

Supplementary Information

DNA microarray analysis reveals the antibiotic resistance gene diversity in human gut microbiota is age-related

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Supplementary Table 1 Detailed information of the antibiotic resistance gene microarray designed in this study

Resistance type	Required	GenBank NO.	Position
AAC2IA_1	Aminoglycoside Resistance		
6_n_netilmicin dibekacin gentamicin netilmicin tobramycin	None	L06156	264-797
AAC2IB_1	Aminoglycoside Resistance		
6_n_netilmicin dibekacin gentamicin netilmicin tobramycin	None	U41471	265-849
AAC2IC_3	Aminoglycoside Resistance		
6_n_netilmicin dibekacin gentamicin netilmicin tobramycin	None	AE000516 CP000325 U72714	314427-314969 1271687-1272229 373-915
AAC2ID_2	Aminoglycoside Resistance		
6_n_netilmicin dibekacin gentamicin netilmicin tobramycin	None	CP000480 U72743	510212-510841 386-1015
AAC2I_1	Aminoglycoside Resistance		
6_n_netilmicin dibekacin gentamicin netilmicin tobramycin	None	CP000384	305541-306161
AAC3IA_17	Aminoglycoside Resistance		
astromicin gentamicin sisomicin	None	AB254131 AF025392 AF207065 AF263520 AF318077 AF550679 AJ009820 AJ310480 AJ877225	1736-2266 670-1200 900-1361 2801-3262 2035-2496 82815-83276 930-1391 488-1018 5296-5757

Resistance type	Required	GenBank NO.	Position
		AM087409	1022-1483
		AY037297	5981-6511
		AY139604	44-574
		AY577724	44-592
		CU459141	3623868-3624398
		DQ530421	83-613
		EF199842	5718-6248
		EU851865	118-648
AAC3IIA_8	Aminoglycoside Resistance		
dibekacin	None	AF466526	2388-3245
gentamicin		AF550415	62773-63630
netilmicin		AY138987	4042-4899
sisomicin		AY191460	904-1758
tobramycin		EU022315	1-858
		EU839488	1177-1902
		X13543	186-1043
		X54723	819-1676
AAC3IIB_1	Aminoglycoside Resistance		
dibekacin	None	M97172	656-1462
gentamicin			
netilmicin			
sisomicin			
tobramycin			
AAC3III-1	Aminoglycoside Resistance		
dibekacin	None	X55652	1124-1936
gentamicin			
kanamycin			
lividomycin			
neomycin			
paromomycin			
sisomicin			
tobramycin			
AAC3IV_4	Aminoglycoside Resistance		
apramycin	None	AB257725	2182-2919
dibekacin		AF061923	2145-2186
gentamicin		AJ414670	551-1288 1284-1325
netilmicin		DQ124229	1729-2502
sisomicin			613-1386
tobramycin			
AAC3IX_1	Aminoglycoside Resistance		
neomycin	None	M55427	274-1116
AAC3VIII_3	Aminoglycoside Resistance		
neomycin	None	AB211959	30752-31612

Resistance type	Required	GenBank NO.	Position
		AF360385	1-603
		AF360386	1-603
		AF360387	1-603
		AF360388	1-603
		AF360389	1-603
		AF360390	1-603
		AF360391	1-603
		AF360392	1-603
		AF369871	1-603
		AF453998	1426-2007
		AF550679	3367-3951
		AJ009820	83355-83939
		AJ223604	268-852
		AJ243491	2347-2922
		AJ295229	1342-1929
		AJ311891	1061-1642
		AJ439689	2634-3218
		AJ971343	996-1586
		AM988778	388-972
		AM993098	4790-5365
		AY007784	1764-2339
		AY162283	2-562
		AY458016	374-958
		AY507153	11682-12266
		AY574992	4739-5320
		AY648341	108-692
		AY648342	1-603
		AY648343	1-603
		AY648344	1-603
		AY648345	1-603
		AY648346	1-603
		AY648347	1-603
		AY648348	1-603
		AY648349	1-603
		AY648350	1-603
		AY648351	1-603
		AY648352	1-603
		AY648353	1-603
		AY648354	1-603
		AY648355	1-603
		AY648356	1-603
		AY648357	1-603
		AY648358	1-603

Resistance type	Required	GenBank NO.	Position
		AY648359	1-603
		AY648360	1-603
		AY648361	1-603
		AY648362	1-603
		AY648363	1-603
		AY648364	1-603
		AY648365	1-603
		AY648366	1-603
		AY648367	1-603
		AY648368	1-603
		AY648369	1-603
		AY648370	1-603
		AY648371	1-603
		AY648372	1-603
		AY648373	1-603
		AY648374	1-603
		AY648375	1-603
		AY648376	1-603
		AY648377	1-603
		AY648378	1-603
		AY686225	1-603
		AY920928	519-1103 2709-3290
		DQ139278	1167-1742
		DQ278189	5041-5616
		DQ393784	445-1035
		EF368053	554-1138
		EF577409	2461-3036
		EU117233	3091-3675
		EU358785	4330-4905
		EU383016	89-673
		EU434618	1142-1726
		EU523056	2004-2606
		EU675686	53-637
		EU886978	36223-36825
		FJ207466	33176-33778
		FJ223605	60-644
		M23634	26-610
		Y11947	1264-1857
		Y11948	17-601
			669-1253
			32287-32889
			355-957
			254-838

Resistance type	Required	GenBank NO.	Position
			233-817
AAC6IC_1	Aminoglycoside Resistance		
amikacin dibekacin isepamicin netilmicin sisomicin tobramycin	None	M94066	1554-1991
AAC6IE_3	Aminoglycoside Resistance		
amikacin dibekacin isepamicin netilmicin sisomicin tobramycin	None	AB049452 AP003367 AY969045	4232-5668 17227-18663 2-1234
AAC6IF_1	Aminoglycoside Resistance		
amikacin dibekacin isepamicin netilmicin sisomicin tobramycin	None	X55353	279-710
AAC6IG_2	Aminoglycoside Resistance		
amikacin dibekacin isepamicin netilmicin sisomicin tobramycin	None	L09246 L29510	544-978 369-803
AAC6IIA_1	Aminoglycoside Resistance		
dibekacin gentamicin netilmicin sisomicin tobramycin	None	AM29601	7-2180-2731
AAC6IIB_1	Aminoglycoside Resistance		
dibekacin gentamicin netilmicin sisomicin tobramycin	None	L06163	532-1071
AAC6I_6	Aminoglycoside Resistance		
amikacin	None	AF031327	1-438

Resistance type	Required	GenBank NO.	Position
dibekacin		AF031328	1-438
isepamicin		AF031329	1-438
netilmicin		AF031330	1-438
sisomicin		AF031332	1-438
tobramycin		L29044	352-789
AAD9IB_5	Aminoglycoside Resistance		
spectomycin	None	AB037671	53509-54009
streptomycin		AB047088	53229-53513
		AJ579365	12533-13312
		AP009324	10758-11537
		EU146227	1764517-1765296
			56823-57602
		1204-1983	
AAD9_2	Aminoglycoside Resistance		
spectomycin	None	AB042430	1706-2470
streptomycin		AB055650	3637-4401
AADD_4	Aminoglycoside Resistance		
kanamycin	None	AB037420	438-1196
tobramycin		AB121443	1-759
		AF051917	21864-22622
		EU437549	18789-19451
		18692-18784	
ACRA_30	multidrug resistance transporters types		
acriflavin	acrb	AE005174	550497-551687
aminoglycoside	tolc	AE008717	18273-19463
beta_lactam		AE014075	559079-560269
glycylcycline		AE014613	2454627-2455817
macrolide		AE017220	576791-577981
		AJ306389	1430-2626
		AJ318073	794-1987
		AL627267	6284-7474
		AM287286	1-1191
		AM933172	511795-512985
		AM933173	530258-531448
		CP000026	2339847-2341037
		CP000034	447726-448916
		CP000243	498560-499750
		CP000266	458611-459801
		CP000647	487932-489122
		CP000653	1048100-1049290
		CP000783	2757972-2759174
	CP000822	2492599-2493789	
	CP000880	2381359-2382549	

Resistance type	Required	GenBank NO.	Position
		CP000886	2584794-2585984
		CP000946	3455941-3457131
		CP000964	4273130-4274320
		CP001113	536819-538009
		CP001120	579546-580736
		CP001127	540551-541741
		CP001138	513968-515158
		CU928145	511740-512966
		CU928158	2618823-2620049
		CU928163	543145-544371
ACRB_55	multidrug resistance transporters types		
acriflavin	tolc	AB104882	1248-4400
aminoglycoside	acra	AE005174	547325-550471
beta_lactam		AE005674	417788-420934
glycylcycline		AE008717	15101-18247-S-
macrolide		AE009952	1182424-1185573
		AE014073	417589-420735
		AE014075	555907-559053
		AE014613	2455843-2458989
		AE017220	573619-576765
		AJ306389	2652-5795
		AJ318073	2013-5156
		AL590842	3492157-3495306
		AL627267	3112-6258
		AM286415	3374249-3377398-
		AM287287	1-3144
		AM933172	508623-511769
		AP008232	1156193-1159354
		AP009048	480481-483627
		AP009240	525087-528233
		AY307102	3008-6151
		BX950851	1322902-1326027
		CP000026	2341063-2344209
		CP000034	448942-452088
		CP000036	374568-377714
		CP000038	473451-476597
		CP000243	495388-498534
		CP000247	548499-551645
		CP000468	496986-500132
		CP000647	484763-487906
		CP000653	1044928-1048074
		CP000720	3454386-3457535
		CP000783	2759199-2762345

Resistance type	Required	GenBank NO.	Position
		CP000800	516404-519550
		CP000802	547322-550468
		CP000822	2493815-2496955
		CP000826	1237704-1240847
		CP000880	2382575-2385718
		CP000886	2586010-2589156
		CP000946	3457157-3460303
		CP000950	3508599-3511748
		CP000964	4274346-4277489
		CP000970	509570-512716
		CP001063	379515-382661
		CP001113	533647-536793
		CP001120	576374-579520
		CP001127	537379-540525
		CP001138	510796-513942
		CP001144	532566-535712
		CU928145	508568-511714
		CU928158	2620075-2623221
		CU928160	496014-499160
		CU928162	501991-505137
		CU928163	39973-543119
		DQ679966	1516-4659
		FM180568	441734-444880
ADEA_3	multidrug resistance transporters types		
aminoglycoside	adeb	AF370885	3439-4626
fluoramphenicol	adec	CP000521	2039557-2040252
		CP000863	2040254-2040745
			1951185-1952372
ADEB_5	multidrug resistance transporters types		
aminoglycoside	adec	AF370885	4629-7733
chloramphenicol	adea	CP000521	2036450-2039554
		CP000863	1948078-1951182
		CP001172	1830079-1833183
		CP001182	2159258-2162362
ADEC_4	multidrug resistance transporters types		
aminoglycoside	adeb	AF370885	7813-9207
chloramphenicol	adea	CP000863	1946604-1947998
		CP001172	1833263-1834657
		CP001182	2157784-2159178
AMRA_9	multidrug resistance transporters types		
acriflavine	amrb	AF072887	737-1933
aminoglycoside	opra	AM747720	1828820-1830019
macrolide		BX571965	2150969-2152165

Resistance type	Required	GenBank NO.	Position
		CP000086	2799291-2800487
		CP000124	2222524-2223720
		CP000378	1242074-1243273
		CP000548	811519-812715
		CP000572	1855788-1856984
		CP000958	1765206-1766405
AMRB_8	multidrug resistance transporters types		
acriflavine	amra	AF072887	1953-5081
aminoglycoside	opra	AM747720	1830038-1833175
macrolide		BX571965	2147821-2150949
		CP000086	2796143-2799271
		CP000378	1243292-1246429
		CP000440	1669739-1672873
		CP000958	1766424-1769561
		CP001025	1715308-1718442
ANT2IA_23	Aminoglycoside Resistance		
dibekacin	None	AB113115	2-877
n_gentamicin		AB126602	2-874
kanamycin		AB186118	3-617
sisomicin		AB194701	2-895
tobramycin		AF047479	1080-2084
		AF071555	1745-2749
		AF164956	14764-15768
		AF221903	2-895
		AF364344	51-656
		AF458082	509-1255
		AF486817	342-1346
		AF530636	2-895
		AF530637	2-895
		AJ704863	23056-23802
		AY263740	2-895
		AY522431	11873-12880
		AY913771	71-817
		CP000603	153876-154883
		D43625	1080-2084
		DQ778999	2-895
		DQ789569	1-585
		EU089667	7-2-874
		FJ460178	1-876
ANT2IB_1	Aminoglycoside Resistance		
dibekacin	None	L06161	106-942
gentamicin			
kanamycin			

Resistance type	Required	GenBank NO.	Position
sisomicin tobramycin			
ANT3IA_24	Aminoglycoside Resistance		
spectinomycin	None	AB086433	4807-5775
streptomycin		AB107663	2-877
		AB126599	2-874
		AB188259	2-895
		AB219233	2-895
		AB236930	824-1831
		AB287976	2-877
		AB294425	4692-5699
		AJ496285	2-895
		AM932671	2-895
		AY139590	2-895
		AY232671	333-1337
		AY456904	2873-3880
		AY677093	2-895
		AY737283	9441-10409
		CP000604	125888-126892
		CP000645	91507-92511
		DQ517526	96404-97408
		DQ778998	2-895
		DQ779003	2-895
		EU089666	1-876
		EU622040	1-975
		U46780	403-1410
		U66308	4914-5882
ANT4IIA_1	Aminoglycoside Resistance		
amikacin	None	M98270	145-900
isepamicin tobramycin			
ANT6IA_3	Aminoglycoside Resistance		
streptomycin	None	AY345595	61137-62000
		DQ519394	3686-4405
		DQ519395	5609-6472
APH33IA_2	Aminoglycoside Resistance		
streptomycin	None	AP009493	267117-267932
		M16482	501-1316
APH33IB_10	Aminoglycoside Resistance		
streptomycin	None	AB109805	1871-2671
		AB114188	18570-19370
		AB366440	83604-84404
		AB450045	14254-15054

Resistance type	Required	GenBank NO.	Position
		AF303375	965-1765
		AJ830713	3831-4505
		AY509004	51229-51909
		CT025832	22312-23112
		CU459141	3679659-3680459
		DQ464881	2219-3016
APH3IA_58	Aminoglycoside Resistance		
gentamincin_b	None	AB019603	313-1125
kanamycin		AB020028	11245-12060
lividomycin		AB031077	3331-4143
neomycin		AB032348	2208-3020
paromomycin		AB095955	5063-5875
ribostamycin		AB107950	2463-3275
		AB262967	6178-6990
		AB277723	1315-2127
		AB303314	373-1179
		AB364151	1196-2002
		AB366440	79146-79958
		AF083408	162-974
		AF116269	563-1375
		AF191089	1-813
		AF223640	1375-2175
		AF306519	792-1604
		AF498082	4217-5029
		AF532106	200-1012
		AJ007829	2097-2909
		AJ271879	9443-10255
		AJ308295	4466-5278
		AJ606312	888-1700
		AM179852	935-1747
		AM884371	5980-6792
		AP004237	117878-118690
		AY033554	5314-6126
		AY061891	167-979
		AY178634	4798-5610
		AY333433	2270-3082
		AY339625	917-1729
		AY597272	623-1435
		AY619006	1163-1975
		AY899293	1877-2626
		AY944581	320-1132
		D45833	479-1291
		D45834	9580-10392

Resistance type	Required	GenBank NO.	Position
		D63840	325-1137
		DQ016035	1279-2091
		DQ391279	10480-11292
		DQ452049	6638-7450
		EF015636	2433-3245
		EF175995	1877-2689
		EF392865	2015-2827
		EF411199	1068-1874
		EF488742	1421-2227
		EU496093	149-961
		EU496099	190-1002
		EU499313	7326-8138
		EU600162	595-1344
		FJ160465	11068-11880
		FM164773	4781-5593
		L05392	6414-7226
		L08776	1920-2732
		L23118	3082-3894
		M18327	2429-3241
		U63147	185-997
		U84737	997-1809
		Y00452	106-918
APH3IB_1	Aminoglycoside Resistance		
gentamycin_b	None	AJ744860	42975-43787
kanamycin			
lividomycin			
neomycin			
paromomycin			
ribostamycin			
APH3IC_2	Aminoglycoside Resistance		
gentamycin_b	None	Z48231	820-1632
kanamycin		Z74787	6098-6910
lividomycin			
neomycin			
paromomycin			
ribostamycin			
APH3IIIA_5	Aminoglycoside Resistance		
amikacin	None	AB246757	205-996
butirosin		AB247327	3096-3887
gentamycin_b		AB289764	13319-14110
isepamicin		FJ386489	2561-3352
kanamycin		M36771	293-1081
lividomycin			

Resistance type	Required	GenBank NO.	Position
neomycin paromomycin ribostamycin			
APH3IVA_1	Aminoglycoside Resistance		
butirosin kanamycin neomycin paromomycin ribostamycin	None	X03364	277-1062
APH3VA_3	Aminoglycoside Resistance		
neomycin paromomycin ribostamycin	None	AB211959 AJ786317 K00432	4000-4803 19707-20510 307-1110
APH3VB_2	Aminoglycoside Resistance		
neomycin paromomycin ribostamycin	None	AJ744850 M22126	33603-34394 373-1161
APH3VIA_3	Aminoglycoside Resistance		
amikacin butirosin gentamicin_b isepamicin kanamycin neomycin paromomycin ribostamycin	None	AJ627643 DQ315788 EU977572	4934-5710 7472-8248 1-777
APH3VIA_1	Aminoglycoside Resistance		
kanamycin neomycin	None	M29953	296-1045
APH4IB_2	Aminoglycoside Resistance		
hygromycin_b	None	AF025746 AJ431691	911-1906 1103-2098
APH6IA_3	Aminoglycoside Resistance		
streptomycin	None	AJ862840 AP009493 AY971801	33893-34921 6940873-6941901 1-921
APH6IB_2	Aminoglycoside Resistance		
streptomycin	None	AJ006985 X05648	11789-12709 382-1302
APH6IC_3	Aminoglycoside Resistance		
streptomycin	None	AB255435 AY037297 X64335	117696-118493 2709-3506 6602-7351

Resistance type	Required	GenBank NO.	Position
APH6ID_6			
Aminoglycoside Resistance			
streptomycin	None	AB109805	2674-3507
		AB114188	17734-18567
		AF313472	16397-17230
		AJ3135222	2696-3529
		CT025832	23115-23948
		CU459141	3678823-3679656
ARNA_10			
polymyxin	None	AE005174	3168508-3170487
		AE014075	2654421-2656400
		CP000034	2250985-2252964
		CP000038	2443874-2445853
		CP000247	2404849-2406825
		CP000802	2408826-2410805
		CP000946	1526502-1528481
		CP000970	2457418-2459397
		CU928163	2671471-2673450
		CU928164	2487053-2489032
BACA_40			
bacitracin	None	AE005174	4010156-4010974
		AE005674	3192420-3193238
		AE008847	12871-13653
		AE009952	3915320-3916135
		AE014075	3643906-3644724
		AE014613	3213602-3214384
		AE017042	3298428-3299243
		AE017220	3332681-3333463
		AM286415	4013301-4014116
		AM933172	3258560-3259342
		AP009048	3201969-3202787
		AP009240	3466063-3466881
		BA000007	3942841-3943659
		BX571872	142421-143236
		BX950851	4035707-4036522
		CP000026	3181065-3181847
		CP000034	3003411-3003995
		CP000038	3357543-3358361
		CP000247	3314998-3315816
		CP000647	3787710-3788528
CP000653	3769928-3770746		
CP000783	332878-333693		
CP000800	3532979-3533797		
CP000822	4116231-4117046		

Resistance type	Required	GenBank NO.	Position
		CP000826	4761321-4762142
		CP000880	4339636-4340418
		CP000886	3330960-3331742
		CP000946	691777-692595
		CP000964	670380-671198
		CP000970	3428830-3429648
		CP001063	3243243-3244061
		CP001113	3359936-3360718
		CP001127	3278153-3278935
		CP001138	3293534-3294316
		CP001144	3417655-3418437
		CU928158	3072403-3073224
		CU928162	3652393-3653214
		CU928163	3658087-3658908
		CU928164	3707620-3708441
		FM180568	3487367-3488185
BCRA_4	bacitracin efflux pump.		
bacitracin	None	AF007865	46313-47230
		CP000764	292097-293050
		DQ272494	46203-47120
		DQ390456	19491-20408
BCRC_2	bacitracin efflux pump.		
bacitracin	None	AF007865	48081-48689
		DQ272494	47972-48580
BL1_ACC_7	beta-lactamase types		
cephalosporin	None	AF180952	1565-2734
e_penicillin		AF180953	1-1170
		AF180954	1-1170
		AF180959	1-1170
		AF180961	1-1170
		AJ133121	638-1807
		AJ270942	2627-3796
BL1_AMPC_39	beta-lactamase types		
cephalosporin	None	AB016611	104-1246
		AF411144	14-1156
		AF411145	14-1156
		AF411146	14-1156
		AF411148	14-1156
		AF492446	962-2104
		AJ005633	44-1186
		AJ278994	1075-2199
		AJ278995	1075-2217
		AJ311172	9-1151

Resistance type	Required	GenBank NO.	Position
		AJ311364	12-1154
		AM076977	1-1143
		AY125471	1021-2163
		AY227752	89-1231
		AY302261	1-1143
		AY536040	1-1143
		AY743435	14-1156
		D44479	390-1541
		DQ478697	1006-2148
		DQ478700	1-1134
		DQ478702	1-1143
		DQ478705	1-1113
		DQ478710	1-1143
		DQ478723	1009-2151
		DQ478725	1009-2151
		DQ986958	1-1101
		EF125013	1-1143
		EF125014	1-1140
		EF417572	30-1172
		EF508682	1-1104
		FJ237366	38-1180
		FJ237367	1-1143
		FJ237368	1-1143
		FJ237369	1-1143
		M37839	928-2070
		U58495	28-1170
		X07274	44-1186
		X08081	3-1127
		X08082	44-1186
BL1_ASBA_1	beta-lactamase types		
cephalosporin	None	U10250	181-1326
BL1_CEPS_4	beta-lactamase types		
cephalosporin	None	AC167966	76474-77619
		AJ276030	2671-3816
		CP000462	3545773-3547041
		X80277	1-1146
BL1_CMY2_54	beta-lactamase types		
carbapenem	None	AB107899	1008-2150
cefoxitin		AB212085	1-1143
ceftazidime		AB280919	1-1143
ceftriaxone		AB300358	1-1143
cephalosporin		AB372224	1-1143
cephamycin		AB429270	15-1157

Resistance type	Required	GenBank NO.	Position
		AF349569	1-1143
		AF349570	1-1143
		AF492445	420-1562
		AF492447	539-1681
		AF492448	538-1680
		AJ011291	1-1143
		AJ555823	1-1143
		AJ555825	1-1143
		AJ607409	1492-2634
		AJ746169	1-1143
		AJ781421	1-1143
		AM77974	1-1143
		AY125469	1059-2201
		AY339625	3644-4786
		AY513266	165-1307
		AY743434	47-1195
		AY960293	1-1140
		CP000604	72367-73509
		D13207	143-1285
		D85910	587-1729
		DQ017661	9315-10457
		DQ256079	1-1143
		DQ438952	161-1303
		DQ443436	1-1143
		DQ663490	10-1110
		EF394370	1-1143
		EF394371	1-1143
		EF426097	1-1143
		EF561644	1-1143
		EF622224	1-1143
		EF685371	1-1143
		EU113222	20-1162
		EU331426	2375-3517
		EU496815	1-1143
		EU496816	1-1137
		EU515249	1-1143
		EU515250	1-1143
		EU515251	1-1143
		FJ360626	1-1143
		FJ437066	1-1131
		U77414	-1-1143
		X03866	43-1185
		X51632	143-1285

Resistance type	Required	GenBank NO.	Position
		X74512	127-1269
		X78117	142-1284
		Y15411	1-1143
		Y15412	1-1143
		Y16785	1-1143
BL1_EC_51	beta-lactamase types		
cephalosporin	None	AB108683	1-1122
		AE005174	5262079-5263209
		AE005674	4482201-4483331
		AE014075	4986535-4987665
		AF124201	180-1310
		AF124202	180-1310
		AF124203	180-1310
		AF492449	176-1306
		AP009048	4382494-4383624
		AP009240	4649872-4651002
		AY533244	194-1324
		AY533245	221-1351
		AY843211	83-1213
		AY899338	110-1240
		CP000034	4111754-4112884
		CP000036	4355147-4356277
		CP000038	4604319-4605449
		CP000243	4649613-4650743
		CP000247	4607987-4609117
		CP000266	4450795-4451925
		CP000800	4710494-4711624
		CP000946	4218132-4219262
		CP000970	4722463-4723593
		CP001063	4374305-4375435
		CU928158	4310555-4311685
		CU928162	4896149-4897279
		CU928163	4863059-4864189
		DQ022104	1-1131
		DQ023607	1-1131
		DQ091197	185-1315
		DQ092421	185-1315
		DQ092423	185-1315
		DQ092426	185-1315
		DQ092427	185-1315
		DQ092428	185-1315
		DQ092429	185-1315
		DQ092430	185-1315

Resistance type	Required	GenBank NO.	Position
		DQ092431	185-1315
		DQ092433	185-1315
		DQ092434	185-1315
		DQ432011	169-1299
		DQ821475	678-1283
		DQ821476	189-1271
		DQ821477	154-1287
		DQ821478	154-1284
		EF125541	144-1280
		EF507687	1-1131
		EF661829	171-1304
		FJ439686	175-1305
		FM180568	4725641-4726771
		J01611	4156-5286
BL1_FOX_7	beta-lactamase types		
cephalosporin	None	AF462690	673-1818
		AJ2775351	1146
		AY007369	1146
		CP000644	1230984-1232213
		X77455	701-1846
		Y10282	19-1164
		Y11068	17-1162
BL1_MOX_1	beta-lactamase types		
cephalosporin	None	AB061794	6018-7163
BL1_OCH_4	beta-lactamase types		
cephalosporin	None	AJ295340	1-1170
		AJ295341	1-1170
		AJ295343	1-1170
		CP000758	2711705-2712874
BL1_PAO_11	beta-lactamase types		
cephalosporin	None	AB198756	1-1191
		AB211125	1-1191
		AB211126	1-1191
		AE004091	4594029-4595219
		AF490770	45-1235
		AY083592	45-1235
		AY083593	40-1230
		AY083594	2-1165
		CP000438	932634-933824
		CP000744	987340-988530
		FM209186	940034-941224
BL1_PSE_1	beta-lactamase types		
cephalosporin	None	CP000076	4666561-4667730

Resistance type	Required	GenBank NO.	Position
BL1_SM_12	beta-lactamase types		
cephalosporin	None	AB008454	154-1287
		AB008455	152-1285
		AF327324	33-1166
		AF384203	65-1198
		AJ271368	1586-2716
		AY336102	1-1122
		AY524276	1-1134
		AY538705	1-1113
		AY954692	1-1083
		DQ184903	1-1134
		DQ308562	1-1134
		X52964	24-1151
BL2A_1_12	beta-lactamase types		
penicillin	None	AE016877	3401941-3402732
		AE016879	3216835-3217602
		AE017194	3216717-3217487
		AE017355	3289355-3290122
		AF367984	791-1558
		CP000485	3283236-3284024
		CP001176	3332636-3333397
		CP001177	3230727-3231494
		CP001283	3296753-3297520
		M11189	330-1010
		M15350	135-905
		M19530	416-1183
BL2A_EXO_1	beta-lactamase types		
penicillin	None	M28303	243-1184
BL2A_III2_2	beta-lactamase types		
penicillin	None	AE017333	254017-254937
		V00093	266-1186
BL2A_III_8	beta-lactamase types		
penicillin	None	AE016877	2443996-2444913
		CP000903	2398002-2399045
		CP001176	2423800-2424717
		CP001186	2387711-2388628
		X01602	273-1181
		X06599	273-1190
		X62244	143-1060
		X83424	253-1188
BL2A_KCC_1	beta-lactamase types		
penicillin	None	D12653	747-1679
BL2A_NPS_1	beta-lactamase types		

Resistance type	Required	GenBank NO.	Position
penicillin	None	X15791	1376-2254
BL2A_OKP_29	beta-lactamase types		
penicillin	None	AJ635402	1-858
		AJ635404	1-858
		AM051140	1-858
		AM051142	1-858
		AM051143	1-858
		AM051147	1-858
		AM051151	1-858
		AM051152	1-858
		AM051153	1-858
		AM051156	1-858
		AM051157	1-858
		AM051159	1-858
		AM051160	1-858
		AM051161	1-858
		AM850916	19-876
		AM850917	18-875
		AM850918	25-882
		AM850919	25-882
		AM850920	41-898
		AM850921	25-882
		AM850922	25-882
		AY512506	68-925
		AY825330	1-858
		AY850171	68-925
		DQ149135	47-904
		DQ149136	47-904
		DQ149137	47-904
		DQ149138	47-904
		DQ995288	3-827
BL2A_PC_16	beta-lactamase types		
penicillin	None	AB179623	10165-10935
		AB245468	2307-3077
		AB255366	7719-8489
		AE015929	1664208-1665050
		AF128883	780-1622
		AJ302698	2067-2837
		AP004832	10343-11113
		AY373761	16143-16913
		CP000029	1526929-1527771
		CP000732	9686-10528
		DQ016057	375-1163

Resistance type	Required	GenBank NO.	Position
		DQ269019	78-848
		DQ919081	1-792
		DQ919089	2-799
		M25254	211-981
		U43087	7-810
BL2BE_CTXM_59	beta-lactamase types		
ceftazidime	None	AB059404	85-873
cephalosporin_i		AB176532	88-873
cephalosporin_ii		AB176535	88-873
cephalosporin_iii		AB177384	85-873
monobactam		AB185842	85-873
penicillin		AB205197	4-873
		AB284167	226-1098
		AF189721	274-1146
		AF255298	85-873
		AF286192	1076-1858
		AF305837	85-873
		AF462634	34-759
		AF501233	534-1403
		AF518567	2321-3193
		AJ005044	88-873
		AJ005045	88-873
		AJ272538	3065-3850
		AJ310929	328-1116
		AJ427463	91-873
		AJ427466	88-873
		AJ427468	88-873
		AJ549244	85-873
		AJ567481	88-873
		AJ704396	85-873
		AM411407	85-873
		AM982520	5639-6421
		AM982521	2002-2784
		AM982522	1-873
		AY005110	85-846
		AY026417	2428-3300
		AY157676	1-873
		AY238472	16-804
		AY267213	85-873
		AY292654	85-873
		AY421962	87-875
		AY458016	20356-21144
		AY575772	111-899

Resistance type	Required	GenBank NO.	Position
		AY649755	102-890
		AY753197	85-873
		AY835399	73-828
		AY954516	1-873
		DQ023162	1-873
		DQ102702	88-873
		DQ223685	85-873
		DQ256091	183-971
		DQ268764	5976-6764
		DQ408762	88-873
		DQ810789	312-1100
		EF382672	222197-222985
		EU082208	85-873
		EU118591	28-753
		EU118594	53-802
		EU176817	51-788
		EU177100	89-877
		EU376964	85-873
		EU402393	85-873
		Y14156	88-873
		AF473577	265-1053
		AJ427467	91-873
BL2BE_OXY1_14	beta-lactamase types		
monobactam	None	AF473577	265-1053
penicillin		AJ871864	1-873
		AJ871868	1-870
		AJ871871	1-870
		AJ871873	1-873
		AJ871875	1-870
		AJ871876	1-873
		AJ871877	1-873
		AY077481	186-1055
		AY077482	162-1034
		AY077483	183-1052
		AY077486	181-1053
		M27459	86-958
		Y17715	147-1019
BL2BE_PER_6	beta-lactamase types		
e_cephalosporin	None	AJ621265	530-1453
monobactam		AM409516	1405-2328
n_cephalosporin		DQ489436	20-862
penicillin		DQ489437	2-793
		EU022369	3-923

Resistance type	Required	GenBank NO.	Position
		Z21957	288-1211
BL2BE_SHV2_136	beta-lactamase types		
e_cephalosporin	None	AB023477	1-858
monobactam		AB302939	9-866
n_cephalosporin		AB372881	9-866
penicillin		AB374988	9-866
		AF072684	118-990
		AF074954	267-1124
		AF096930	1436-2293
		AF124984	199-1056
		AF132290	88-945
		AF148851	6-863
		AF164577	1-858
		AF208796	1-858
		AF226622	55-912
		AF299299	1-858
		AF301532	8-865
		AF462394	1-858
		AF462395	1-858
		AF462396	1-858
		AF467947	1-858
		AF467948	1-858
		AF535128	1-858
		AF535129	1-858
		AF535130	1-858
		AF538324	1-858
		AF547625	1-858
		AF550679	91052-91909
		AJ011428	1-858
		AJ866284	1-858
		AJ866285	1-858
		AM087453	26-856
		AM176546	1-858
		AM176547	31-888
		AM176548	23-871
		AM176549	31-888
		AM176550	31-888
		AM176551	31-888
		AM176552	31-888
		AM176553	31-888
		AM176554	31-888
		AM176555	1-858
		AM176556	26-883

Resistance type	Required	GenBank NO.	Position
		AM176557	1-858
		AM176558	4-858
		AM922304	1-858
		AM922305	1-858
		AM922306	1-897
		AM922308	1-858
		AM922309	1-858
		AY036620	89-946
		AY037778	92-949
		AY037779	89-946
		AY065991	7-864
		AY070258	1-858
		AY079099	149-1006
		AY210887	112-969
		AY259119	117-974
		AY259164	1-858
		AY263404	1-858
		AY277255	67-924
		AY288915	1-858
		AY289548	1-858
		AY293069	1-858
		AY352599	1-858
		AY386366	1-858
		AY502000	1-858
		AY502001	1-855
		AY502002	1-855
		AY502004	1-858
		AY504816	1-858
		AY509129	1-852
		AY518560	1218-2075
		AY528717	575-1432
		AY528718	414-1271
		AY570953	1-858
		AY677211	1-858
		AY737250	1-858
		AY787643	1-858
		AY790341	1-858
		AY826416	1-858
		CP000603	141583-142440
		CP000647	1784147-1785004
		DQ013287	1-858
		DQ166781	1-858
		DQ166783	1-858

Resistance type	Required	GenBank NO.	Position
		DQ174304	5-862
		DQ174305	5-862
		DQ174306	5-862
		DQ174307	5-862
		DQ174308	5-862
		DQ193536	1-858
		DQ219472	1-858
		DQ219473	1-858
		DQ219474	1-858
		DQ219475	1-858
		DQ219476	1-858
		DQ219477	1-858
		DQ219478	63-857
		DQ296194	1-858
		DQ322460	16-873
		DQ328802	1-858
		DQ355784	1-858
		DQ449578	80990-81847
		DQ478693	2-814
		DQ478728	13-843
		DQ836922	1-858
		DQ849331	1-858
		EF035557	1-858
		EF035563	1-858
		EF035567	1-858
		EF373969	1-858
		EF373970	1-858
		EF373971	1-858
		EF373972	1-858
		EF373973	1-858
		EF373974	1-858
		EF373975	1-858
		EF653399	353-1210
		EU024485	1-858
		EU032604	1-858
		EU155018	1-858
		EU155390	15-809
		EU274581	1-858
		EU342351	173-1030
		EU350512	1-849
		EU441172	57-914
		EU586041	1-858
		FJ194944	47-904

Resistance type	Required	GenBank NO.	Position
		L47119	223-1080
		M59181	125-985
		S82452	121-975
		U20270	125-982
		U92041	1-858
		X62115	1281-2138
		X98098	74-931
		X98100	74-931
		X98102	74-931
BL2B_ROB_2	beta-lactamase types		
cephalosporin penicillin	None	CP001094	2779-3693
BL2B_TEM1_6	beta-lactamase types		
cephalosporin_i cephalosporin_ii penicillin	None	AB005475 AB013921 AF427133 AF516720 AM901564 DQ849325	3144-4001 940-1797 209-1066 215-1072 1631-2488 1-858
BL2B_TEM2_1	beta-lactamase types		
cephalosporin_i cephalosporin_ii penicillin	None	AJ251946	520-1377
BL2B_TEM_2	beta-lactamase types		
cephalosporin penicillin	None	AF468003 Y14574	1-858 1-858
BL2B_TLE_1	beta-lactamase types		
cephalosporin penicillin	None	L25634	1274-2155
BL2B_ULA_2	beta-lactamase types		
cephalosporin penicillin	None	AF321608 X62610	1-885 166-1047
BL2C_BRO_1	beta-lactamase types		
carbenicillin penicillin	None	AF135373	12-905
BL2C_PSE1_2	beta-lactamase types		
carbenicillin penicillin	None	AB126603 AF030945	150-1061 48-959
BL2C_PSE3_1	beta-lactamase types		
carbenicillin penicillin	None	AJ877225	43233-44111
BL2D_LCR1_2	beta-lactamase types		
cloxacillin	None	AJ431260	57504-58283

Resistance type	Required	GenBank NO.	Position
penicillin		L36547	7549-8328
BL2D_MOXA_1	beta-lactamase types		
cloxacillin	None	D90201	267-1175
penicillin			
BL2D_OXA10_17	beta-lactamase types		
cloxacillin	None	AF043100	2-772
penicillin		AF043381	944-1741
		AF043558	1-798
		AF060206	2-772
		AF231133	1346-2143
		AF300984	1-687
		AF315786	1314-2111
		AJ854182	1-798
		AM412777	118-915
		AY445080	1-798
		AY509609	207-1004
		CU459141	3656880-3657677
		EF437948	1-792
		EU708817	2161-2958
		FM877487	1343-2140
		U59183	940-1737
		X75562	135-932
BL2D_OXA1_7	beta-lactamase types		
cloxacillin	None	AB218659	1-828
penicillin		AF326777	17078-17905
		AJ238349	126-953
		AY008291	1-768
		AY139600	168-977
		EU339234	168-995
		EU752482	1-528
BL2D_OXA2_18	beta-lactamase types		
cloxacillin	None	AB188812	2960-3784
penicillin		AF315351	673-1497
		AF317511	2371-3168
		AF350424	1-771
		AF371964	119-916
		AJ311891	3303-4127
		AJ564903	16610-17434
		AY139598	1487-2284
		AY289608	617-1441
		AY444814	3988-4812
		DQ522237	3974-4798
		DQ767903	1281-2078

Resistance type	Required	GenBank NO.	Position
		DQ993182	1190-2014
		EF375699	2068-2892
		EF552405	13-837
		FM179467	1939-2763
		L07945	61-885
		U63835	128-952
BL2D_OXA5_2	beta-lactamase types		
cloxacillin	None	AF347074	1661-2461
penicillin		AM932669	699-1481
BL2D_OXA9_2	beta-lactamase types		
cloxacillin	None	AF034958	4029-4850
penicillin		EU383016	34481-35302
BL2D_R39_1	beta-lactamase types		
cloxacillin	None	X53650	321-1232
penicillin			
BL2E_CBLA_1	beta-lactamase types		
cephalosporin	None	L08472	848-1735
BL2E_CBPA_4	beta-lactamase types		
cephalosporin	None	AP006841	1484728-1485627
		CR626927	1461127-1462026
		L13472	436-1335
		U05886	404-1303
BL2E_CFXA_3	beta-lactamase types		
cephalosporin	None	AF118110	75-1037
		AF472622	53-1015
		AY753591	1-867
BL2E_FPM_4	beta-lactamase types		
cephalosporin	None	AF324468	1221-2114
		D29982	212-1111
		D37831	1468-2367
		X80128	1259-2158
BL2E_Y56_3	beta-lactamase types		
cephalosporin	None	AM286415	2210347-2211228
		AY954728	12-893
		X57074	338-1219
BL2F_NMCA_3	beta-lactamase types		
carbapenem	None	AJ536087	1111-1905
cephalosporin		AY780889	7894-8688
penicillin		U50278	1345-2139
BL2F_SME1_1	beta-lactamase types		
carbapenem	None	AF275256	1-882
cephalosporin			
penicillin			

Resistance type	Required	GenBank NO.	Position
BL2_GES_6 beta-lactamase types			
cephalosporin	None	AB113580	1330-2190
penicillin		AF156486	1332-2192
		AY953375	1-543
		DQ333893	1-795
		DQ660416	1-810
		EF219163	1-783
BL2_KPC_7 beta-lactamase types			
carbapenem	None	AF297554	131-1009
cephalosporin		AF395881	1-879
cephamycin		AY522950	2-835
penicillin		AY700571	3-878
		EU244644	2-847
		EU594576	103-948
		FJ223607	8079-8957
BL2_LEN_21 beta-lactamase types			
penicillin	None	AF452105	1-831
		AJ635400	1-789
		AJ635403	1-789
		AJ635405	1-789
		AJ635418	1-789
		AJ635423	1-789
		AJ635424	1-789
		AM850908	1-858
		AM850909	1-858
		AM850910	1-858
		AM850911	1-858
		AM850912	1-858
		AM850913	1-858
		AM850914	31-888
		AY130286	2-811
		AY130287	2-811
		AY633109	1-858
		CP000964	2835134-2835991
		DQ149134	1-858
		DQ478688	9-815
		X04515	286-1116
BL2_VEB_2 beta-lactamase types			
cephalosporin	None	AF010416	164-1060
penicillin		CU459141	3660740-3661636
BL3_CCRA_8 beta-lactamase types			
carbapenem	None	AB087225	1-747
cephalosporin		AB087229	1-747

Resistance type	Required	GenBank NO.	Position
cephamycin		AF275830	2-331
penicillin		AF275831	2-331
		AF275832	2-331
		AF429432	1501-2247
		EU595393	1722-2468
		X85036	1-693
BL3_CIT_2	beta-lactamase types		
carbapenem	None	AB364006	62-784
cephalosporin		AY236224	20609-21325
cephamycin			
penicillin			
BL3_CPHA_15	beta-lactamase types		
carbapenem	None	AJ548797	924-1685
cephalosporin		AY112998	197-958
cephamycin		AY227050	131-880
penicillin		AY227051	1-762
		AY227052	1-762
		AY227053	1-762
		AY261375	1-762
		AY261377	1-762
		AY261378	1-762
		AY261379	1-762
		CP000462	792490-793236
		CP000644	3904766-3905527
		U60294	1-762
		X57102	148-909
		Y10415	126-890
BL3_GIM_1	beta-lactamase types		
carbapenem	None	AJ620678	1041-1790
cephalosporin			
cephamycin			
penicillin			
BL3_IMP_22	beta-lactamase types		
carbapenem	None	AB010417	1-738
cephalosporin		AB040994	1-738
cephamycin		AB070224	1541-2278
penicillin		AB074436	17-751
		AB182996	1-738
		AB184976	1-738
		AF244145	1-738
		AF290912	1-738
		AF318077	1148-1885
		AJ420864	156-893

Resistance type	Required	GenBank NO.	Position
		AJ512502	138-875
		AJ584652	1044-1781
		AM283490	1527-2264
		AY033653	2788-3522
		AY055216	98-835
		AY168635	1-738
		AY553333	114-851
		AY780674	1-738
		DQ307573	3-740
		DQ361087	357-1094
		EU352796	1-735
		FJ384365	1039-1776
BL3_L_7	beta-lactamase types		
carbapenem	None	AB294542	1-870
cephalosporin		AJ251815	1-870
cephamycin		AJ272109	1-885
penicillin		CP001111	2406741-2407610
		EF126053	1-870
		EF126061	1-870
		X75074	512-1381
BL3_SHW_3	beta-lactamase types		
carbapenem	None	AY590118	1-747
cephalosporin		AY590119	1-732
cephamycin		CP000302	941609-942415
penicillin			
BL3_SIM_1	beta-lactamase types		
carbapenem	None	AY887066	494-1231
cephalosporin			
cephamycin			
penicillin			
BL3_VIM_15	beta-lactamase types		
carbapenem	None	AF191564	1316-2113
cephalosporin		AF317511	188-985
cephamycin		AF531419	32-829
penicillin		AJ511268	397-1194
		AJ536835	150-944
		AM183120	550-1344
		AM778091	27-812
		AM778842	12351-13145
		AY144612	1-798
		AY524987	1-798
		AY635904	1-798
		DQ287356	203-1000

Resistance type	Required	GenBank NO.	Position
		EF394441	1-798
		EU118148	1011-1808
		EU419745	1-798
BLE_5			
bleomycin	None	AB037419	1930
		AF051917	21243-21638
		AF288421	3484-3717
		DQ264732	3141-3365
		EU370913	44192-44578
BLT_2		Multidrug resistance efflux pump.	
chloramphenicol	None	D84432	1441-2640
doxorubicin		L32599	1237-2436
fluoroquinolone			
puromycin			
BMR_2		multidrug resistance transporters types	
chloramphenicol	None	D84432	223825-224991
fluoroquinolone		L25604	1221-2387
CARA_1		MLSB resistance types	
lincosamide	None	M80346	411-2063
macrolide			
streptogramin_b			
CATA10_1			
chloramphenicol	None	AY238971	1055-1738
CATA11_2			
chloramphenicol	None	AF031037	489-1109
		L02937	4210-4830
CATA13_2			
chloramphenicol	None	AF191638	4075-4695
		CP000645	94646-95266
CATA14_2			
chloramphenicol	None	AB262965	2909-3556
		DQ520941	849-1496
CATA15_2			
chloramphenicol	None	CP000721	3755871-3756527
		M93113	145-801
CATA16_2			
chloramphenicol	None	AJ971089	27589-28245
		M55620	459-1115
CATA1_14			
chloramphenicol	None	AB001326	905-1561
		AB015619	826-1482
		AB052891	1761-2417

Resistance type	Required	GenBank NO.	Position
		AB183146	193-849
		AB277723	8791-9447
		AC220061	98734-99390
		AF083407	120-776
		AF100174	8357-9013
		AF108217	5503-6159
		AF187996	4327-4983
		AF234292	5142-5798
		AF361302	2623-3279
		EU496094	107-763
		X99398	1892-2548
CATA2_8			
chloramphenicol	None	AB082569	123-761
		AB262968	2739-3377
		AB375472	29-667
		AJ517791	6188-6826
		AJ627386	17573-18211
		AY509004	10017-10655
		DQ401103	36864-37502
		X53796	187-825
CATA3_1			
chloramphenicol	None	AJ249249	2495-3133
CATA4_2			
chloramphenicol	None	AM942759	802276-802926
		M11587	880-1530
CATA6_1			
chloramphenicol	None	K00544	145-804
CATA7_6			
chloramphenicol	None	AB369999	2267-2911
		AY230218	12502-13146
		M64281	208-852
		U00453	2638-3282
		U38429	1149-1793
		X60827	88-732
CATA8_4			
chloramphenicol	None	AF507977	17464-18108
		M58516	90-713
		M90091	86-730
		X92946	21919-22563
CATA9_6			
chloramphenicol	None	AB042426	2104-2751
		AB055651	3593-4240
		AB080798	2659-3306

Resistance type	Required	GenBank NO.	Position
		AJ312056	386-1033
		FM201786	7495-8142
		U75299	657-1271
CATB1_1			
chloramphenicol		AE007870	1905632-1906258
CATB2_2			
chloramphenicol	None	AF047479	5957-6586
		AY232670	3528-4157
CATB3_18			
chloramphenicol	None	AB186118	703-1332
		AB195796	771-1400
		AF227506	253-882
		AF418284	1464-2093
		AF445082	3438-4067
		AM939644	709-1338
		AY557339	926-1555
		DQ141319	686-1315
		DQ321671	794-1423
		DQ343904	697-1326
		DQ462519	86-715
		EF105290	760-1389
		EF488369	814-1443
		EF516991	771-1400
		EU430601	811-1440
		EU495237	7641-8270
		EU886981	1967-2596
		FJ460181	84-713
CATB4_5			
chloramphenicol	None	AE004091	779466-780101
		AF036933	177-812
		AY657540	1-636
		CP000438	4900296-4900931
		FM209186	5075462-5076079
CATB5_1			
chloramphenicol	None	AE003853	315311-315937
CEOA_4 multidrug resistance transporters types			
chloramphenicol	ceob	AM747721	2896059-2896754
	opcm	CP000379	31696-33258
		CP000459	2445291-2446853
		U970421	1-1215
CEOB_29 multidrug resistance transporters types			
chloramphenicol	opcm	AM167904	338343-341522
	ceoa	AM406670	2845776-2848964

Resistance type	Required	GenBank NO.	Position
		AM747721	2892887-2895967
		AM902716	4766367-4769549
		AP009386	2208532-2211612
		BX571966	392243-395425
		CP000011	1592674-1595856
		CP000085	2585999-2589181
		CP000089	4116296-4119481
		CP000125	2230931-2234113
		CP000152	316116-319196
		CP000271	2418918-2422100
		CP000284	1931909-1935094
		CP000379	33307-36387
		CP000441	1685008-1688088
		CP000459	2442162-2445242
		CP000521	2669156-2672332
		CP000545	2190820-2194002
		CP000571	465258-468440
		CP000615	315903-318983
		CP000863	2642297-2645473
		CP000869	263692-266772
		CP000959	1949060-1952140
		CP001026	2431183-2434263
		CP001044	1703393-1706575
		CP001053	609884-613066
		CP001172	1240078-1243254
		CU468230	1365942-1369118
		U97042	1264-4344
CML_E1_19	multidrug resistance transporters types		
chloramphenicol	None	AB212941	962-2218
		AB214531	962-2218
		AB285479	1601-2857
		AF034958	2642-3868
		AF156486	3649-4905
		AF205943	5988-7244
		AF294653	2750-4006
		AJ487033	1605-2855
		AJ704863	20836-22092
		AJ867237	949-2202
		AY509004	40610-41860
		AY816215	1669-2754
		AY816216	3247-4497
		AY912492	143-1399
		DQ018384	1794-3050

Resistance type	Required	GenBank NO.	Position
		DQ266448	894-2150
		DQ445306	709-1965
		EU182575	1686-2942
		M64556	607-1857
CML_E2_1	multidrug resistance transporters types		
chloramphenicol	None	M22614	427-1332
CML_E3_12	multidrug resistance transporters types		
chloramphenicol	None	AB114188	11605-12816
		AF071555	4445-5656
		AF097407	1-1197
		AF332662	1657-2868
		AJ871969	7317-8528
		AM296480	67-1278
		AY499130	66-1277
		AY963803	5418-6629
		CU459141	3673547-3674758
		DQ205478	1-1212
		DQ647028	7147-8358
		FM179941	3545-4756
CML_E4_2	multidrug resistance transporters types		
chloramphenicol	None	AJ549214	177-1601
		AJ715531	4838-6262
CML_E5_2	multidrug resistance transporters types		
chloramphenicol	None	AL939132	123018-124193
		X59968	508-1683
CML_E6_1	multidrug resistance transporters types		
chloramphenicol	None	U09991	28-1335
CML_E7_3	multidrug resistance transporters types		
chloramphenicol	None	AB094127	1541-2713
		AF015087	436-1608
		Z12001	993-2165
CML_E8_3	multidrug resistance transporters types		
chloramphenicol	None	AF024666	15880-17052
		AM942444	1796059-1797231
		S74034	3521-4129
DFRA10_2			
trimethoprim	None	AY049746	3571-4131
		CU459141	3651837-3652397
DFRA12_7			
trimethoprim	None	AB154407	74-568
		AB196348	106-600
		AM932675	106-600
		AY551331	1392-1886

Resistance type	Required	GenBank NO.	Position
		AY748453	1314-1808
		DQ323053	1456-1950
		EF204550	103-588
DFRA13_1			
trimethoprim	None	Z50802718	718-1212
DFRA14_4			
trimethoprim	None	AF393510	14-484
		AJ851089	50156-50626
		FM877480	122-592
		Z50804	235-705
DFRA15_1			
trimethoprim	None	AB113114	100-570
DFRA16_2			
trimethoprim	None	AF077008	115-585
		AF174129	1352-1822
DFRA17_4			
trimethoprim	None	AB126604	98-568
		AB196349	119-589
		AF180469	119-589
		AM886293	109107-109577
DFRA19_1			
trimethoprim	None	AJ310778	7004-7570
DFRA1_23			
trimethoprim	None	AB113113	115-570
		AB161451	137-592
		AB188271	401-856
		AB189263	132-587
		AF203818	99-554
		AJ238350	92-547
		AJ419168	133-588
		AJ698325	17991-18446
		AJ698460	112-750
		AJ844287	133-588
		AM261760	65474-65929
		AM997276	133-588
		AY007807	51-706
		AY123251	2384-2839
		AY968682	989-1444
		DQ018382	176-631
		DQ269444	1797-2252
		DQ915925	1028-1312
		DQ915931	888-1343
		EF634238	1-429

Resistance type	Required	GenBank NO.	Position
		FJ215857	130-585
		FJ442932	1-444
		FM207631	864-1319
DFRA20_1			
trimethoprim	None	AJ605332	1304-1810
DFRA21_1			
trimethoprim	None	AJ870926	5516-6010
DFRA22_2			
trimethoprim	None	AJ628423	325-819
		AJ968952	245-739
DFRA23_1			
trimethoprim	None	AJ746361	6746-7303
DFRA24_1			
trimethoprim	None	AJ972619	83-637
DFRA25_1			
trimethoprim	None	AB280920	132-587
DFRA26_1			
trimethoprim	None	AM403715	303-851
DFRA5_1			
trimethoprim	None	AB188269	117-587
DFRA7_3			
trimethoprim	None	AB161450	102-572
		AJ884724	119-589
		AM412236	90680-91150
DFRB1_2			
trimethoprim	None	AJ879564	168-401
		AM993098	1423-1656
DFRB2_3			
trimethoprim	None	AF061926	1164-1397
		AF136442	3228-3461
		AY553333	1094-1327
DFRB3_4			
trimethoprim	None	AF327729	98-331
		FM877478	149-382
		X04128	335-568
		X72585	5960-6193
DFRB6_1			
trimethoprim	None	DQ274503	394-627
EMEA_4 multidrug resistance transporters types			
fluoroquinolone	None	AB091338	174-1352
		AE006250	6155-7315
		AM406671	127087-128244

Resistance type	Required	GenBank NO.	Position
		EU255903	1720-2880
EMRD_36	multidrug resistance transporters types		
aminoglycoside	emre	AE005174	4713374-4714561
		AE005674	3897627-3898685
		AE008877	2055-3236
		AE014073	3875779-3876966
		AE014075	4359568-4360755
		AE014613	3833348-3834529
		AE017220	3939344-3940525
		AM933172	3874346-3875527
		AM933173	3823361-3824542
		AP009048	3785312-3786499
		AP009240	4102929-4104116
		CP000026	3787888-3789030
		CP000034	3891717-3892904
		CP000036	3710819-3712006
		CP000038	3796932-3798119
		CP000243	4119400-4120587
		CP000247	4042328-4043515
		CP000647	4466041-4467189
		CP000653	24605-25786
		CP000802	3883497-3884684
		CP000822	14146-15327
		CP000880	3781113-3782294
		CP000886	3947862-3949043
		CP000946	26264-27451
		CP000948	3949523-3950710
		CP000964	23492-24640
		CP000970	4130717-4131904
		CP001063	3967173-3968360
		CP001113	3970273-3971454
		CP001120	4013898-4015079
		CP001127	3881480-3882661
		CP001138	3924190-3925371
		CP001144	4032716-4033897
		CU928162	4295341-4296528
		CU928163	4337136-4338323
		CU928164	4452857-4454044
EMRE_10	multidrug resistance transporters types		
aminoglycoside	emrd	AE005174	1705548-1705877
		AE005674	2011996-2012325
		AP009048	567538-567867
		AP009240	2230005-2230334

Resistance type	Required	GenBank NO.	Position
		CP000038	2092982-2093311
		CP000243	2038123-2038452
		CP000802	2031767-2032096
		CP001164	1558248-1558577
		CU928145	2198066-2198395
		CU928162	2131690-2132019
EREA_3	MLSB resistance types		
erythromycin	None	AB188269	741-1964
		AY183453	2730-3947
		DQ157752	2700-3917
EREB_2	MLSB resistance types		
erythromycin	None	AB207867	6079-7335
		AF466411	2-493
ERMA_5	MLSB resistance types		
lincosamide	None	AB037671	52369-53097
macrolide		AB047088	13444-14172
streptogramin_b		AF002716	211-939
		AF443782	134-847
		AP009324	55963-56691
ERMB_42	MLSB resistance types		
lincosamide	None	AB057644	5167-5901
macrolide		AB089505	1-735
streptogramin_b		AB426620	4320-5054
		AB426622	894-1628
		AF006008	2-658
		AF030064	851-1585
		AF060240	1610-2344
		AF109075	4433-5167
		AF368302	1-711
		AM180355	2319377-2320111
		AY345595	58061-58795
		AY556392	326-1060
		AY557620	260-994
		AY827542	1-729
		AY827544	1-729
		AY827545	1-729
		DQ304775	1-639
		DQ315672	1-639
		DQ395278	3-575
		DQ855649	285-941
		EF213674	3-575
		EU168275	1-639
		EU168276	1-639

Resistance type	Required	GenBank NO.	Position
		EU168279	1-639
		EU168280	1-639
		EU168281	1-639
		EU168291	1-639
		EU168299	1-639
		EU168300	1-639
		EU168303	1-639
		EU168304	1-639
		EU168305	1-639
		EU168306	1-639
		EU168309	1-639
		EU168310	1-639
		EU168320	1-639
		EU168323	1-639
		EU168326	1-639
		EU168330	1-639
		EU352643	1-687
		EU595404	39-728
		K00551	318-1052
ERMC_16	MLSB resistance types		
lincosamide	None	AE002098	75694-76425
macrolide		AF019140	524-1255
streptogramin_b		AF076212	7275-8006
		AF276982	1605-2336
		AF307747	4866-5597
		AM159501	1176-1907
		AP006718	319-1050
		AY034154	313-1044
		CP000258	7865-8596
		DQ887620	1-642
		M12730	780-1511
		M19652	991-1722
		U82607	405-1136
		Y09001	165-896
		Y09002	58-789
		Y09003	189-920
ERMD_3	MLSB resistance types		
lincosamide	None	L08389	391-1251
macrolide		M29832	430-1290
streptogramin_b		M77505	772-1632
ERME_3	MLSB resistance types		
lincosamide	None	AM420293	830471-831538
macrolide		M11200	284-1393

Resistance type	Required	GenBank NO.	Position
streptogramin_b		X51891	190-1257
ERMF_3	MLSB resistance types		
lincosamide	None	AF203972	3604-4401
macrolide		AF219231	293-1090
streptogramin_b		AJ311171	13573-14352
ERMG_3	MLSB resistance types		
lincosamide	None	AJ557257	6634-7365
macrolide		EF155418	3650-4381
streptogramin_b		M15332	672-1403
ERMH_1	MLSB resistance types		
lincosamide	None	M16503	244-1140
macrolide			
streptogramin_b			
ERMN_1	MLSB resistance types		
lincosamide	None	X97721	160-1032
macrolide			
streptogramin_b			
ERMO_2	MLSB resistance types		
lincosamide	None	AJ223970	21-797
macrolide		AL939126	103826-104605
streptogramin_b			
ERMQ_1	MLSB resistance types		
lincosamide	None	L22689	262-1032
macrolide			
streptogramin_b			
ERMR_1	MLSB resistance types		
lincosamide	None	AY623658	12450-13469
macrolide			
streptogramin_b			
ERMS_1	MLSB resistance types		
lincosamide	None	M19269	460-1416
macrolide			
streptogramin_b			
ERMT_2	MLSB resistance types		
lincosamide	None	AF310974	934-1665
macrolide		EU192194	15-740
streptogramin_b			
ERMU_2	MLSB resistance types		
lincosamide	None	EU124663	28458-29294
macrolide		X62867	361-1194
streptogramin_b			
ERMV_1	MLSB resistance types		

Resistance type	Required	GenBank NO.	Position
lincosamide macrolide streptogramin_b	None	U59450	397-1173
ERMW_1	MLSB resistance types		
lincosamide macrolide streptogramin_b	None	D14532	1039-1905
ERMX_10	MLSB resistance types		
lincosamide macrolide streptogramin_b	None	AF024666 AF338705 AF338706 AF411029 AF492560 AM748797 AM748801 AY255627 CR931997 M36726	2241-2969 1764-2615 1234-2085 1556-2284 1929-2780 148-999 136-987 3668-4504 1693703-1694554 296-1147
ERMY_3	MLSB resistance types		
lincosamide macrolide streptogramin_b	None	AB014481 AB092817 AB179623	556-1287 8880-9611 19429-20160
FOSA_2			
fosfomycin	None	EU487198 M85195	217-639 296-718
FOSB_1			
fosfomycin	None	CP000560	1093031-1093471
FOSC_2			
fosfomycin	None	D82818 Z33413	1232-1642 387-932
FOSX_4			
fosfomycin	None	AE017262 AL591981 AL596170 AM263198	1746424-1746822 12502-12900 26094-26492 1742039-1742437
FUSB_2			
fusaric_acid	None	AJ302698 AY373761	81-719 19075-19713
FUSH_1			
fusaric_acid	None	AL939126	125809-127368
KSGA_43			
kasugamycin	None	AE005174 AE005674	56588-57406 50930-51748

Resistance type	Required	GenBank NO.	Position
		AE008697	17237-18055
		AE009952	4094820-4095635
		AE014075	54804-55622
		AE014613	102461-103279
		AE017220	96884-97702
		AL590842	522968-523783
		AM286415	722669-723484
		AM933172	102235-103053
		AP009048	51612-52430
		AP009240	53524-54342
		BX571860	341709-342524
		BX936398	749448-750263
		CP000026	102562-103380
		CP000034	70734-71552
		CP000036	40674-41492
		CP000038	60948-61766
		CP000247	53718-54536
		CP000266	50598-51416
		CP000647	51953-52771
		CP000653	673904-674722
		CP000720	3883185-3884000
		CP000783	3219731-3220549
		CP000800	54809-55627
		CP000822	3100690-3101508
		CP000826	801077-801892
		CP000880	2842057-2842875
		CP000886	96976-97794
		CP000946	3945760-3946578
		CP000964	4743192-4744010
		CP000970	58148-58966
		CP001063	44153-44971
		CP001113	102631-103449
		CP001127	102815-103633
		CP001138	102623-103441
		CU928145	53539-54357
		CU928158	62139-62957
		CU928162	53808-54626
		CU928163	56051-56869
		CU928164	60380-61198
		FM180568	55049-55867
		M11054	11-829
LMRA_1	MLSB resistance types		
lincomycin	None	X59926	318-1760

Resistance type	Required	GenBank NO.	Position
LMRB_2	MLSB resistance types		
lincomycin	None	AB000617 CP000560	1749-3185 268334-269764
LNUA_8	MLSB resistance types		
lincomycin	None	AM184099 AM184101 AM184102 AM399083 AY541446 EU596446 J03947 M14039	1704-2186 1979-2461 1951-2433 1936-2418 239-721 11330-11812 645-1127 413-895
LNUB_1	MLSB resistance types		
lincomycin	None	AF110130	127-927
LSA_3			
lincosamide	None	AE016830	2631167-2632660
macrolide		AY225127	41-1534
streptogramin_b		AY737525	310-1803
MACA_21	Macrolide-specific efflux system.		
macrolide	tolc	AB071145	28-1140
	macb	AE005174 AE005674 AE008740 AE014075 AE014613 CP000034 CP000036 CP000243 CP000647 CP000653 CP000783 CP000800 CP000822 CP000880 CP000946 CP000964 CP000970 CU928163 CU928164 FM180568	1051970-1053082 870548-871660 3949-5064 973363-974475 2049652-2050767 2186323-2187396 822039-823151 880020-881132 1018806-1019918 1527041-1528153 2407765-2408874 968587-969699 2042195-2043307 1955476-1956591 2990897-2992009 3691616-3692728 2308559-2309671 1107856-1108995 2337072-2338211 917513-918625
MACB_38	Macrolide-specific efflux system.		
macrolide	maca	AB071146	1-1944
	tolc	AE005174	1053082-1055025

Resistance type	Required	GenBank NO.	Position
		AE005674	871660-873603
		AE008740	5064-7007
		AE014613	2047709-2049652
		AE017220	1004748-1006691
		AL627268	172425-174368
		AM933172	-935904-937847
		AP009240	1004221-1006164
		BA000007	1051422-1053365
		CP000026	1932001-1933944
		CP000034	2184374-2186323
		CP000036	823151-825094
		CP000038	919845-921788
		CP000243	881132-883075
		CP000247	934080-936023
		CP000266	905752-907557
		CP000647	1019918-1021855
		CP000653	1528153-1530090
		CP000783	2405825-2407765
		CP000802	980581-982524
		CP000822	2040252-2042195
		CP000880	1953533-1955476
		CP000886	2139376-2141319
		CP000946	2988954-2990897
		CP000964	3689679-3691616
		CP000970	2306616-2308559
		CP001063	2251453-2253396
		CP001113	981335-983278
		CP001120	1024279-1026222
		CP001127	1030127-1032070
		CP001138	933748-935691
		CP001144	1001137-1003080
		CU928145	981699-983642
		CU928160	972399-974342
		CU928163	1108995-1110938
		CU928164	2335129-2337072
		FM180568	918625-920568
MDTE_6	Multidrug resistance efflux pump.		
doxorubicin	mdtf	AE005174	4468594-4469748
erythromycin	tolc	AE014073	4136651-4137559
		AP009048	3980029-3981183
		AP009240	3904374-3905528
		CP000034	3274835-3275980
		CU928163	4118299-4119453

Resistance type	Required	GenBank NO.	Position
MDTF_8	Multidrug resistance efflux pump.		
doxorubicin	tolc	AE005174	4469776-4472886
erythromycin	mdte	AE005674	3699584-3702694
		AE014075	4099159-4102269
		AP009048	3976891-3980001
		CP000034	3271700-3274807
		CP000038	3741711-3744821
		CP000802	3701725-3704835
		CU928163	4119481-4122591
MDTG_31	Multidrug resistance efflux pump.		
deoxycholate	None	AE005174	1558494-1559717
fosfomycin		AE008750	5038-6249
		AE014075	1257766-1258989
		AE014613	1828446-1829657
		AE017220	1221303-1222514
		AL627269	98526-99737
		AM286415	1811994-1813235
		AM933172	1996230-1997441
		AM933173	2028976-2030187
		AP009048	1115844-1117067
		AP009240	1197131-1198354
		CP000026	1756414-1757625
		CP000243	1159232-1160455
		CP000647	1216615-1217838
		CP000802	1177940-1179166
		CP000822	1871362-1872561
		CP000826	2068159-2069391
		CP000880	1770412-1771623
		CP000886	1966141-1967352
		CP000946	2794422-2795645
		CP000964	3508840-3510075
		CP000970	2091807-2093030
		CP001113	1243036-1244247
		CP001120	1245596-1246807
		CP001127	1199556-1200767
		CP001138	1971665-1972876
		CP001144	2124538-2125749
		CU928145	1224404-1225627
		CU928163	1279167-1280390
		CU928164	2151982-2153205
		FM180568	1197778-1199001
MDTH_40	Multidrug resistance efflux pump.		
deoxycholate	None	AE005174	1568351-1569556

Resistance type	Required	GenBank NO.	Position
fosfomycin		AE005674	1111882-1113087
		AE008750	14853-16058
		AE014075	1267621-1268826
		AE014613	1818639-1819844
		AE017220	1231117-1232322
		AL627269	108339-109544
		AM933172	1986422-1987627
		AM933173	2019166-2020371
		AP009048	1125698-1126903
		AP009240	1206988-1208193
		BA000007	1483265-1484470
		CP000026	1746606-1747811
		CP000034	1897300-1898118
		CP000036	1971366-1972565
		CP000038	1165426-1166631
		CP000243	1169089-1170294
		CP000247	1115004-1116209
		CP000266	1129951-1131156
		CP000647	1224345-1225550
		CP000653	1731418-1732623
		CP000783	2217127-2218332
		CP000800	1201588-1202793
		CP000802	1187800-1189005
		CP000822	1861268-1862473
		CP000880	1760613-1761800
		CP000886	1956334-1957539
		CP000946	2784583-2785788
		CP000964	3501122-3502327
		CP000970	2081968-2083173
		CP001063	2057858-2059063
		CP001113	1252850-1254055
		CP001120	1255410-1256615
		CP001127	1209370-1210575
	CP001138	1961857-1963062	
	CU928160	1165943-1167178	
	CU928163	1289024-1290259	
	CU928164	2142113-2143348	
	FM180568	1207636-1208841	
	X92076	24-1229	
MDTK_42	Multidrug resistance efflux pump.		
enoxacin	None	AE005174	2418364-2419734
norfloxacin		AE008762	431-1801
		AE014073	1762736-1764106

Resistance type	Required	GenBank NO.	Position
		AE014075	1899595-1900965
		AE014613	1356371-1357741
		AE017220	1539653-1541023
		AL627271	50395-51765
		AM933172	1725900-1727270
		AP009048	1745171-1746541
		AP009240	1876950-1878320
		CP000026	1508963-1510333
		CP000034	1724517-1725887
		CP000036	1444165-1445535
		CP000038	1567150-1568520
		CP000243	1779215-1780585
		CP000247	1658415-1659785
		CP000266	1722590-1723960
		CP000647	2196435-2197805
		CP000653	1939274-1940644
		CP000783	1962339-1963709
		CP000800	1869275-1870645
		CP000802	1765481-1766851
		CP000822	1610922-1612292
		CP000880	1513432-1514802
		CP000886	1618578-1619948
		CP000946	2171864-2173234
		CP000964	2404939-2406309
		CP000970	1518032-1519402
		CP001063	1704626-1705996
		CP001113	1501405-1502775
		CP001120	1507480-1508850
		CP001127	1465879-1467249
		CP001138	1712649-1714019
		CP001144	1854713-1856083
		CP001164	2249463-2250833
		CU928145	1892086-1893456
		CU928162	1820949-1822319
		CU928163	1978234-1979604
		CU928164	1462421-1463791
		FM180568	1814877-1816247
		U68703	861-2231
		X99944	3856-5223
MDTL_25	Multidrug resistance efflux pump.		
chloramphenicol	None	AE005174	4749305-4750474
		AE005674	3859199-3860368
		AE014073	3914226-3915395

Resistance type	Required	GenBank NO.	Position
		AE014075	4393352-4394524
		AP009048	3745230-3746402
		AP009240	4140632-4141804
		CP000034	3933235-3934407
		CP000036	3680370-3681542
		CP000038	3722402-3723574
		CP000243	4153183-4154355
		CP000247	4076112-4077284
		CP000266	3894102-3895271
		CP000800	4208377-4209549
		CP000802	3918787-3919959
		CP000822	52520-53689
		CP000948	3987222-3988394
		CP000970	4168283-4169455
		CP001063	3936380-3937552
		CU928145	4266777-4267949
		CU928158	4111444-4112616
		CU928160	3962902-3964074
		CU928163	4375341-4376513
		CU928164	4491953-4493122
		FM180568	4188938-4190110
		L10328	81012-82181
MDTM_26	Multidrug resistance efflux pump.		
acriflavine	None	AE005174	5460399-5461628
chloramphenicol		AE008912	15997-17235
norfloxacin		AE014613	4718909-4720147
		AE017220	4679723-4680961
		AM933172	4599616-4600854
		AM933173	4577405-4578643
		AP009048	4571970-4573199
		AP009240	4816251-4817480
		CP000026	4511995-4512714
		CP000034	4308427-4309656
		CP000036	4441231-4442460
		CP000800	4924194-4925423
		CP000802	4572298-4573527
		CP000822	3217399-3218583
		CP000880	2987000-2988238
		CP000886	4777583-4778821
		CP000970	5000394-5001623
		CP001063	4448737-4449966
		CP001113	4741443-4742681
		CP001120	4803394-4804632

Resistance type	Required	GenBank NO.	Position
		CP001127	4635145-4636383
		CP001138	4727765-4729003
		CU928145	5085986-5087215
		CU928158	3176307-3177536
		CU928160	4627932-4629161
		CU928161	4918219-4919448
MDTN_19	Multidrug resistance efflux pump.		
acriflavine	mdto	AE005174	5185751-5186779
puromycin	mdtp	AE005674	4313098-4314126
t_chloride		AE014075	4862240-4863268
		AP009048	4306560-4307588
		AP009240	4574362-4575390
		CP000036	4158895-4159923
		CP000243	4577444-4578472
		CP000247	4535806-4536834
		CP000266	4258092-4259120
		CP000800	4641599-4642627
		CP000802	4334283-4335311
		CP000880	3289836-3290864
		CP000946	4329852-4330880
		CP000970	4648689-4649717
		CU928145	4694401-4695369
		CU928162	4780476-4781423
		CU928163	4795931-4796899
		CU928164	4711451-4712419
		FM180568	4653485-4654513
MDTO_15	Multidrug resistance efflux pump.		
acriflavine	mdtn	AE005174	5183700-5185748
puromycin	mdtp	AE005674	4311056-4313095
t_chloride		AE014075	4860189-4862237
		AP009240	4572311-4574359
		CP000038	4526462-4528510
		CP000243	4575393-4577441
		CP000247	4533755-4535803
		CP000266	4259123-4261162
		CP000946	4330883-4332931
		CP000970	4646638-4648686
		CU928162	4778425-4780473
		CU928163	4793880-4795928
		CU928164	4709400-4711448
		FM180568	4651434-4653482
		U00006	166270-168231
MDTP_11	Multidrug resistance efflux pump.		

Resistance type	Required	GenBank NO.	Position
acriflavine	mdtn	AE005174	5182237-5183700
puromycin	mdto	AE005674	4309593-4311056
t_chloride		AE014075	4858726-4860189
		CP000036	4156029-4156844
		CP000038	4524999-4526462
		CP000247	4532292-4533755
		CP000266	4261162-4262625
		CP000880	3292888-3294324
		CP000970	4645175-4646638
		CU928163	4792417-4793880
		FM180568	4649971-4651434
MECA_11			
beta_lactam	None	AB033763	31390-33393
		AB047089	2520-4523
		AY820253	20-2014
		EF190335	1-2046
		EU790488	1-1944
		EU929080	1-2010
		X52593	141-2144
		Y09223	1640-3637
		Y13052	1318-3315
		Y13094	2045-4042
		Y13095	3485-5488
MECR1_10			
methicillin	None	AB033763	30316-31290
		AB037671	22733-24229
		AB047089	4623-6377
		AB127982	25401-26207
		AB266531	2149-3123
		AF142100	108-650
		AJ810120	18462-20216
		AJ810122	2223-3059
		AM292304	16132-16959
		AY271717	15544-16431
MEFA_21			
MLSB resistance types			
methicillin	None	AB011259	1-1206
		AB426620	20203-21417
		AF227520	3254-4468
		AJ715499	7979-9193
		AJ971089	22687-23901
		AM168138	3205-4419
		AY319932	93-1307
		AY355406	1-1215

Resistance type	Required	GenBank NO.	Position
		AY355407	1-1215
		AY355409	1-1215
		CP000003	1167544-1168758
		CP000673	2693804-2695018
		DQ016305	1-1215
		DQ223647	2050-3261
		DQ304772	45-1259
		DQ304773	45-1259
		DQ445269	46-1269
		EU199784	1-1215
		EU870853	1-1215
		EU870854	1-1206
		EU870856	1-1215
MEPA_8	Multidrug resistance efflux pump.		
tigecycline	None	AC074316	44949-46301
		AJ938182	334767-336119
		AP008934	2203033-2204385
		AP009324	380461-381813
		AP009351	377048-378400
		BA000033	360445-361797
		BX571856	376571-377923
		CP000703	417280-418632
MEXA_2	multidrug resistance transporters types		
aminoglycoside	mexb	AE004091	472024-473172
beta_lactam	oprm	CP000744	538397-539545
fluoroquinolone			
tetracycline			
tigecycline			
MEXB_7	multidrug resistance transporters types		
aminoglycoside	oprm	AE004091	473191-476328
beta_lactam	mexa	AY349612	2083-5226
fluoroquinolone		CP000091	730353-733502
tetracycline		CP000353	333281-336424
tigecycline		CP000438	487942-491079
		CP000744	539564-542701
		FM209186	466932-470069
MEXC_1	multidrug resistance transporters types		
erythromycin	oprj	AL646053	411139-412293
fluoroquinolone	mexd		
glycylcycline			
roxithromycin			
MEXC_NW_2	multidrug resistance transporters types		
		2196567	938276-939430

Resistance type	Required	GenBank NO.	Position
		2196568	1801114-1802268
MEXD_10	multidrug resistance transporters types		
erythromycin	oprj	AE004091	5151081-5154209
fluoroquinolone	mexc	AE015451	3214083-3217208
glycylcycline		AJ431260	11364-14504
roxithromycin		CP000094	3180483-3183611
		CP000438	5423550-5426678
		CP000744	5388993-5392121
		CP000926	2715841-2718969
		CT573326	3335963-3339088
		FM209186	5486216-5489344
		U57969	1486-4614
MEXE_5	multidrug resistance transporters types		
chloramphenicol	None	AE004091	2808743-2809984
fluoroquinolone		CP000438	2817367-2818608
		CP000744	2769588-2770829
		FM209186	3018644-3019885
		X99514	173-1414
MEXF_15	multidrug resistance transporters types		
chloramphenicol	None	AE004091	2810009-2813194
fluoroquinolone		AE015451	3878163-3881339
		AE016853	3484393-3487581
		CP000058	2634961-2638149
		CP000075	3557635-3560823
		CP000076	3738424-3741600
		CP000094	3048440-3051628
		CP000438	2814157-2817342
		CP000680	2405824-2409000
		CP000712	2663996-2667172
		CP000744	2766378-2769563
		CP000926	2817874-2821050
		CP000949	2718847-2722023
		CT573326	2400999-2404175
		FM209186	3015434-3018619
MEXH_5	multidrug resistance transporters types		
	opmd	AE004091	4706410-4707519
	mexi	AY659082	1-1110
		CP000438	819411-820520
		CP000744	891696-892805
		FM209186	785575-786684
MEXI_3	multidrug resistance transporters types		
	opmd	AE004091	4707535-4710621
	mexh	CP000438	816309-819395

Resistance type	Required	GenBank NO.	Position
		CP000744	888597-891680
MEXW_11	Multidrug resistance efflux pump.		
-	oprM	AE004091	4904647-4907700
	mexV	AE015451	1045334-1048375
		CP000094	5067020-5070046
		CP000438	5068199-5071252
		CP000680	1362826-1365876
		CP000712	1069916-1072957
		CP000744	5098478-5101531
		CP000926	5013615-5016620
		CP000949	1070771-1073812
		CT573326	1160238-1163270
		FM209186	5238355-5241408
MEXX_7	multidrug resistance transporters types		
aminoglycoside	mexY	AB015853	146-1312
glycylcycline	oprM	AE004091	2211325-2212512
		AF073776	798-1985
		AF147719	1020-2207
		CP000438	3421686-3422873
		CP000744	3379824-3381011
		FM209186	3653310-3654497
MEXY_5	multidrug resistance transporters types		
aminoglycoside	oprM	AB015853	1331-4468
glycylcycline	mexX	AE004091	2208172-2211306
		AF073776	2004-5135
		CP000438	3422892-3426026
		CP000744	3381030-3384158
MFPA_3			
fluoroquinolone	None	AE000516	3765243-3765791
		CP000325	3174528-3175073
		CP000854	1404168-1404713
MPHA_3	MLSB resistance types		
macrolide	None	AB038042	737-1627
		AB262968	293-1183
		U34344	432-1349
MPHB_1	MLSB resistance types		
macrolide	None	AB020531	4167-5072
MPHC_8	MLSB resistance types		
macrolide	None	AB013298	2296-3192
		AB179623	20698-21594
		AF167161	5665-6561
		AM180066	789-1685
		AM180067	687-1583

Resistance type	Required	GenBank NO.	Position
		AM180068	1-897
		AM397631	1-897
		AM397632	1-897
MSRA_5	MLSB resistance types		
lincosamide	None	AB013298	487-1950
macrolide		AB016613	2005-3468
streptogramin_b		AB179623	21939-23402
		EF092840	7-972
		M81802	1-621
NORM_5	Multidrug resistance efflux pump.		
ciprofloxacin	None	AB010463	833-2200
kanamycin		AE016795	2596647-2598014
norfloxacin		BA000031	1590885-1592252
streptomycin		BA000037	1785190-1786557
tigecycline		CP000789	2236842-2238209
OLEB_1	MLSB resistance types		
lincosamide	None	L36601	1421-3127
macrolide			
streptogramin_b			
OPCM_9	multidrug resistance transporters types		
chloramphenicol	ceob	AM747721	2891218-2892756
	ceoa	AP009386	2206923-2208434
		CP000152	319327-320859
		CP000379	36503-38041
		CP000441	1683324-1684880
		CP000615	314240-315790
		CP000869	266870-268381
		CP000959	1952256-1953794
		CP001026	2429514-2431052
OPRA_3	multidrug resistance transporters types		
acriflavine	amrb	BX571965	2146274-2147821
aminoglycoside	amra	CP000086	2794581-2796212
macrolide		CP000124	2226868-2228415
OPRD_7	multidrug resistance transporters types		
-	-	AE004091	1043986-1045314
		AY528673	1-1323
		CP000438	4606220-4607548
		CP000744	4674381-4675703
		EU000222	1222-2526
		FM207961	1-1323
		FM209186	4793086-4794399
OPRJ_5	multidrug resistance transporters types		
erythromycin	mexd	AE004091	5149636-5151072

Resistance type	Required	GenBank NO.	Position
fluoroquinolone	mexc	CP000438	5422105-5423541
glycylcycline		CP000744	5387560-5388984
roxithromycin		FM209186	5484771-5486216
		U57969	4623-6059
OPRM_5	multidrug resistance transporters types		
aminoglycoside	mexk	AB011381	1-1455
beta_lactam	mexy	CP000438	491084-492538
fluoroquinolone	mexb	CP000744	542706-544160
tetracycline	mexw	FM209186	470074-471528
tigecycline	mexx	L23839	12-1409
	mexj		
	mexa		
	mexv		
OPRN_4	multidrug resistance transporters types		
chloramphenicol	mexf	AE004091	2813194-2814609
fluoroquinolone	mexe	CP000438	2812742-2814157
		CP000744	2764963-2766378
		X99514	4624-6039
OTRA_1	aminoglycoside resistance types		
tetracycline	None	DQ143963	22257-24245
OTRB_1	aminoglycoside resistance types		
tetracycline	None	AF061335	1-1608
PBP1A_5			
penicillin	None	CP000057	527266-529857
		CP000671	151164-153761
		CP000672	984333-986924
		L42023	460645-463236
		M62809	1071-3662
PBP1B_1			
penicillin	None	BA000003	216262-218541
PBP2B_103			
penicillin	None	AB071984	70-1815
		AE002098	419829-421571
		AE004969	1515419-1517164
		AF515059	25-1767
		AF515060	25-1767
		AF515061	25-1767
		AF515063	25-1767
		AF515064	25-1767
		AF515065	25-1767
		AF515066	25-1767
		AF515067	25-1767
		AF515068	25-1767

Resistance type	Required	GenBank NO.	Position
		AF515069	25-1767
		AF515071	25-1770
		AF515072	25-1767
		AF515073	25-1767
		AF515074	25-1767
		AF515075	25-1767
		AF515076	25-1767
		AF515077	25-1770
		AF515078	25-1770
		AF515080	25-1770
		AF515081	25-1770
		AF515082	25-1767
		AF515083	25-1770
		AF515084	25-1770
		AF515085	25-1770
		AF515087	25-1770
		AF515088	25-1767
		AF515089	25-1767
		AF515090	25-1767
		AF515091	25-1767
		AF515092	25-1767
		AF515093	25-1773
		AF515094	25-1767
		AF515095	25-1767
		AF515097	25-1767
		AF515098	25-1767
		AF515099	25-1767
		AF515104	25-1767
		AF515105	25-1767
		AF515106	25-1767
		AF515107	25-1767
		AF515110	25-1767
		AF515111	25-1767
		AF515112	25-1767
		AF515113	25-1767
		AF515114	25-1767
		AF515115	25-1767
		AF515116	25-1767
		AF515117	25-1767
		AF515118	25-1767
		AJ549308	1-1746
		AJ549309	1-1746
		AJ549310	1-1746

Resistance type	Required	GenBank NO.	Position
		AJ549311	1-1746
		AJ549314	1-1746
		AJ549316	1-1743
		AL157959	2020627-2022369
		AM421808	1787549-1789291
		AY127596	1-1743
		AY127598	1-1743
		AY127599	1-1743
		AY127605	1-1743
		AY127618	1-1743
		AY127620	1-1743
		AY127624	1-1743
		AY127631	1-1743
		AY127633	1-1743
		AY127634	1-1743
		AY127635	1-1743
		AY127644	1-1746
		AY127645	1-1746
		AY127647	1-1746
		AY127648	1-1746
		AY127649	1-1746
		AY127650	1-1746
		AY127651	1-1743
		AY127652	1-1746
		AY127653	1-1746
		AY127654	1-1746
		AY127657	1-1746
		AY127658	1-1746
		AY127660	1-1743
		AY127661	1-1743
		AY127662	1-1746
		AY127663	1-1746
		AY127666	1-1743
		AY127667	1-1743
		AY127668	1-1746
		AY127670	1-1743
		AY461439	1-1749
		AY461440	1-1749
		CP000381	1776644-1778386
		M26644	25-1770
		M32091	103-1845
		X07469	25-1773
		X59624	25-1776

Resistance type	Required	GenBank NO.	Position
		X59627	25-1770
		X59631	25-1770
		X59633	25-1767
		X59634	25-1770
		X76285	25-1767
PBP2X_127			
penicillin	None	AB119913	1-2250
		AB119914	1-2250
		AB119916	1-2250
		AB119917	1-2250
		AB119918	1-2250
		AB119919	1-2250
		AB119921	1-2250
		AB119922	1-2250
		AB119924	1-2250
		AB119925	1-2250
		AB119926	1-2250
		AB119927	1-2250
		AB119929	1-2250
		AB119930	1-2250
		AB119932	1-2250
		AB119934	1-2250
		AB119935	1-2250
		AB119937	1-2250
		AB119938	1-2250
		AB119939	1-2250
		AB119940	1-2250
		AB119944	1-2250
		AB119947	1-2250
		AB119948	1-2250
		AB119950	1-2250
		AB119951	1-2250
		AB119952	1-2250
		AB190807	1-2250
		AE005672	306880-309129
		AE008411	2263-4512
		AF068903	2417-4666
		AF210754	1-2250
		AF210756	1-2250
		AF210757	1-2250
		AF210758	1-2250
		AF210759	1-2250
		AF210760	1-2250

Resistance type	Required	GenBank NO.	Position
		AF468152	1-2250
		AM779338	193-2442
		AM779339	193-2442
		AM779340	193-2442
		AM779343	193-2442
		AM779344	193-2442
		AM779345	193-2442
		AM779346	193-2442
		AM779348	193-2442
		AM779349	193-2442
		AM779351	193-2442
		AM779355	193-2442
		AM779356	193-2442
		AM779357	193-2442
		AM779360	193-2442
		AM779361	193-2442
		CP000410	302310-304559
		EF501483	1-2196
		EF501485	1-2196
		EF501486	1-2196
		EF501488	1-2196
		EF501490	1-2196
		EF501491	1-2187
		EF501493	1-2187
		EF501494	1-2187
		EF501497	1-2187
		EF501505	1-2196
		EF501507	1-2187
		EF501509	1-2196
		EF501514	1-2187
		EF501518	1-2187
		EF501521	1-2184
		EF501523	1-2196
		EF501533	1-2196
		EF501535	1-2196
		EF501538	1-2196
		EF501540	1-2196
		EF501547	1-2187
		EF501557	1-2196
		EF501561	1-2196
		EF501574	1-2187
		EF501578	1-2187
		EF501580	1-2196

Resistance type	Required	GenBank NO.	Position
		EF501588	1-2187
		EF501592	1-2196
		EF501593	1-2196
		EF501602	1-2187
		EF501603	1-2187
		EF501605	1-2196
		EF501614	1-2196
		EF501618	1-2196
		EF501631	1-2187
		EF501632	1-2190
		EF501652	1-2187
		EF501657	1-2196
		EF501662	1-2187
		EF501663	1-2187
		EF501670	1-2196
		EF501671	1-2196
		EF501674	1-2196
		EF501677	1-2196
		EF501686	1-2196
		EF501692	1-2196
		EF501696	1-2196
		EU034015	1-2250
		EU034016	1-2250
		EU034018	1-2250
		EU378139	1-2187
		EU378144	1-2187
		EU378151	1-2187
		EU378174	1-2187
		EU378179	1-2187
		EU378184	1-2187
		EU378187	1-2187
		EU378190	1-2187
		EU378216	1-2187
		EU378234	1-2187
		EU378243	1-2187
		EU378244	1-2187
		EU378253	1-2187
		EU378255	1-2187
		EU378256	1-2187
		EU378259	1-2187
		EU378260	1-2187
		EU378264	1-2187
		EU378276	1-2187

Resistance type	Required	GenBank NO.	Position
		EU378277	1-2187
		EU378281	1-2187
		EU378284	1-2187
		EU378285	1-2187
PBP2_9			
penicillin	None	AE008785	7506-9374
		AE014613	1055134-1057002
		AE017220	2027099-2028967
		AM933172	1188677-1190545
		CP000822	1063443-1065281
		CP001113	2009461-2011329
		CP001120	2052859-2054727
		CP001127	1982399-1984267
		CP001144	1312040-1313908
PMRA_2 multidrug resistance transporters types			
ciprofloxacin	None	AE005672	918103-919299
norfloxacin		CP001015	864389-865585
QACA_2 Multidrug efflux pump			
qa_compound	qacb	AB255366	18992-20533
		EU714008	13-1554
QAC_1 multidrug resistance transporters types			
qa_compound	None	U81980	1927-2247
QNRA_20			
fluoroquinolone	None	AB325578	1-654
		AB469045	5736-6389
		AM295981	3051-3704
		AY906856	1-654
		AY995191	2-508
		DQ058661	1-654
		DQ058662	1-654
		DQ058663	1-654
		DQ151889	1-654
		DQ435306	1-654
		EF514353	174-623
		EF514354	1-621
		EF514355	1-621
		EF514356	1-624
		EF514357	2-625
		EF514359	2-625
		EU247883	2-577
		EU279427	1-543
		EU443839	1-654
		EU722351	3117-3770

Resistance type	Required	GenBank NO.	Position
QNRB_32			
fluoroquinolone	None	AB281054	1-642
		AB379831	1-678
		AJ609296	9414-10070
		AJ971343	13366-14010
		AJ971344	16315-16959
		AM774474	2417-3076
		AM919398	1-678
		AM919399	1-678
		CP000826	2251832-2252473
		DQ303919	1-678
		DQ303920	1-678
		DQ303921	1-645
		DQ351241	1-678
		DQ631414	1-678
		EF488762	1-642
		EF517946	1-678
		EF523819	1-678
		EF526508	1-642
		EF636461	11590-12267
		EF653270	1-645
		EF660200	2751-3425
		EF667294	2461-3138
		EU043312	1-642
		EU136182	1-678
		EU136183	1-678
		EU273755	1-678
		EU273757	1-678
		EU302865	1-678
		EU432277	1-642
		EU443840	4-681
		EU523120	2070-2747
		EU624315	348-1025
QNRS_4			
fluoroquinolone	None	AB178643	1377-2030
		DQ460733	7814-8467
		EU077611	3-653
		FM954973	76628-77281
ROSA_6 multidrug resistance transporters types			
fosmidomycin	rosb	AE009952	1225489-1226700
		AL590842	3449065-3450276
		CP000668	3097677-3098429
		CP000720	3413089-3414300

Resistance type	Required	GenBank NO.	Position
		CP000826 U46859	1262988-1264205 24298-25527
ROSB_5			
fosmidomycin	rosa	AE009952 AL590842 AM286415 CP000826 U46859	1223563-1225251 3450514-3452202 3335753-3337441 1261051-1262739 22369-24057
SMEA_3 Multidrug resistance efflux pump.			
fluoroquinolone	smec smeb	AF173226 AM743169 CP001111	2559-3752 4595218-4596411 4324296-4325489
SMEB_3 Multidrug resistance efflux pump.			
fluoroquinolone	smec smea	AF173226 AM743169 CP001111	3768-6914 4592056-4595202 4321134-4324280
SMEC_3 multidrug resistance transporters types			
fluoroquinolone	smea smeb	AF173226 AM743169 CP001111	6914-8326 4590644-4592056 4319722-4321134
SMED_6 Multidrug resistance efflux pump.			
fluoroquinolone	smef smee	AJ252200 AJ746241 AJ746242 AJ746243 AM743169 CP001111	82-1263 2401-3582 1882-3063 2358-3539 4178972-4180153 3903907-3905022
SMEE_6 Multidrug resistance efflux pump.			
fluoroquinolone	smef smed	AJ252200 AJ746241 AJ746242 AJ746243 AM743169 CP001111	1279-4398 3598-6717 3079-6192 3555-6674 4175837-4178956 3900709-3903828
SMEF_6 multidrug resistance transporters types			
fluoroquinolone	smee smed	AJ252200 AJ746241 AJ746242 AJ746243 AM743169 CP001111	4494-5891 6831-8228 6293-7678 6770-8164 4174347-4175741 3899198-3900595
SRMB_2 MLSB resistance types			
lincosamide	None	AM709784	12737-14386

Resistance type	Required	GenBank NO.	Position
macrolide streptogramin_b		X63451	558-2207
STA_1			
streptothricin	None	M16183	530-1096
STR_4			
streptomycin	None	AY604739 AY939911 X06627 X92946	150-920 8065-8724 1-771 18063-18833
SUL1_12			
sulfonamide	None	AB061794 AB281182 AF071555 AF550679 AJ294721 AJ515707 AJ517791 AJ621187 AM993099 DQ143913 EF667294 FJ187822	2894-3730 850-1683 3257-4225 79636-80472 874-1707 4177-4854 7775-8611 3369-4205 2-796 3694-4530 1089-1925 2-793
SUL2_8			
sulfonamide	None	AB076707 AB109805 AB114188 AF100173 AF303375 AM183225 EF062588 FJ200242	2-811 887-1699 19434-20246 9444-10229 127-939 10491-11306 7-741 2-649
SUL3_5			
sulfonamide	None	AJ459418 AY494779 AY617070 AY816216 EF051037	2979-3767 172-894 1-495 7064-7759 6309-7085
TCMA_3			
tetracenomycin_c	None	AL939112 BA000030 M80674	119810-121417 7001572-7003191 878-2491
TCR3_1			
tetracycline	None	D38215	516-2051

Resistance type	Required	GenBank NO.	Position
TET30_1			
tetracycline	None	AE007870	1328325-1329506
TET31_1			
tetracycline	None	AJ250203	1651-2880
TET32_2			
tetracycline	None	AJ295238	164-2080
		DQ647324	181-2097
TET33_2			
tetracycline	None	AJ420072	22940-24160
		DQ390458	31992-33212
TET34_6			
tetracycline	None	AB061440	309-770
		AE016795	317374-317835
		BA000031	706791-707252
		BA000037	860631-861092
		CP000789	1179731-1180192
		FM954972	2588371-2588832
TET36_2			
tetracycline	None	AJ514254	2534-4453
		AY265739	4-1302
TET37_1			
tetracycline	None	AF540889	1-324
TET38_2			
tetracycline	None	AJ938182	95236-96585
		BX571856	152865-154214
TET39_1			
tetracycline	None	AY743590	749-1933
TET40_1			
tetracycline	None	AJ295238	2134-3351
TETA_10			
tetracycline	None	AB027254	22006-23250
		AB366441	40202-41446
		AF497970	1155-2426
		AY509004	2544-3788
		AY903253	1-1263
		CP000604	27347-28618
		EF633507	1785-3029
		EF682136	4393-5589
		FJ151627	9339-10511
		U75324	535-1779
TETB_6			
tetracycline	None	AB084245	519-1721

Resistance type	Required	GenBank NO.	Position
		AB089588	1-1203
		AB366440	76569-77771
		AC006650	12105-12875
		AF217317	6242-7444
		AY048738	1332-2534
TETC_11			
tetracycline	None	AB057644	3006-4193
		AB089596	1-1188
		AF361441	3123-4310
		AP009241	7255-8442
		AY043298	4010-5197
		AY428550	3547-4734
		AY428551	1540-2727
		DQ157769	1749-2936
		DQ517526	89606-90793
		EU496095	90-1277
		FJ158001	58-1245
TETD_5			
tetracycline	None	AB089599	1-1182
		AB262967	2011-3192
		AF467072	173-1354
		EF471994	10-1008
		Y19115	1-1119
TETE_3			
tetracycline	None	AJ289103	3303-4517
		CP000645	4109-5323
		L06940	21-1235
TETG_5			
tetracycline	None	AB089603	49-1173
		AF071555	6644-7768
		AJ276217	25-1140
		CU459141	3671435-3672559
		Y19118	25-1140
TETH_3			
tetracycline	None	AJ245947	986-2161
		AJ487672	1-1074
		AJ514834	1876-3048
TETJ_2			
tetracycline	None	AF038993	10842277
		AM942759	2621559-2622752
TETK_2			
tetracycline	None	AE015930	36-1412
		AJ888003	117-1493

Resistance type	Required	GenBank NO.	Position
TETL_9			
tetracycline	None	AB117035	2493-3866
		AJ277764	118-1491
		AJ966516	3487-4860
		AY359464	454-1773
		D12567	546-1916
		D26185	35680-37053
		DQ367664	1603-2982
		X15669	1736-3109
		X60828	168-1541
TETM_51			
tetracycline	None	AB039845	26-1942
		AB054984	1-1917
		AB426620	14972-16888
		AB468159	15137-17053
		AE009948	927458-929374
		AF333235	14651-16567
		AF376746	5901-7817
		AF440277	7327-9243
		AF491293	13-1929
		AJ580976	632-2548
		AJ580977	632-2548
		AJ580978	632-2548
		AJ971089	13381-15297
		AJ973137	200-2116
		AJ973139	200-2116
		AJ973140	325-2241
		AJ973141	325-2241
		AM180355	600034-601950
		AM411624	420-2336
		AM889142	1618-3534
		AY047229	1450-3366
		AY057892	2-1861
		AY057893	2-1861
		AY057894	2-1861
		AY466395	4-1920
		AY898750	14971-16887
		CP000407	892243-894159
		CP000936	1306028-1307944
		CP001015	1192420-1194336
		CP001033	171720-173636
		DQ206711	21-1937
		DQ223241	1-1917

Resistance type	Required	GenBank NO.	Position
		DQ223243	1-1917
		DQ223247	1-1917
		DQ223248	1-1917
		DQ223250	1-1917
		DQ223648	1226-3142
		DQ431184	7821-9737
		DQ886586	3718-5634
		EF016118	112-2028
		EU182585	1-1917
		EU918653	1-1917
		EU918657	1-1917
		EU918662	1-1917
		FM201786	35079-36995
		L12241	228-2144
		L12242	228-2144
		U08812	1981-3897
		U58985	228-2144
		U58986	228-2144
		X75073	228-2144
TETO_7			
tetracycline	None	AJ715499	343-2259
		AM884250	75-1991
		AY190525	1-1917
		AY394560	1-1917
		AY660531	14-1930
		CP000261	1101272-1103188
		FM178797	69-1985
TETPA_6			
tetracycline	None	AB001076	329-1588
		AB054980	1-1260
		AB054981	1-1221
		AB054982	1-1260
		AE001437	1594361-1595623
		DQ366035	559-1818
TETPB_2			
tetracycline	None	AE001437	1595610-1597565
		DQ366035	1805-3760
TETQ_10			
tetracycline	None	AP006841	147511-149481
		AY171589	1-1311
		AY171591	1-1311
		AY171592	1-1311
		DQ093580	2372-4342

Resistance type	Required	GenBank NO.	Position
		L33696	777-2747
		U73497	308-2317
		X58717	538-2496
		Y08615	190-2160
		Z21523	314-2272
TETS_2			
tetracycline	None	AB290882	15048-16976
		EF679789	2911-4839
TETT_1			
tetracycline	None	AY660530	48-2000
TETU_1			
tetracycline	None	U01917	1684-1905
TETV_2			
tetracycline	None	AF030344	465-1721
		CP000480	5286339-5287595
TETW_30			
tetracycline	None	AF202986	73-1989
		AJ222769	3687-5603
		AM180252	225942-227858
		AM710601	702-2618
		AM749838	1447-3363
		AM889118	199-2085
		AM889119	199-2085
		AM889120	199-2085
		AM889121	199-2085
		AM889122	199-2085
		AY049983	8309-10225
		AY196920	1-1917
		AY196921	131-2047
		AY485122	1-1917
		DQ060146	2244-4160
		DQ294295	1058-2974
		DQ294299	2900-4816
		DQ517519	2859-4775
		DQ519395	2857-4773
		DQ525023	29-1945
		EF065524	100-2016
		EF177463	6400-8313
		EF421935	1-1917
		EU434749	659-2575
		EU434751	659-2575
		EU434752	659-2575
		EU434754	955-2868

Resistance type	Required	GenBank NO.	Position
		EU434755	1456-3372
		EU583804	4895-6811
		FJ158004	5054-6970
TETX_3			
tetracycline	None	AB097942	1-1134
		AJ311171	10778-11941
		M37699	586-1749
TETY_2			
tetracycline	None	AB089604	1-1173
		AB089607	1-1173
TETZ_2			
tetracycline	None	AF121000	11883-13034
		AF445081	3445-4596
TET_3			
tetracycline	None	AL939106	239960-241864
		AM238664	1024153-1026027
		M74049	343-2235
TLRC_1 MLSB resistance types			
lincosamide macrolide streptogramin_b	None	M57437	277-1920
TMRB_2			
tunicamycin	None	D13793	181-777
		D50453	18384-18980
TOLC_43 Multidrug resistance efflux pump.			
acriflavin	acrb	AE005174	3991518-3993002
aminoglycoside	mdtf	AE005674	3171245-3172729
beta_lactam	maca	AE008846	11775-13247
glycylcycline	macb	AE014075	3614900-3616384
macrolide	acra	AE014613	3191564-3193036
	mdte	AE017220	3309329-3310801
		AJ306390	412-1869
		AJ421426	1-1458
		AM287288	1-1482
		AM933172	3236524-3237996
		AM933173	3213902-3215374
		AP009048	3176765-3178249
		AP009240	3442216-3443700
		BA000007	3924203-3925687
		CP000026	3159147-3160619
		CP000034	2967946-2969430
		CP000036	2896090-2897574
		CP000038	3331618-3333102

Resistance type	Required	GenBank NO.	Position
		CP000243	3403848-3405332
		CP000247	3293175-3294659
		CP000647	3772816-3774291
		CP000653	3755205-3756686
		CP000783	346872-348362
		CP000800	3509132-3510616
		CP000802	3222940-3224424
		CP000822	4100243-4101709
		CP000880	4358270-4359748
		CP000886	3308925-3310397
		CP000946	714977-716461
		CP000964	684613-686085
		CP000970	3406631-3408115
		CP001063	3222921-3224405
		CP001113	3337897-3339369
		CP001120	3340727-3342199
		CP001127	3254803-3256275
		CP001138	3270179-3271651
		CU928145	3528205-3529683
		CU928158	3044344-3045816
		CU928162	3625132-3626610
		CU928163	3635882-3637360
		FM180568	3465543-3467027
		U25178	517-1989
		X54049	296-1780
TSNR_2			
thiostrepton	None	AB040452	1219-2025
		AB094065	170-976
VANA_6 vancomycin resistance operons types			
teicoplanin	vanra	AB247327	15235-16263
vancomycin	vanha	AM296544	11492-12520
	vansa	AY648035	1-1029
	vanya	AY648698	1-1029
	vanxa	AY926880	3009-4037
		Y15704	23-1051
VANB_13 vancomycin resistance operons types			
vancomycin	vanxb	AB374546	37415-38440
	vanwb	AE016830	2212970-2213995
	vanrb	AF192329	28835-29860
	vanyb	AF310953	1-1026
	vansb	AF310954	1-1026
	vanhb	AF550667	68-1093
		AJ306726	180-1043

Resistance type	Required	GenBank NO.	Position
		AJ306727	180-1043
		AY145441	1-1026
		AY655712	1-1026
		AY665550	3-815
		U004566	21087
		U94526	1-801
VANC_3	vancomycin resistance operons types		
vancomycin	vansc	AF162694	1411-2439
	vanrc	DQ022190	205-1233
	vant	EU151772	31-1059
	vanxyc		
VAND_8	vancomycin resistance operons types		
teicoplanin	vanrd	AB183866	72-1100
vancomycin	vansd	AF130997	4083-5111
	vanxd	AF153050	1321-2349
	vanhd	AF175293	4079-5083
	vanyd	AF277571	1262-2290
		AY489045	4010-5038
		DQ172830	3983-5011
		EF508033	4030-5034
VANE_1	vancomycin resistance operons types		
vancomycin	vante	AF430807	2976-4031
	vanre		
	vanxye		
	vanse		
VANG_1	vancomycin resistance operons types		
vancomycin	vanug	AF253562	3715-4761
	vanwg		
	vantg		
	vansg		
	vanrg		
	vanxyg		
	vanyg		
VANHA_5	vancomycin resistance operons types		
teicoplanin	vanra	AB247327	14274-15239
vancomycin	vansa	AM296544	12516-13481
	vana	AY926880	2048-3013
	vanya	DQ018710	5109-6074
	vanxa	Y15705	152-1117
VANHB_4	vancomycin resistance operons types		
vancomycin	vanxb	AB374546	36451-37419
	vanwb	AE016830	2213991-2214959
	vanb	AF192329	27871-28839

Resistance type	Required	GenBank NO.	Position
	vanrb vanyb vansb	U35369	4007-4975
VANHD_6	vancomycin resistance operons types		
teicoplanin	vanrd	AB242319	3045-4013
vancomycin	vansd	AF130997	3122-4087
	vand	AF153050	357-1325
	vanxd	AF175293	3115-4083
	vanyd	AY489045	3046-4014
		EF508033	3066-4034
VANRA_6	vancomycin resistance operons types		
teicoplanin	vanha	AB247327	12232-12924
vancomycin	vansa	AM296544	14831-15523
	vana	CP000485	3095656-3096357
	vanya	DQ018710	3048-3740
	vanxa	DQ018711	1-693
		Y15706	25-717
VANRB_3	vancomycin resistance operons types		
vancomycin	vanxb	AB374546	32627-33283
	vanwb	AE016830	2218129-2218788
	vanb	U35369	178-837
	vanyb		
	vansb		
	vanhb		
VANRC_4	vancomycin resistance operons types		
vancomycin	vanc	AF162694	5193-5885
	vansc	AY033089	2789-3481
	vant	AY033764	3846-4538
	vanxyc	EU151752	3849-4541
VANRD_5	vancomycin resistance operons types		
teicoplanin	vansd	AB242319	1-696
vancomycin	vand	AF130997	77-772
	vanxd	AF175293	71-766
	vanhd	AY489045	1-696
	vanyd	DQ172830	1-696
VANRE_1	vancomycin resistance operons types		
vancomycin	vante	AF430807	6754-7440
	vanxye		
	vanse		
	vane		
VANRG_1	vancomycin resistance operons types		
vancomycin	vanug	AY271782	17324-18028
	vang		

Resistance type	Required	GenBank NO.	Position
	vanwg vantg vansg vanxyg vanyg		
VANSA_7	vancomycin resistance operons types		
teicoplanin	vanra	AB247327	12905-14056
vancomycin	vanha	AM296544	13699-14850
	vana	AY926880	674-1831
	vanya	CP000485	3094512-3095663
	vanxa	DQ018710	3721-4878
		DQ018711	713-1837
		Y15707	1-1146
VANSB_4	vancomycin resistance operons types		
vancomycin	vanxb	AB374546	33289-34629
	vanwb	AE016830	2216786-2218126
	vanb	AJ272437	3-428
	vanrb	AY035712	1924-2565
	vanyb		
	vanhb		
VANSC_6	vancomycin resistance operons types		
vancomycin	vanc	AF162694	5878-6960
	vanrc	AY033089	3553-4608
	vant	AY033764	4604-5659
	vanxyc	DQ022190	4672-5754
		EU151752	4630-5661
		EU151753	4629-5660
VANSD_6	vancomycin resistance operons types		
teicoplanin	vanrd	AB183865	1-1143
vancomycin	vand	AF130997	765-1907
	vanxd	AF175293	759-14511427-1900
	vanhd	AY489045	689-1831
	vanyd	DQ172830	689-1831
		EF508033	709-1851
VANSE_2	vancomycin resistance operons types		
vancomycin	vante	AF430807	7433-8503
	vanre	AY700375	1-810
	vanxye		
	vane		
VANSG_1	vancomycin resistance operons types		
vancomycin	vanug	AF253562	722-1822
	vang		
	vanwg		

Resistance type	Required	GenBank NO.	Position
	vantg vanrg vanxyg vanyg		
VANTE_1	vancomycin resistance operons types		
vancomycin	vanre vanxye vanse vane	AF430807	4577-6682
VANTG_2	vancomycin resistance operons types		
vancomycin	vanug vang vanwg vansg vanrg vanxyg vanyg	AF253562 AY271782	5518-7650 22852-24987
VANT_2	vancomycin resistance operons types		
vancomycin	vanc vansc vanrc vanxyc	AF162694 DQ022190	3008-5101 1802-3895
VANUG_1	vancomycin resistance operons types		
vancomycin	vang vanwg vantg vansg vanrg vanxyg vanyg	AY271782	17095-17319
VANWB_4	vancomycin resistance operons types		
vancomycin	vanxb vanb vanrb vanyb vansb vanhb	AB374546 AE016830 AF192329 AY655718	35627-36451 2214959-2215783 27047-27871 3069-3893
VANWG_1	vancomycin resistance operons types		
vancomycin	vanug vang vantg vansg vanrg	AY271782	20202-21044

Resistance type	Required	GenBank NO.	Position
	vanxyg vanyg		
VANXA_6	vancomycin resistance operons types		
teicoplanin	vanra	AB247327	16272-16877
vancomycin	vanha	AF516335	4785-5390
	vansa	AM296544	10878-11483
	vana	AY926880	4046-4651
	vanya	DQ018710	7107-7712
		Y15708	20-625
VANXB_9	vancomycin resistance operons types		
vancomycin	vanwb	AB374546	38449-39054
	vanb	AE016830	2212356-2212961
	vanrb	AF192329	29869-30474
	vanyb	AF203407	2-541
	vansb	AF203411	2-541
	vanhb	AF550667	1102-1707
		AJ272436	2-475
		AY035709	2-538
		U35369	6005-6610
VANXD_6	vancomycin resistance operons types		
teicoplanin	vanrd	AB242319	5046-5651
vancomycin	vansd	AF130997	5120-5725
	vand	AF175293	5116-5721
	vanhd	AY489045	5047-5652
	vanyd	DQ172830	5017-5625
		EF508033	5067-5672
VANXYC_10	vancomycin resistance operons types		
vancomycin	vanc	AF162694	2439-3008
	vansc	AY033089	1-570
	vanrc	AY033764	1075-1644
	vant	EU151752	1078-1647
		EU151753	1078-1647
		EU151754	1078-1647
		EU151755	1078-1647
		EU151756	1078-1647
		EU151757	1078-1647
		EU151758	1078-1647
VANXYE_1	vancomycin resistance operons types		
vancomycin	vante	AF430807	4006-4584
	vanre		
	vanse		
	vane		
VANXYG_2	vancomycin resistance operons types		

Resistance type	Required	GenBank NO.	Position
vancomycin	vanug	AF253562	4761-5522
	vang	DQ222944	5050-5811
	vanwg		
	vantg		
	vansg		
	vanrg		
	vanyg		
VANYA_4	vancomycin resistance operons types		
teicoplanin	vanra	AB247327	18125-19033
vancomycin	vanha	AM296544	9539-10447
	vansa	DQ018710	8162-9043
	vana	Y17303	1-891
	vanxa		
VANYB_3	vancomycin resistance operons types		
vancomycin	vanxb	AB374546	34803-35606
	vanwb	AE016830	2215804-2216607
	vanb	U35369	2359-3162
	vanrb		
	vansb		
	vanhb		
VANYD_5	vancomycin resistance operons types		
teicoplanin	vanrd	AB242319	1958-3022
vancomycin	vansd	AF130997	2032-3099
	vand	AF175293	2025-3092
	vanxd	AY082011	4195-4914-3849419
	vanhd	EF508033	9
			1976-3043
VANYG_2	vancomycin resistance operons types		
vancomycin	vanug	AF253562	1962-2795
	vang	AY271782	19288-19650
	vanwg		
	vantg		
	vansg		
	vanrg		
	vanxyg		
VANZ_3	vancomycin resistance operons types		
teicoplanin	None	AB247327	19189-19671
		AM296544	8901-9383
		Y17304	1-483
VATA_2	MLSB resistance types		
streptogramin_a	None	AF117258	2207-2863
		L07778	258-914
VATB_5	MLSB resistance types		

Resistance type	Required	GenBank NO.	Position
streptogramin_a	None	CP000568	2003461-2004093
		CP000728	306010-306645
		CP000939	316193-316828
		CP000962	295779-296414
		U19459	67-702
VATC_1	MLSB resistance types		
streptogramin_a	None	AF015628	1307-1942
VATD_1	MLSB resistance types		
streptogramin_a	None	AF368302	2717-3328
VATE_7	MLSB resistance types		
streptogramin_a	None	AF139725	63-704
		AJ488494	9461-10102
		AY008284	1-642
		AY043210	1-642
		AY043211	1-642
		AY043212	1-642
		AY043213	1-642
VGAA_3	MLSB resistance types		
streptogramin_a	None	AF117259	2437-4002
		AF186237	5065-6636
		FJ207465	2057-3622
VGAB_1	MLSB resistance types		
streptogramin_a	None	U82085	629-2284
VGBA_2	MLSB resistance types		
streptogramin_a	None	AF117258	2872-3768
		M20129	641-1537
VGBB_1	MLSB resistance types		
streptogramin_a	None	AF015628	399-1283
VPH_2	MLSB resistance types		
viomycin	None	AY263398	28679-29557
		X02393	79-957
YKKC_2	MLSB resistance types		
na_antimicrobials	ykkd	AJ002571	28642-28977
		CP000560	1253674-1254009
YKKD_2	MLSB resistance types		
na_antimicrobials	ykkc	AJ002571	28980-29294
		CP000560	1254012-1254323

Supplementary Table 2 The susceptibility testing and microarray result of bacterial isolates

Antibiotic	<i>E. coli</i>				<i>P. mirabilis</i>		<i>K. pneumoniae</i>		<i>K. pneumoniae</i>		<i>A. xylosoxidans</i>		<i>A. baumannii</i>	
	SYF9		SYF19		SYF13		X02738		X03804		X02736		X00059	
Tetracycline	S ¹	<6 ²	R	>15	R	>40	R	>10	R	>10	R	>10	R	>80
Cephalexin	S	<9	R	>10	R	>65	R	>10	R	>14	R	>11	R	>10
Amoxicillin	S	<9	R	>10	R	>10	R	>10	R	>10	R	>10	R	>10
Ampicillin	S	<9	R	>10	R	>10	R	>10	R	>10	R	>10	R	>10
Streptomycin	S/I	<7	R	>25	R	>10	R	>15	R	>15	R	>13	R	>50
Kanamycin	S	<6	R	>15	R	>60	R	>20	R	>25	R	>100	R	>50
Chloramphenicol	S	<6	R	>10	R	>30	R	>40	R	>40	R	>13	R	>60
Gentamycin	S	0	R	>10	R	>20	R	>30	R	>25	R	>15	R	>50

¹: susceptibility testing result, “R” represents the isolate resist to these antibiotics, “S” represents the isolate is sensitive to these antibiotics, and “I” represents an intermediate state.

²: antibiotic resistance gene type values in microarray.

Supplementary Table 3 Specific PCR detection of resistance genes (selected) in the two *E. coli* isolates

Target (acc. No)	Gene type	Primer set	Presence(+)/Absence (-) in:		Microarray Value for:	
			SYF9	SYF9	SYF9	SYF19
AF550415	AAC3IIA	F: GGAAGGCAATAACGGAGGCA R: CGGGGGCTTGAACCAGAAAT	-	+	<3	15.2
AY138987	AAC3IIA	F: CACCGTTTCTTCCAAGCATC R: TGGCACTGTGATGGGATACG	-	+	<3	11.3
AF083408	APH3IA	F: ACGAATGAATAACGGTTTGG R: CTGTAATGAAGGAGAAAAC	-	+	<3	15.0
AM884371	APH3IA	F: TCACCGAGGCAGTTCCATAG R: TTACTCACCCTGCGATCCC	-	+	<3	10.4
AF071555	CML_E3	F: GTGATTTTTGGTCCGCTCTC R: CATCGCCAGTATAGCCAAAG	-	+	<3	10.5
FM179941	CML_E3	F: CCGTGAAGACAATACCGACC R: CGGCTTTTTGGGTTTACT	-	+	<3	22.3
AF368302	ERMB	F: CTTTGGCGTGTTTCATTGCT R: CGTGCGTCTGACATCTATCT	-	+	<3	10.6

Supplementary Table 4 Detailed information of each volunteer and the number of antibiotic resistance gene type detected

Sample No.	Group	Male / Female	Ages	No. of antibiotic resistance types
176XH	CH	F	4	9
168XH	CH	M	3	7
186XH	CH	F	5	9
187XH	CH	F	5	9
178XH	CH	M	3	7
182XH	CH	F	3	9
177XH	CH	F	3	7
171XH	CH	F	4	6
181XH	CH	F	4	12
188XH	CH	F	4	8
185XH	CH	F	5	10
170XH	CH	M	4	6
172XH	CH	F	4	7
190XH	CH	F	4	10
183XH	CH	M	3	10
173XH	CH	M	4	5
189XH	CH	F	4	7
184XH	CH	F	4	8
175XH	CH	F	4	9
174XH	CH	M	4	4
180XH	CH	M	5	11
179XH	CH	M	2	6
169XH	CH	M	3	9
255A	SC	M	10	14
253A	SC	M	10	11

Sample No.	Group	Male / Female	Ages	No. of antibiotic resistance types
231A	SC	F	10	15
246A	SC	F	11	11
235A	SC	M	11	16
240A	SC	F	10	16
239A	SC	F	11	14
254A	SC	F	11	16
243A	SC	M	11	12
237A	SC	M	10	12
251A	SC	F	10	12
257A	SC	M	10	15
233A	SC	F	10	17
230A	SC	M	10	19
232A	SC	F	10	16
247A	SC	F	11	13
238A	SC	M	10	14
229A	SC	F	10	13
249A	SC	F	10	10
236A	SC	F	11	16
252A	SC	M	10	12
241A	SC	M	10	13
250A	SC	F	11	14
245A	SC	M	10	12
234A	SC	F	10	32
212A	HSS	M	16	10
211A	HSS	M	16	17
210A	HSS	F	15	10
213A	HSS	F	15	10

Sample No.	Group	Male / Female	Ages	No. of antibiotic resistance types
215A	HSS	M	15	11
223A	HSS	F	15	11
224A	HSS	F	16	12
227A	HSS	F	15	13
225A	HSS	F	16	14
221A	HSS	M	17	12
214A	HSS	M	15	13
220A	HSS	M	17	18
196A	HSS	M	17	15
195A	HSS	M	17	28
193A	HSS	M	16	14
197A	HSS	M	17	11
199A	HSS	M	18	11
202A	HSS	M	17	15
198A	HSS	M	18	22
204A	HSS	F	16	13
192A	HSS	M	17	24
200A	HSS	M	18	14
194A	HSS	M	17	14
203A	HSS	M	17	14
226A	HSS	F	16	21
228A	HSS	F	16	31
133	AD	F	26	38
164	AD	M	27	26
163	AD	M	28	22
66	AD	F	28	16
125	AD	F	29	28

Sample No.	Group	Male / Female	Ages	No. of antibiotic resistance types
53	AD	F	30	31
162	AD	F	31	23
91	AD	M	32	17
54	AD	M	33	32
61	AD	M	35	28
95	AD	F	35	32
122	AD	F	35	25
118	AD	M	36	24
68	AD	M	37	16
55	AD	F	38	35
77	AD	M	39	16
142	AD	M	39	20
120	AD	F	39	23
113	AD	M	39	20
123	AD	F	40	27
76	AD	M	40	27
59	AD	M	40	26
74	AD	F	41	21
71	AD	M	42	23
100	AD	F	42	28
92	AD	F	43	48
67	AD	M	43	30
80	AD	F	43	27
72	AD	M	43	24
56	AD	M	43	34
102	AD	F	43	40
73	AD	F	44	28

Sample No.	Group	Male / Female	Ages	No. of antibiotic resistance types
65	AD	M	44	24
57	AD	M	44	31
130	AD	M	46	32
134	AD	F	46	31
63	AD	M	47	31
112	AD	F	47	40
121	AD	F	47	32
117	AD	M	48	18
98	AD	F	49	31
126	AD	F	49	35
70	AD	M	50	22
81	AD	M	50	21
115	AD	F	50	25
75	AD	M	51	21
87	AD	M	52	14
58	AD	M	52	33
129	AD	F	52	34
137	AD	F	53	20

Supplementary Table 5 Sample information and antibiotic resistance gene type number in each group

Group	No. of samples	Male/Female	Average ages (SE)	No. of total gene type	No. of average gene type (SE)
CH	23	9/14	4±1	25	8±2
SC	25*	11/13	10±1	37	14±2
HSS	26	9/17	16±1	58	15±6
AD	51*	24/26	41±7	72	25±4

* Outliers according to statistical detection (one in SC and one in AD group) are removed in all analyses.

Supplementary Figure 1

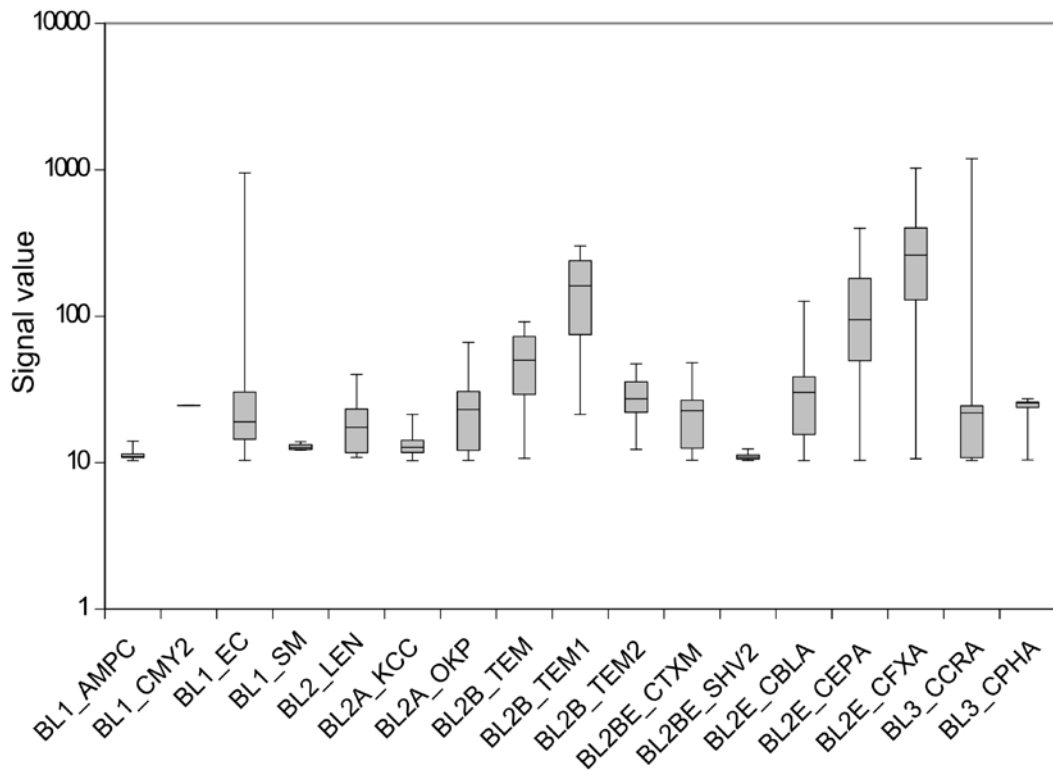


Figure S1 Box plots of hybridization signal value range for 17 beta-lactamase gene types in 124 samples. Boxes represent the interquartile range (IQR) between the first and third quartiles, and the line within the boxes denotes the median value. The whiskers denote the maximum and the minimum value.

Supplementary Figure 2

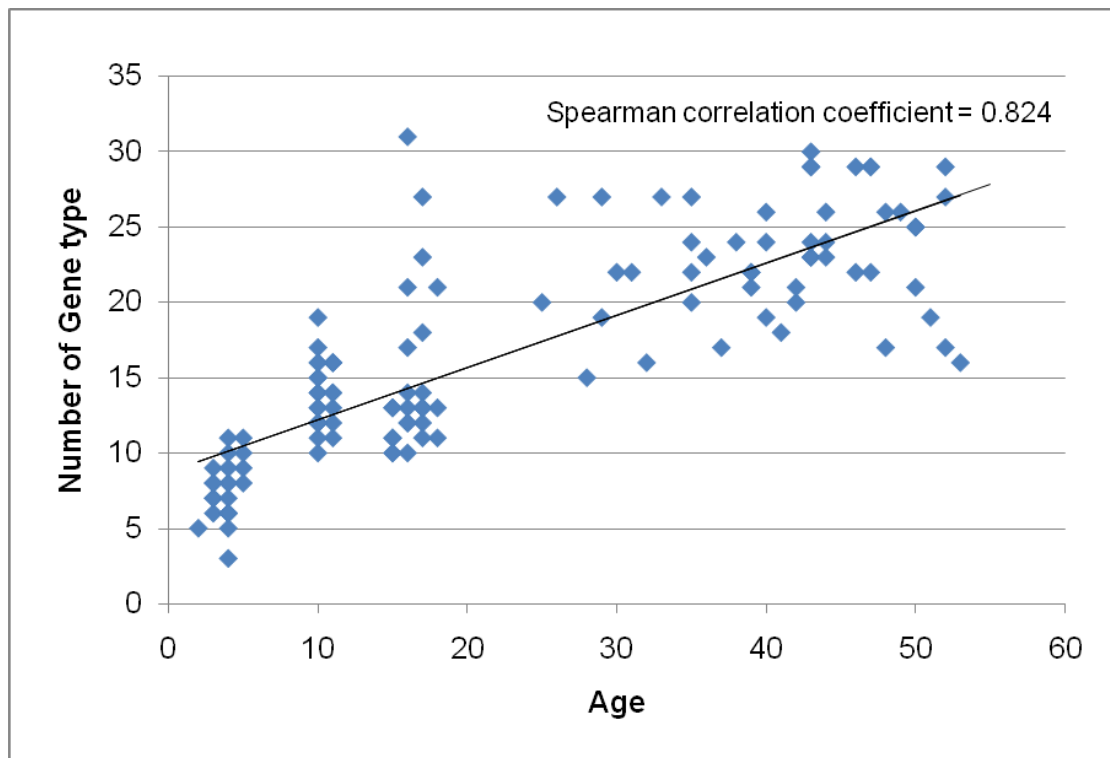


Figure S2 Spearman correlation between the age of each individual and the number of the resistance gene types.