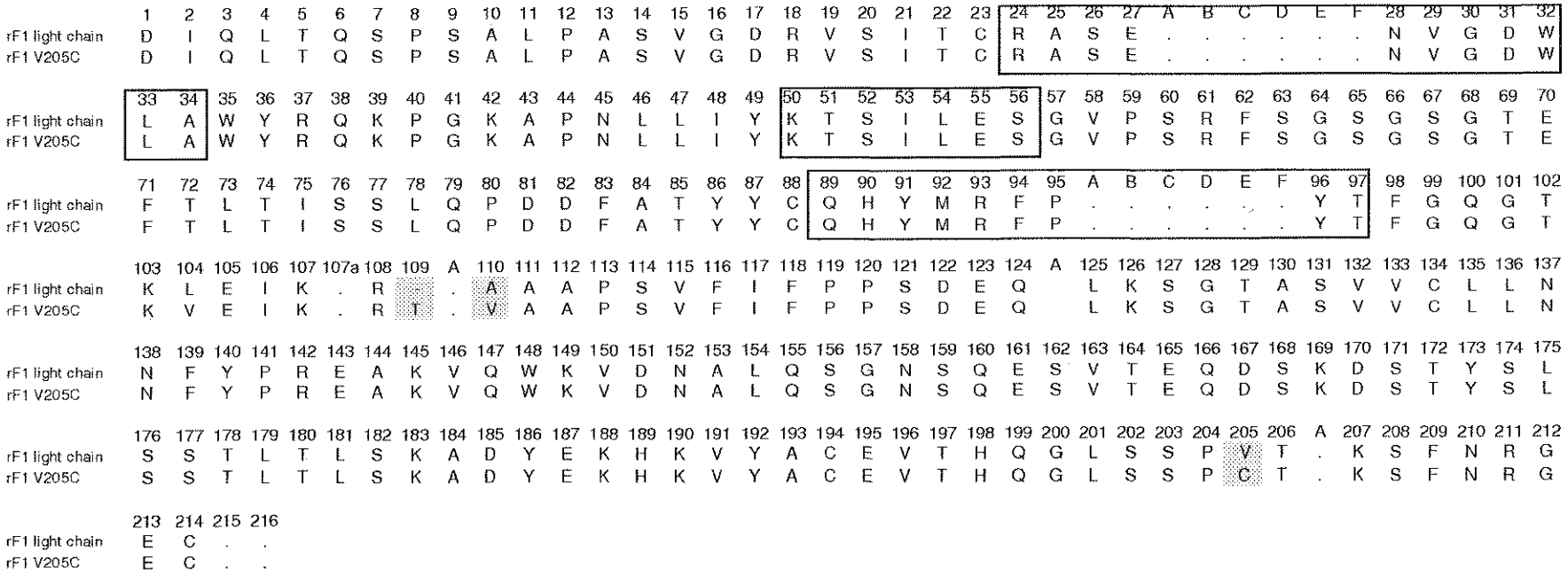

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34
rF1 heavy chain E V Q L V E S G G G L V Q P G G S L R L S C A A S G F T L S R F A M
rF1 A114C E V Q L V E S G G G L V Q P G G S L R L S C A A S G F T L S R F A M
35 A B 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 A B C 53 54 55 56 57 58 59 60 61 62 63
rF1 heavy chain S . . W V R Q A P G R G L E W V A S I N N G N N P Y Y A R S V
rF1 A114C S . . W V R Q A P G R G L E W V A S I N S G N N P Y Y A R S V
64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 A B C 83 84 85 86 87 88 89 90 91 92 93 94
rF1 heavy chain Q Y R F T V S R D V S Q N T V S L Q M N N L R A E D S A T Y F C A K
rF1 A114C Q Y R F T V S R D V S Q N T V S L Q M N N L R A E D S A T Y F C A K
95 96 97 98 99 100 A B C D E F G H I J K 101 102 103 104 105 106 107 108 109 110 111 112 113 A B C D E
rF1 heavy chain D H P S S G W P T . . . . F D S W G P G T L V T V S S
rF1 A114C D H P S S G W P T . . . . F D S W G P G T L V T V S S
114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147
rF1 heavy chain A S T K G P S V F P L A P S S K S . . T S G G T A A L G C L V K D Y
rF1 A114C C S T K G P S V F P L A P S S K S . . T S G G T A A L G C L V K D Y
148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181
rF1 heavy chain F P E P V T V . S W . . . . N S G A L T S G . V H T F P A V L Q S .
rF1 A114C F P E P V T V . S W . . . . N S G A L T S G . V H T F P A V L Q S .
182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215
rF1 heavy chain S G L Y S L S S V V T V P S S S L G T . . Q . T Y I C N V N H K P S
rF1 A114C S G L Y S L S S V V T V P S S S L G T . . Q . T Y I C N V N H K P S
216 217 218 219 A 220 221 222 223 A B C 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240
rF1 heavy chain N T K V . D K R . . . . . V E P K S C . D . . K T H T C P
rF1 A114C N T K V . D K K . . . . . V E P K S C . D . . K T H T C P

Figure 9B



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	A	B	C	D	E	F	28	29	30	31	32
rF1 light chain	D	I	Q	L	T	Q	S	P	S	A	L	P	A	S	V	G	D	R	V	S	I	T	C	R	A	S	E	.	.	.	.	.	.	N	V	G	D	W
rF1 V205C	D	I	Q	L	T	Q	S	P	S	A	L	P	A	S	V	G	D	R	V	S	I	T	C	R	A	S	E	.	.	.	.	.	.	N	V	G	D	W

	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
rF1 light chain	L	A	W	Y	R	Q	K	P	G	K	A	P	N	L	L	I	Y	K	T	S	I	L	E	S	G	V	P	S	R	F	S	G	S	G	S	G	T	E
rF1 V205C	L	A	W	Y	R	Q	K	P	G	K	A	P	N	L	L	I	Y	K	T	S	I	L	E	S	G	V	P	S	R	F	S	G	S	G	S	G	T	E

	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	A	B	C	D	E	F	96	97	98	99	100	101	102
rF1 light chain	F	T	L	T	I	S	S	L	Q	P	D	D	F	A	T	Y	Y	C	Q	H	Y	M	R	F	P	.	.	.	.	.	.	Y	T	F	G	Q	G	T
rF1 V205C	F	T	L	T	I	S	S	L	Q	P	D	D	F	A	T	Y	Y	C	Q	H	Y	M	R	F	P	.	.	.	.	.	.	Y	T	F	G	Q	G	T

	103	104	105	106	107	107a	108	109	A	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	A	125	126	127	128	129	130	131	132	133	134	135	136	137
rF1 light chain	K	L	E	I	K	.	R	-	.	A	A	A	P	S	V	F	I	F	P	P	S	D	E	Q		L	K	S	G	T	A	S	V	V	C	L	L	N
rF1 V205C	K	V	E	I	K	.	R	T	.	V	A	A	P	S	V	F	I	F	P	P	S	D	E	Q		L	K	S	G	T	A	S	V	V	C	L	L	N

	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
rF1 light chain	N	F	Y	P	R	E	A	K	V	Q	W	K	V	D	N	A	L	Q	S	G	N	S	Q	E	S	V	T	E	Q	D	S	K	D	S	T	Y	S	L
rF1 V205C	N	F	Y	P	R	E	A	K	V	Q	W	K	V	D	N	A	L	Q	S	G	N	S	Q	E	S	V	T	E	Q	D	S	K	D	S	T	Y	S	L

	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	A	207	208	209	210	211	212
rF1 light chain	S	S	T	L	T	L	S	K	A	D	Y	E	K	H	K	V	Y	A	C	E	V	T	H	Q	G	L	S	S	P	V	T	.	K	S	F	N	R	G
rF1 V205C	S	S	T	L	T	L	S	K	A	D	Y	E	K	H	K	V	Y	A	C	E	V	T	H	Q	G	L	S	S	P	C	T	.	K	S	F	N	R	G

	213	214	215	216
rF1 light chain	E	C	.	.
rF1 V205C	E	C	.	.