

CHAPTER V

RESULTS

1. Confirmation of *Salmonella* Schwarzengrund by Biochemical and Serological Tests

The total numbers of 300 *Salmonella* Schwarzengrund isolates from human patients and chicken meat samples in Thailand during A.D. 2000-2002 which obtained from the National *Salmonella* and *Shigella* center, the National Institute of Health, Department of Medical Sciences, Thailand were confirmed by biochemical tests and serological test.

2. Antimicrobial susceptibility of *Salmonella* Schwarzengrund

2.1. Antimicrobial susceptibility test of all *Salmonella* Schwarzengrund isolates against ampicillin, gentamicin, streptomycin, sulfamethoxazole, sulfamethoxazole+trimethoprim, tetracycline, nalidixic acid, neomycin, ciprofloxacin, and chloramphenicol by agar dilution method and cefotaxime and cefotaxime+clavulanic acid by disk diffusion method were shown in **Figure 4** and their MIC₅₀, MIC₉₀ and MIC range are shown in **Table 12**. The results found that *Salmonella* Schwarzengrund were resistant to ampicillin (74%), gentamicin (67%), streptomycin (59%), sulfamethoxazole (85%), sulfamethoxazole +trimethoprim (77%), tetracycline (73%), neomycin (51%), nalidixic acid (96%), ciprofloxacin (16%), chloramphenicol (16%). No cefotaxime and cefotaxime+clavulanic acid resistance was found.

2.2 Antimicrobial susceptibility test of all *Salmonella* Schwarzengrund isolated from human and from chicken meat samples against ampicillin, gentamicin, streptomycin, sulfamethoxazole, sulfamethoxazole+trimethoprim, tetracycline, nalidixic acid, neomycin, ciprofloxacin, and chloramphenicol by agar dilution method was

compare as shown in **Figure 5** and their MIC₅₀, MIC₉₀ and MIC range was shown in **Table 13**. The results showed that *Salmonella* Schwarzengrund isolated from human were resistant to ampicillin (34%), gentamicin (57%), streptomycin (18%), sulfamethoxazole (94%), sulfamethoxazole+ trimethoprim (79%), tetracycline (48%), nalidixic acid (98%), neomycin (4%), ciprofloxacin (31%), and chloramphenicol (18%). The results of susceptibility test showed that *Salmonella* Schwarzengrund isolated from chicken meat samples were resistant to ampicillin (76%), gentamicin (65%), streptomycin (35%), sulfamethoxazole (99%), sulfamethoxazole+ trimethoprim (20%), tetracycline (67%), nalidixic acid (94%), neomycin (7%), ciprofloxacin (21%), and chloramphenicol (14 %).

2.3 Examining of multiple-drug resistant patterns of *Salmonella*

Schwarzengrund isolated from human revealed that *Salmonella* Schwarzengrund from human-isolates were resistant to one antimicrobial drug (1.1%), two antimicrobial drug (13%), three antimicrobial drug (18%), four antimicrobial drug (25.4%), five antimicrobial drug (14.4%), six antimicrobial drug (11.1%), seven antimicrobial drug (14.4%), and eight antimicrobial drug (2.2%). While *Salmonella* Schwarzengrund isolated from chicken meat samples were found none resisted to one antimicrobial drug (0%), resisted to two antimicrobial drug (1.6%), three antimicrobial drug (17.5%), four antimicrobial drug (14.8%), five antimicrobial drug (36.5%), six antimicrobial drug (17.5%), seven antimicrobial drug (7.9 %), eight antimicrobial drug (2.1 %), and nine antimicrobial drug (2.1%).(Figure 6)

2.4 Patterns of antimicrobial susceptibility test of all *Salmonella*

Schwarzengrund isolated in A.D. 2000, 2001, and 2002 against ampicillin, gentamicin, streptomycin, sulfamethoxazole, sulfamethoxazole+trimethoprim, tetracycline, nalidixic acid, neomycin, ciprofloxacin, and chloramphenicol by agar dilution method were shown in **Figure 7**. The results revealed that *Salmonella* Schwarzengrund isolates in 2000 were resistant to ampicillin (74%), gentamicin (68%), streptomycin (0%), sulfamethoxazole (79%), sulfamethoxazole+ trimethoprim (63%), tetracycline (47%), nalidixic acid (95%), neomycin (0%), ciprofloxacin (11%), chloramphenicol (96%), cefotaxime (0%) and cefotaxime+ clavulanic acid (0%). The results of susceptibility test of *Salmonella* Schwarzengrund isolated in 2001 were resistant to ampicillin (31%), gentamicin (90%), streptomycin (30%), sulfamethoxazole (87%), sulfamethoxazole+

trimethoprim (96 %), tetracycline (87%), nalidixic acid (97%), neomycin (30%), ciprofloxacin(30%), chloramphenicol (92%), cefotaxime (0%) and cefotaxime+ceftazidime (0%). In 2002, *Salmonella* Schwarzengrund isolates were resistant to ampicillin (70%), gentamicin (45%), streptomycin (17%), sulfamethoxazole (63%), sulfamethoxazole+ trimethoprim (57%), tetracycline (45%), nalidixic acid (98%), neomycin (17%), ciprofloxacin (6%), chloramphenicol (60%), cefotaxime (0%) and cefotaxime+ceftazidime (0%).

2. Analysis of restricted fragments of chromosomal DNA from *Salmonella* Schwarzengrund by Pulsed-Field Gel Electrophoresis (PFGE)

Three-hundred isolates of *Salmonella* Schwarzengrund from human patients and chicken meat samples were analyzed their DNA-patterns by Pulsed-Field Gel Electrophoresis (PFGE). The DNA-pattern analysis was able to be characterized 2 genotypes which were named "Type A" (≤ 60 % similarity) and "Type B" (≥ 60 % similarity). The "Type B" can be characterized into 7 sub-genotypes which were Subtype B1 (≥ 70 % similarity), Subtype B2 (≥ 75 % similarity), Subtype B3 (≥ 80 % similarity), Subtype B4 (≥ 85 % similarity), Subtype B5 (≥ 90 % similarity), Subtype B6 (≥ 95 % similarity), and Subtype B7 (≥ 100 % similarity). The most prevalent type in this study was type B. The results were able to clearly distinguishable the sizes of DNA fragments between 10 to 14 DNA fragments which ranging from 48 kbp to 679 kbp. The total DNA was prepared, and PFGE was performed as described previously. The restriction endonucleases *Xba* I were used at the manufacturer's suggested temperature. Restriction endonuclease fragments were separated by PFGE on a 1% agarose gel in 0.5x TBE buffer with the Bio-Rad CHEF Mapper apparatus III. The ladder marker were applied as molecular size markers (size, 48 to 1,000 kb, PFGE markers III). Gels were then stained with ethidium bromide and photographed under UV (Figure 8 and 9 illustrated examples of the chromosomal DNA fingerprints of one of human patients and chicken meat strain which were generated with *Xba*I digestion). The DNA-fragment patterns were compared and interpreted by using software (bionumeric). Similarity analysis and the dendrograms had been done with this database system on the basis of molecular mass patterns. The

Figure 10 showed example of DNA patterns which were subjected to be analyzed by using the Bionumeric software. The results and dendrogram from image-analysis revealed that *Salmonella* Schwarzengrund isolates from human patients and chicken meat samples were highly related, with similarity of coefficients were greater than 70 %. The results also showed that the isolates from susceptible and/or resistant to antimicrobial drugs contained the same or similar DNA profiles (**Figure 12**). The DNA profile of *Salmonella* Schwarzengrund was also proved its difference from *Salmonella* enteritidis (**Figure 11**) which was used as quality control organism in this study.



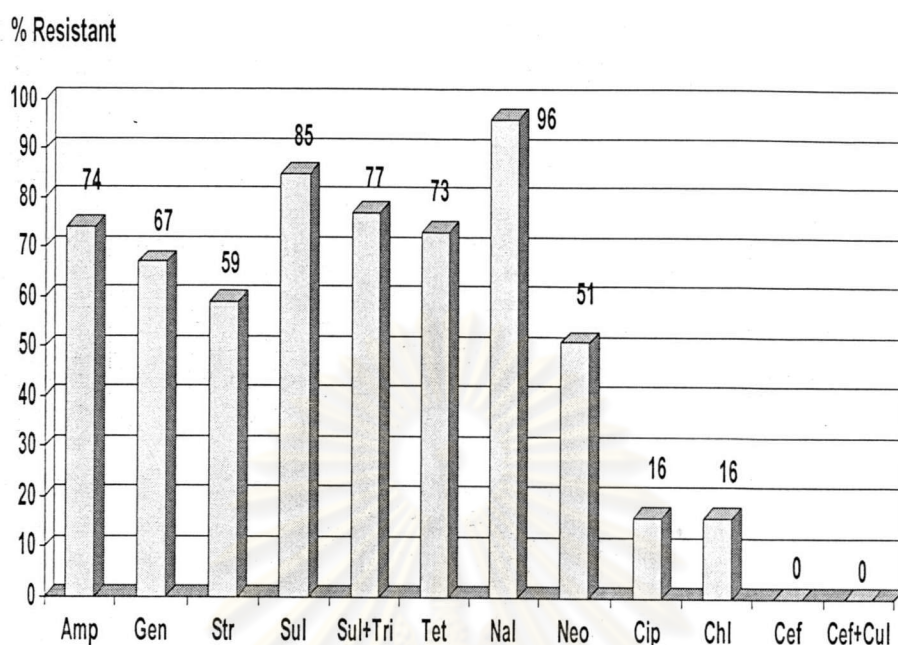


Figure 4 Pattern of Antimicrobial resistant of *Salmonella* Schwarzengrund isolated from human patients and chicken meat samples in Thailand (2000-2002).

Amp = Ampicillin Sul = Sulfamethoxazole Nal = Nalidixic acid
 Gen = Gentamicin Sul+Tri = Sulfamethoxazole+Trimethoprim Neo = Neomycin
 Str = Streptomycin Cef = Cefotaxime Cip = Cipromethoxazone
 Tet = Tetracycline Cef+Cul = Cefotaxime+Culvulanic acid Chl = Chloramphenicol

Table 12 MIC50, MIC90 and MIC range of *Salmonella* Schwarzengrund

Antimicrobial drug	MIC50	MIC90	MIC range
Ampicillin	128	128	2-128
Chloramphenicol	4	8	2-256
Ciprofloxacin	0.25	2	0.25-4
Gentamicin	32	64	2-128
Nalidixic acid	256	256	256-256
Neomycin	4	16	2-128
Streptomycin	32	128	4-128
Sulfamethoxazole	1,216	1,216	38-1,216
Sulfamethoxazole+Trimethoprim	16	128	2-128
Tetracycline	16	64	2-128

% Resistance

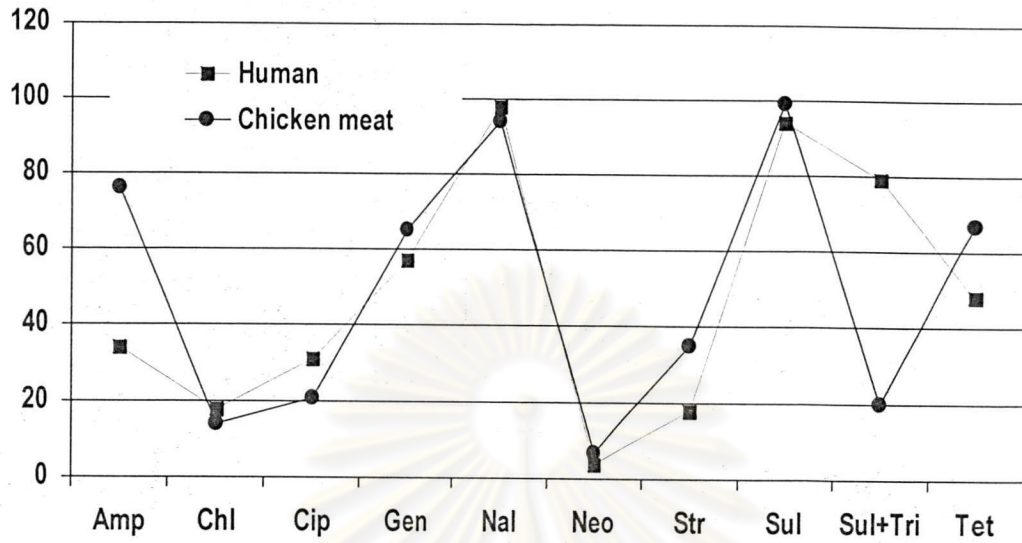


Figure 5 Patterns of antimicrobial drug resistance of *Salmonella Schwarzengrund* isolated from human and chicken meat samples in Thailand (2000-2002).

Table 13 MIC50, MIC90 and MIC range of susceptibility test of *S. Schwarzengrund*

Antimicrobial drug	MIC50	MIC90	MIC range
Ampicillin			
Human-isolates	128	128	2-128
Chicken meat-solates	128	128	2-128
Chloramphenicol			
Human-isolates	4	64	2-256
Chicken meat-isolates	4	16	2-128
Ciprofloxacin			
Human-isolates	0.5	4	0.25-4
Chicken meat-isolates	0.5	4	0.25-4
Gentamicin			
Human-isolates	32	64	2-128
Chicken meat-isolates	64	128	2-128
Nalidixic acid			
Human-isolates	256	256	256-256
Chicken meat-isolates	256	256	8-256
Neomycin			
Human-isolates	4	8	2-128
Chicken meat-isolates	8	32	2-32

Antimicrobial drug	MIC50	MIC90	MIC range
Streptomycin			
Human-isolates	32	128	8-128
Chicken meat-isolates	32	128	4-128
Sulfamethoxazole			
Human-isolates	1216	1216	38-1216
Chicken meat-isolates	1216	1216	38-1216
Sulfamethoxazole +Trimethoprim			
Human-isolates	16	16	2-128
Chicken meat-isolates	16	128	4-128
Tetracycline			
Human-isolates	8	16	2-64
Chicken meat-isolates	32	128	2-128

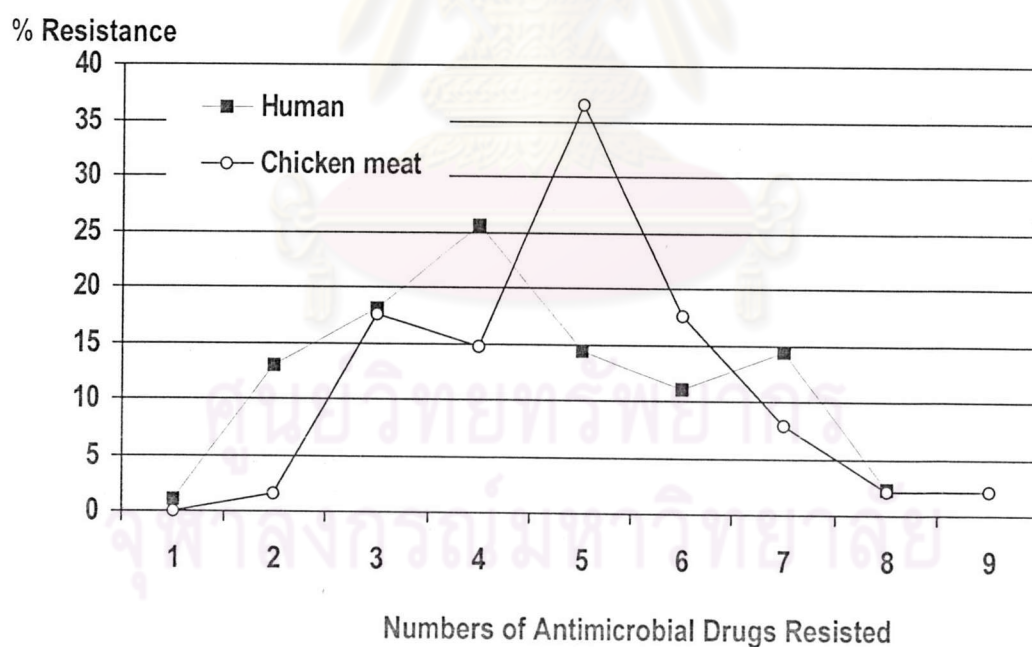


Figure 6 Patterns of multiple-drug resistance of *Salmonella Schwarzengrund* isolated from human and chicken meat samples in Thailand (2000-2002).

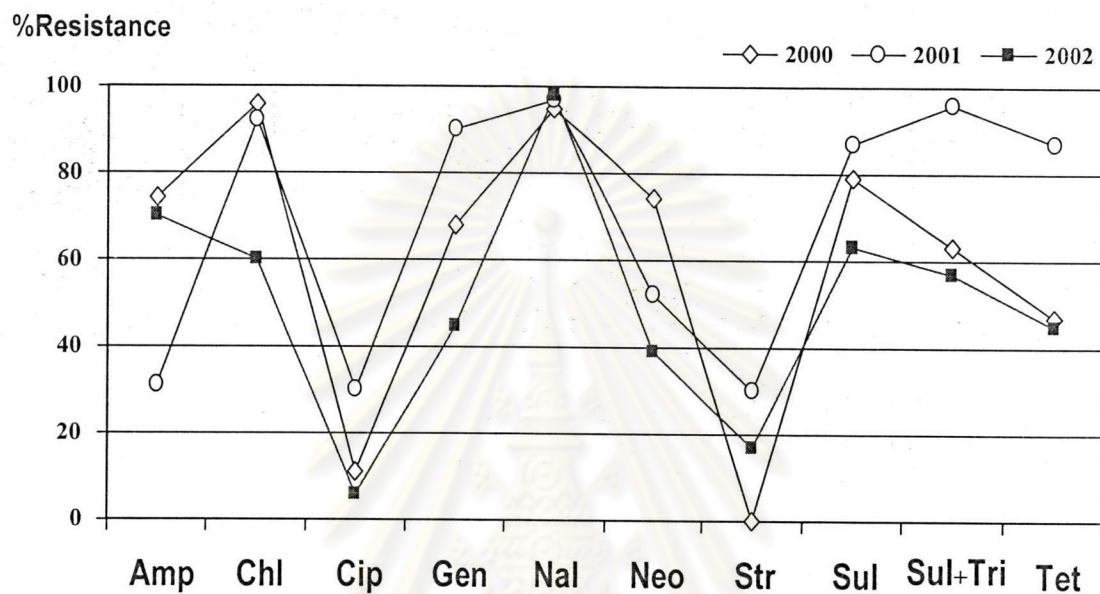


Figure 7 Patterns of antimicrobial resistance of *Salmonella* Schwarzengrund isolates (from human and chicken meat samples) in Thailand during 2000, 2001, and 2002.

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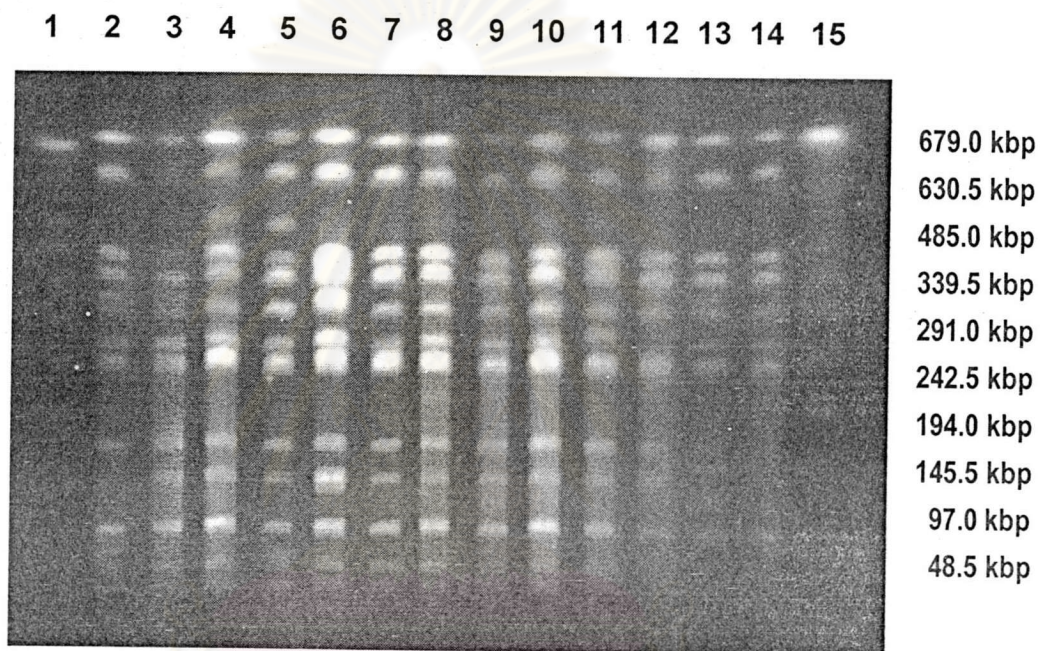


Figure 8 Comparison of DNA patterns by using pulsed-field gel electrophoresis of whole-cell DNA from *Salmonella* Schwarzengrund isolated from human and *Salmonella* Schwarzengrund isolated from chicken meat digested with *Xba* I, the pulse time was 10 to 20 s. at 6 v/cm and runtime 22 hours, Lane 1 and Lane 2 showed the lambda ladder (molecular markers). Lane 3-Lane 7 showed the PFGE patterns of *Salmonella* Schwarzengrund isolated from human in Thailand, Lane 8-Lane 14 showed the PFGE patterns of *Salmonella* Schwarzengrund isolated from chicken meat in Thailand.

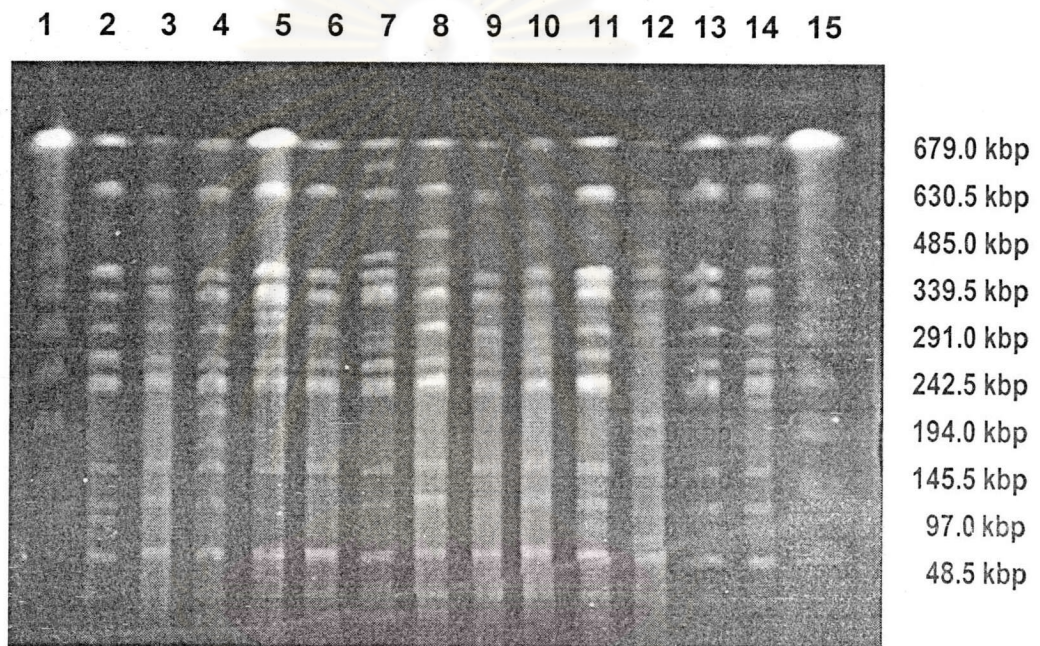


Figure 9 Comparison of DNA patterns by using pulsed-field gel electrophoresis of whole-cell DNA from *Salmonella* Schwarzengrund isolated from human and *Salmonella* Schwarzengrund isolated from chicken meat digested with *Xba* I, the pulse time was 10 to 20 seconds at 6 v/cm. and runtime 22 hours, Lane 1 and Lane 2 showed the lambda ladder (molecular markers). Lane 2-Lane 7 showed the PFGE patterns of *Salmonella* Schwarzengrund isolated from human in Thailand, Lane 8-Lane 14 showed the PFGE patterns of *Salmonella* Schwarzengrund isolated from chicken meat in Thailand.

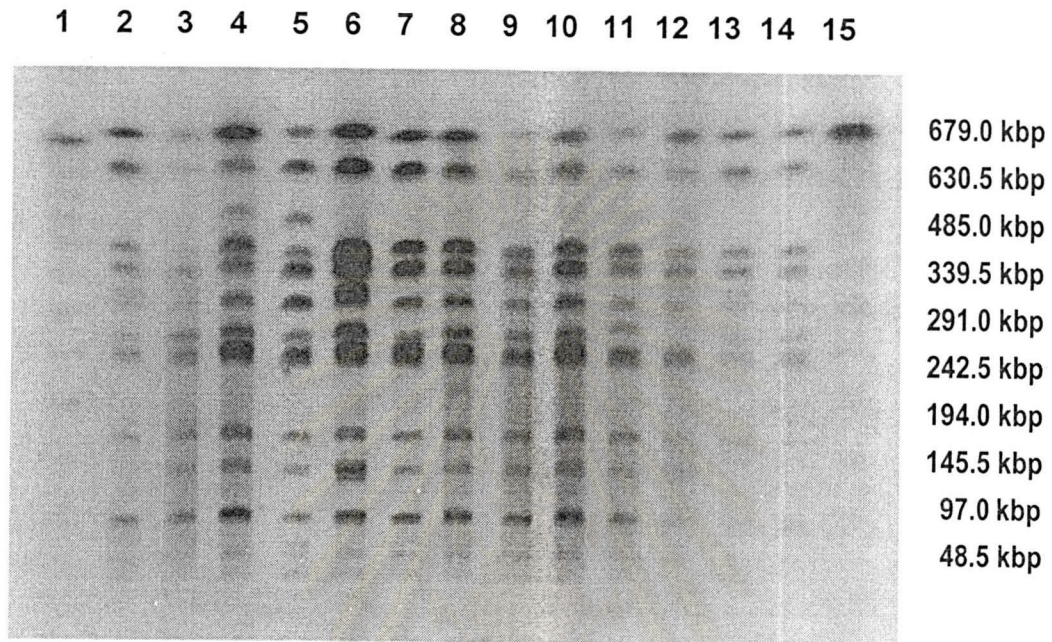


Figure 10 Comparison of DNA patterns by using pulsed-field gel electrophoresis of whole-cell DNA from *Salmonella* Schwarzengrund isolated from human and *Salmonella* Schwarzengrund isolated from chicken meat sample digested with *Xba* I, the pulse time was 10 to 20 secs at 6 v/cm. and runtime 22 hours, Lane 1 and Lane 2 showed the lambda ladder (molecular markers). Lane 2-Lane 7 showed the PFGE patterns of *Salmonella* Schwarzengrund isolated from human in Thailand, Lane 8-Lane 14 showed the PFGE patterns of *Salmonella* Schwarzengrund isolated from chicken meat in Thailand.

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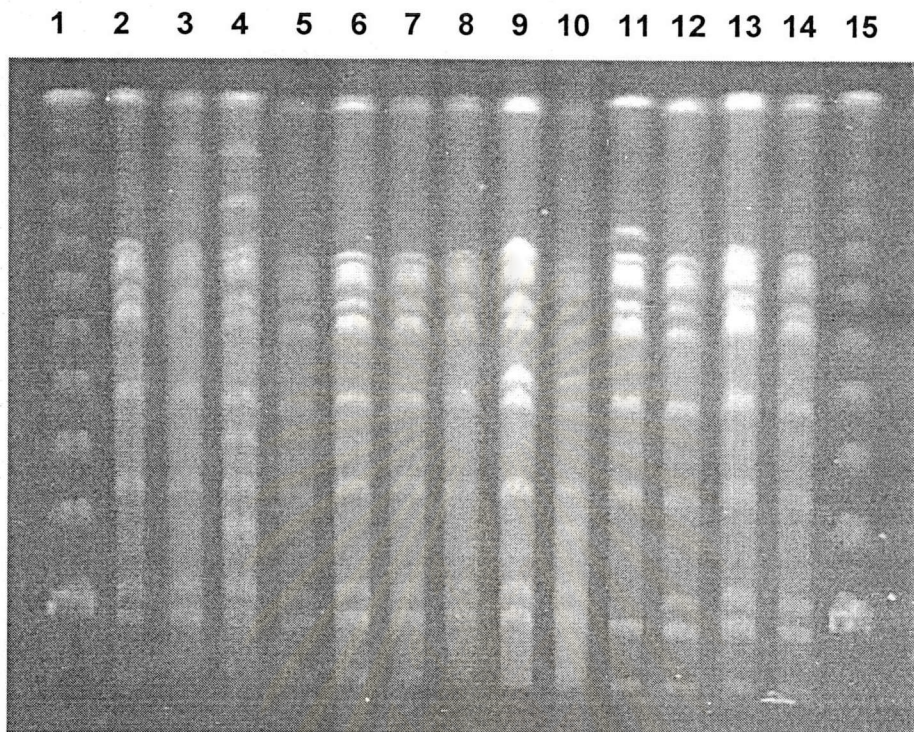


Figure 11 Representative of polymorphism of chromosomal DNA fingerprints of *Salmonella* Enteritidis generated with *Xba* I, the pulse time was 10 to 20 seconds at 6 v/cm. and runtime 22 hours. Lane 1 and Lane 2 showed the lambda ladder (molecular markers). Lane 2-Lane 7 showed the PFGE patterns of *Salmonella* Enteritidis isolated from human in Thailand, Lane 8-Lane 14 showed the PFGE patterns of *Salmonella* Enteritidis isolated from chicken meat in Thailand.

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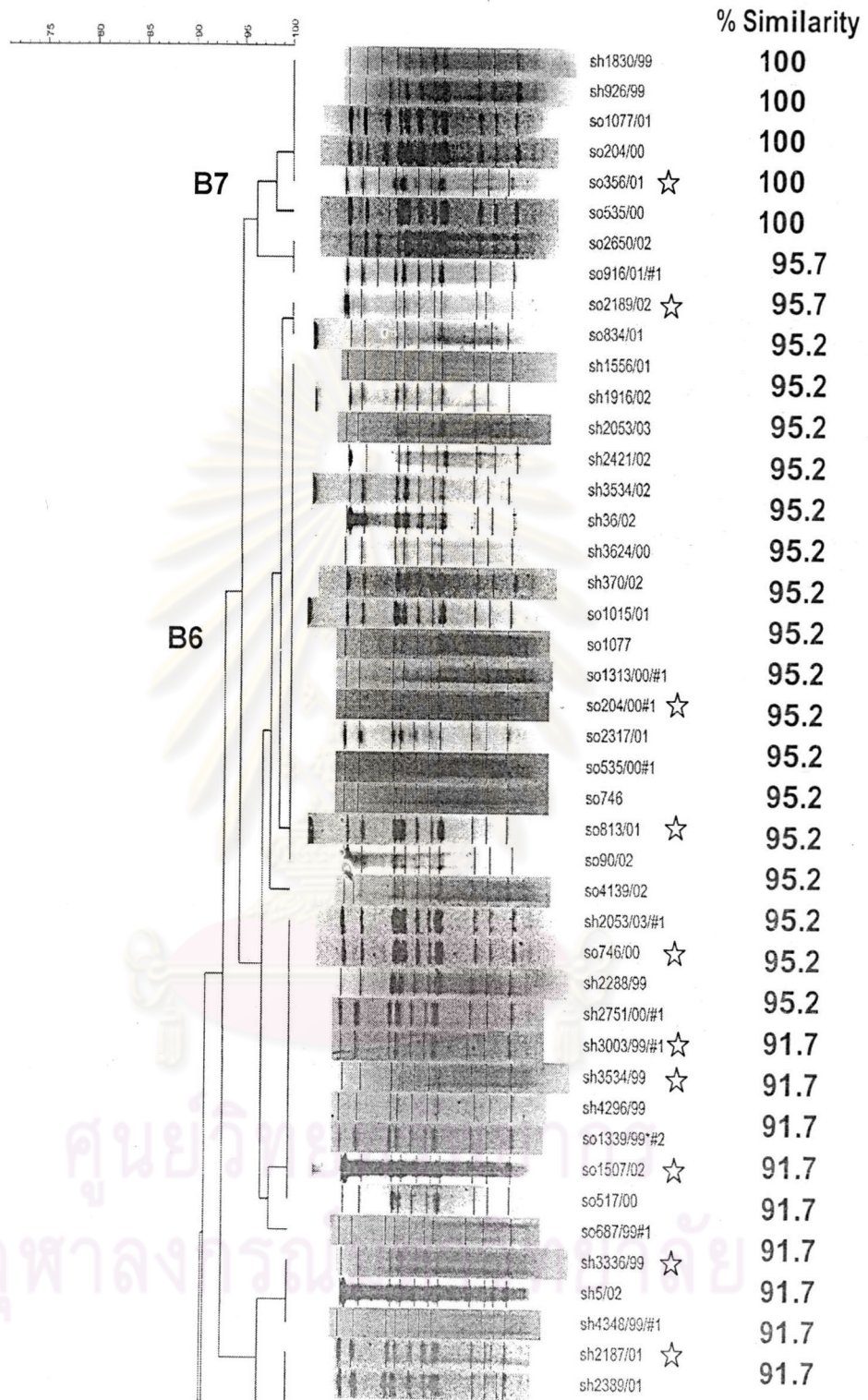


Figure 12-1 Dendrogram of unique pulsed-field gel electrophoresis patterns of *Salmonella* Schwarzengrund.

☆ Indicates multidrug-resistant *Salmonella* Schwarzengrund patterns.

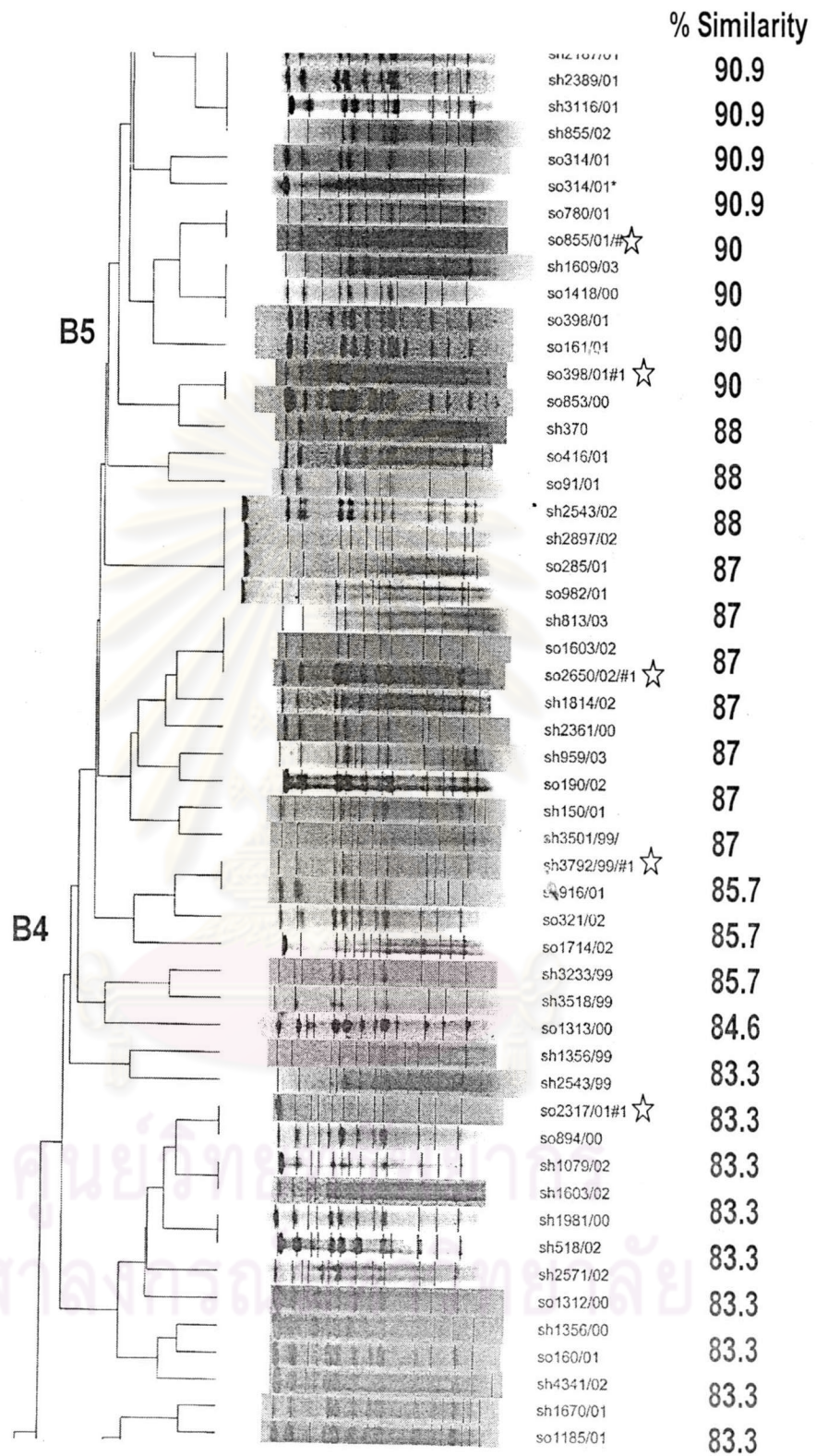


Figure 12-2 Dendrogram of unique pulsed-field gel electrophoresis patterns of *Salmonella* Schwarzengrund.

☆ Indicates multidrug-resistant *Salmonella* Schwarzengrund patterns.

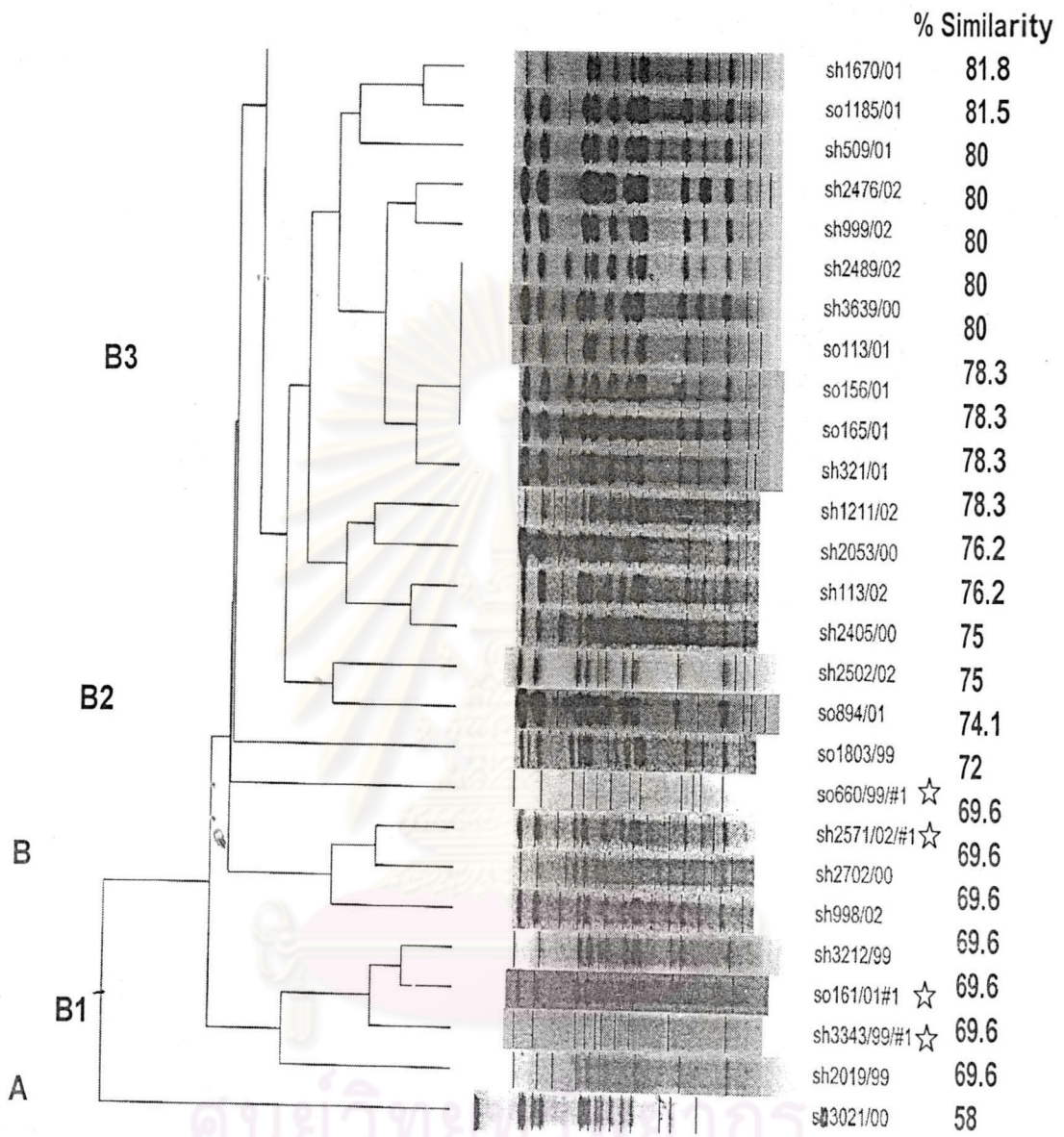


Figure 12-3 Dendrogram of unique pulsed-field gel electrophoresis patterns of *Salmonella* Schwarzengrund.

☆ Indicates multidrug-resistant *Salmonella* Schwarzengrund patterns.

Table 13 Results of confirmation of *Salmonella* Schwarzengrund Biochemical and Serological test

PATIENT ID	ORIGIN	TSI	H ₂ S	Motility	Indole	Citrate	Urease	LDA	LDC	Formular antigen
sh321/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh546/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh583/01(st)	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1198/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1814/00	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2830/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3581/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2880/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2849/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3369/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2366/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2055/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1908/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh873/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh546/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2700/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2581/00	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh51701(st)	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2839/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2702/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh365/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2892/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3623/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2152/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh36/00	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2049/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1380/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2483/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1526/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1551/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3266/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1555/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1803/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3624/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3333/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1079/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1801/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh5751/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2302/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh518/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh313/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1261/00	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh338/00	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7

PATIENT ID	ORIGIN	TSI	H ₂ S	Motility	Indole	Citrate	Urease	LDA	LDC	Formular antigen
sh3335/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3639/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2389/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh313/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2187/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2715/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh5877/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2205/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1063/02	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2582/00	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh509/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3116/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2075/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1714/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2971/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh466/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen.d 1,7
sh370/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2935/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2917/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3597/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh439/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2702/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2053/00	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1556/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1908/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3220/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2055/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh344/01(no)	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2307/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2715/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2579/00	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1106/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1198/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2033/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh439/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2799/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3963/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh274/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3598/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3703/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3324/00	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2054/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh150/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh790/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2692/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2825/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh2825/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7

PATIENT ID	ORIGIN	TSI	H ₂ S	Motility	Indole	Citrate	Urease	LDA	LDC	Formular antigen
sh899/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh1556/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
sh3552/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so215/01	Chicken	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so118/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so76/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so136/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so313/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so262/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so233/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so304/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so287/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so309/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so179/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so102/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so617/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so1054/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so110/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so1758/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so1187/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so261/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so302/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so90/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so312/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so114/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so1560/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so261/01	human	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so232/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so300/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so300/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so277/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so116/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so1504/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so1070/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so303/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so257/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so281/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so288/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so316/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so106/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so111/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so164/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so187/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so185/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so173/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so224/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so258/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7

PATIENT ID	ORIGIN	TSI	H ₂ S	Motility	Indole	Citrate	Urease	LDA	LDC	Formular antigen
so105/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so1185/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so225/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so160/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so895/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so188/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7
so617/01	food	A/K slant	+	+	-	+	-	-	+	O-antigen 1,4,(5),12/ H-antigen d 1,7

Table 14 Antimicrobial susceptibility of *Salmonella* Schwarzengrund isolated in Thailand

PATIENT ID	ORIGIN	AMP	CHL	CIP	GEN	NAL	SMX	TCY	SXT	STR	NEO	CTX	CTC
sh321/01	human	2	2	.5	64	256	1216	8	16	32	8	35	35
sh546/01	human	2	2	.5	4	256	1216	16	16	32	2	32	32
sh583/01	human	2	2	.03	2	2	64	2	.12	2	2	31	31
sh1198/01	human	128	128	4	64	256	1216	2	.5	128	8	32	32
sh1814/00	human	2	8	4	2	256	64	2	.25	8	2	32	32
sh2830/02	human	128	8	4	64	256	1216	2	16	128	128	21	21
sh3581/02	human	128	16	.25	64	256	1216	8	16	32	8	31	32
sh2880/02	human	128	2	.25	64	256	1216	8	16	8	4	37	38
sh2849/02	human	2	2	.5	64	256	1216	8	16	64	8	33	34
sh3369/02	human	2	2	.25	2	256	1216	8	16	16	2	36	37
sh2366/02	human	128	2	.5	4	256	1216	16	16	32	8	33	34
sh2055/01	human	128	256	4	64	256	1216	16	.25	16	8	31	31
sh1908/01	human	2	2	.5	64	256	64	2	.12	8	8	35	35
sh873/01	human	2	2	.5	4	256	1216	8	16	16	2	31	31
sh546/01	human	2	2	.5	64	256	1216	8	16	64	8	32	32
sh2700/01	human	128	2	.5	64	256	1216	16	16	32	8	31	32
sh2581/00	human	128	2	.5	64	256	1216	8	16	32	8	29	30
sh51701(st)	human	2	2	.25	4	256	64	2	.12	16	8	35	36
sh2839/01	human	128	2	.5	4	256	1216	8	16	16	2	31	32
sh2702/01	human	4	2	4	164	256	1216	16	16	128	8	32	32
sh365/01	human	128	2	.25	64	256	1216	8	16	16	8	35	36
sh2892/01	human	128	64	4	32	256	1216	16	16	128	2	32	32
sh3623/02	human	128	4	.5	2	256	1216	16	16	8	2	32	30
sh2152/02	human	128	4	.25	2	256	1216	16	16	32	2	34	33
sh36/00	human	128	128	1	32	256	1216	16	.5	32	8	27	29
sh2049/02	human	128	4	.25	4	256	1216	4	16	16	2	30	30
sh1380/02	human	128	128	.25	2	256	1216	4	16	32	2	32	33
sh2483/01	human	128	4	.25	2	256	1216	4	16	16	2	28	31
sh1526/02	human	128	4	.25	2	256	1216	8	16	32	2	31	28
sh1551/02	human	128	4	.25	2	256	76	2	.125	8	2	29	28
sh3266/02	human	2	4	.25	2	256	1216	8	16	32	2	33	32
sh1555/02	human	2	4	.25	2	256	1216	8	16	16	2	32	29
sh1803/02	human	128	4	.25	32	256	1216	4	16	32	8	30	30
sh3624/02	human	128	8	.25	32	256	1216	16	16	32	8	31	33

PATIENT ID	ORIGIN	AMP	CHL	CIP	GEN	NAL	SMX	TCY	SXT	STR	NEO	CTX	CTC
sh3333/02	human	2	8	.25	32	256	1216	2	16	128	8	28	29
sh1079/02	human	128	8	4	2	256	1216	8	16	32	8	27	28
sh1801/02	human	128	8	4	2	256	1216	16	16	8	2	34	35
sh5751/02	human	2	4	.25	2	256	1216	4	16	8	2	31	33
sh2302/02	human	2	64	.25	16	256	1216	2	.5	32	2	33	34
sh518/02	human	128	4	.5	32	256	76	2	.25	8	2	33	33
sh313/02	human	4	16	4	2	256	76	4	.25	8	2	26	25
sh1261/00	human	2	4	.25	2	256	1216	2	16	32	2	26	27
sh338/00	human	2	4	.25	2	256	1216	8	16	32	8	33	32
sh3335/02	human	2	128	4	32	256	1216	4	16	128	2	26	29
sh3639/02	human	128	16	4	2	256	1216	32	16	128	64	32	32
sh2389/01	human	2	128	4	8	256	1216	16	16	32	8	33	34
sh313/01	human	128	32	.5	4	256	1216	16	16	32	4	33	33
sh2187/01	human	2	2	.5	8	256	1216	8	16	32	4	36	37
sh2715/01	human	128	2	.5	128	256	1216	16	16	64	8	33	33
sh5877/02	human	4	4	.5	128	256	1216	16	16	32	8	30	31
sh2205/01	human	4	8	4	64	256	1216	16	16	32	4	29	29
sh1063/02	human	2	2	.5	4	256	1216	2	.25	128	4	31	33
sh2582/00	human	128	2	2	128	256	1216	16	128	16	32	32	32
sh509/01	human	128	2	.5	4	256	1216	16	16	32	4	33	34
sh3116/01	human	128	2	.5	128	256	1216	8	16	32	8	33	33
sh2075/01	human	128	64	4	64	256	1216	16	16	16	8	32	32
sh1714/01	human	128	2	.5	64	256	1216	16	16	64	8	32	32
sh2971/01	human	128	128	4	128	256	1216	16	16	64	8	29	29
sh466/01	human	2	2	1	4	256	38	2	.125	8	4	34	34
sh370/01	human	128	2	.5	4	256	76	2	.125	8	4	32	32
sh2935/01	human	128	2	.5	64	256	1216	8	16	16	8	34	33
sh2917/01	human	2	2	.5	64	256	1216	16	16	32	8	34	36
sh3597/01	human	2	2	.5	128	256	1216	8	16	32	8	34	37
sh439/01	human	2	4	.5	64	256	152	4	16	8	8	31	31
sh2702/01	human	8	128	4	64	256	1216	16	.5	64	8	34	35
sh2053/00	human	128	4	4	4	256	1216	16	16	32	4	23	24
sh1556/01	human	128	2	4	4	256	1216	8	16	32	4	34	34
sh1908/01	human	128	4	.5	64	256	38	2	.125	8	4	35	35
sh3220/01	human	128	2	.5	2	256	1216	2	.125	8	4	35	35
sh2055/01	human	128	4	.5	4	256	38	2	.125	8	4	34	35
sh344/01(no)	human	128	2	1	2	256	1216	32	16	128	2	32	33
sh2307/01	human	128	2	1	64	256	1216	16	16	32	8	32	33
sh2715/01	human	128	2	4	128	256	1216	16	16	32	16	32	32
sh2579/00	human	128	2	.5	64	256	1216	32	16	32	8	31	32
sh1106/01	human	128	64	4	64	256	1216	32	.5	32	8	31	32
sh1198/01	human	128	128	4	64	256	1216	16	.5	32	4	33	32
sh2033/01	human	128	64	4	2	256	1216	32	16	128	2	30	29
sh439/01	human	2	2	.5	2	256	1216	16	16	128	4	33	30
sh2799/01	human	128	2	.5	64	256	1216	16	16	128	8	29	30
sh3963/01	human	2	2	.5	2	256	1216	8	16	16	2	33	34
sh274/01	human	128	2	.5	64	256	1216	8	16	32	4	33	34

PATIENT ID	ORIGIN	AMP	CHL	CIP	GEN	NAL	SMX	TCY	SXT	STR	NEO	CTX	CTC
sh3598/01	human	128	64	4	64	256	1216	16	16	32	4	30	31
sh3703/01	human	128	64	4	64	256	1216	16	16	32	8	29	29
sh3324/00	human	128	2	.5	64	256	1216	8	16	32	8	30	32
sh2054/01	human	128	8	4	64	256	1216	32	16	32	8	24	24
sh150/01	human	2	2	4	2	256	1216	8	16	16	4	33	33
sh790/01	human	2	2	.5	4	256	1216	32	16	32	4	35	33
sh2692/01	human	128	2	.25	64	256	1216	64	16	32	4	30	30
sh2825/01	human	128	2	64	64	256	608	16	2	16	4	31	31
sh2825/01	human	128	2	.25	32	256	1216	16	16	32	2	32	32
sh899/01	human	128	2	.25	32	256	1216	16	16	16	8	37	37
sh1556/01	human	128	16	4	32	256	1216	16	16	16	2	25	26
sh3552/01	human	128	16	4	16	256	1216	16	16	16	2	28	32
so215/01	food	128	8	4	32	256	1216	32	16	32	2	31	33
so118/01	food	128	8	4	16	256	1216	16	16	128	4	31	32
so76/01	food	128	8	4	128	256	1216	16	16	64	8	33	33
so136/01	food	128	16	4	128	256	1216	32	16	64	4	30	33
so313/01	food	128	2	4	128	256	1216	32	16	64	4	35	36
so262/01	food	128	2	.5	128	256	1216	64	16	64	4	30	31
so233/01	food	128	8	4	128	256	1216	32	16	64	4	30	31
so304/01	food	128	8	4	32	256	1216	32	16	32	2	31	32
so287/01	food	128	8	4	32	256	1216	32	16	64	4	34	37
so309/01	food	128	32	4	32	256	1216	64	16	32	4	36	35
so179/01	food	128	4	1	32	256	1216	16	16	16	2	33	35
so102/01	food	128	4	2	32	256	1216	16	16	16	2	30	31
so617/01	food	128	4	.25	32	256	1216	32	16	32	4	31	31
so1054/01	food	128	128	4	128	256	1216	64	16	64	4	30	33
so110/01	food	128	128	4	128	256	1216	16	16	64	8	32	33
so1758/01	food	128	128	4	32	256	1216	32	16	32	2	30	30
so1187/01	food	2	4	.25	4	256	1216	32	16	32	8	31	32
so261/01	food	128	2	.25	128	256	1216	16	16	32	8	30	31
so302/01	food	128	4	.25	128	256	1216	64	16	16	8	34	34
so90/01	food	128	4	.25	128	256	1216	16	16	16	8	33	34
so312/01	food	128	4	.25	128	256	1216	16	16	16	8	29	33
so114/01	food	128	4	.5	128	256	1216	16	16	64	8	31	32
so1560/01	food	128	4	.5	128	256	1216	32	16	64	8	31	31
so261/01	human	128	4	.5	128	256	1216	32	16	16	8	30	31
so232/01	food	128	4	.25	128	8	1216	32	16	16	8	32	33
so300/01	food	128	4	.25	64	256	1216	16	16	16	8	31	34
so300/01	food	128	4	.5	128	256	1216	16	16	64	8	31	32
so277/01	food	128	4	.25	64	256	1216	16	16	32	8	31	31
so116/01	food	128	4	.25	128	256	1216	16	16	16	8	34	34
so1504/01	food	128	128	.5	128	256	1216	16	16	64	8	29	32
so1070/01	food	128	128	.5	128	256	1216	16	16	32	8	34	34
so303/01	food	128	2	.25	64	256	1216	32	16	64	8	33	33
so257/01	food	128	2	.5	64	256	1216	32	128	32	4	33	34
so281/01	food	128	4	.5	128	256	1216	16	16	32	8	33	33
so288/01	food	128	4	.5	128	256	1216	32	16	32	8	34	35

PATIENT ID	ORIGIN	AMP	CHL	CIP	GEN	NAL	SMX	TCY	SXT	STR	NEO	CTX	CTC
so316/01	food	128	4	.5	128	256	1216	16	16	32	8	33	33
so106/01	food	128	2	.25	128	8	1216	32	128	32	8	34	34
so111/01	food	128	2	.12	128	256	1216	32	16	64	8	33	33
so164/01	food	128	2	.25	128	256	1216	16	16	32	16	32	33
so187/01	food	128	4	.25	64	256	1216	16	16	32	8	32	34
so185/01	food	128	4	.25	64	256	1216	16	16	16	4	35	35
so173/01	food	128	4	.25	64	256	1216	16	16	16	8	30	30
so224/01	food	128	4	.25	64	256	1216	16	16	16	8	30	31
so258/01	food	128	4	.25	64	256	1216	16	16	16	4	29	30
so105/01	food	2	4	.25	64	256	1216	16	16	16	4	35	35
so1185/01	food	128	4	.25	64	256	1216	16	16	16	4	34	34
so225/01	food	128	4	.5	64	256	1216	16	16	16	4	34	34
so160/01	food	128	4	.5	64	256	1216	32	16	128	4	34	34
so895/01	food	128	8	4	64	256	1216	64	16	128	16	30	31
so188/01	food	128	8	4	64	256	1216	64	16	128	8	31	32
so617/01	food	128	4	4	64	256	1216	32	16	32	8	30	32
so192/01	food	128	4	4	64	256	1216	32	16	16	8	31	35
so129/01	food	128	4	4	64	256	1216	32	16	32	4	33	34
so236/01	food	128	4	4	128	256	1216	32	16	32	8	32	32
so87/01	food	128	4	4	128	256	1216	32	16	32	8	29	31
so260/01	food	128	4	4	64	256	1216	32	16	16	8	34	34
so235/01	food	128	4	4	64	256	1216	32	16	16	4	36	37
so1060/01	food	128	4	4	64	256	1216	16	16	16	4	34	35
so234/01	food	128	4	1	64	256	1216	32	16	32	4	33	33
so306/01	food	128	4	4	64	256	1216	32	16	16	4	32	33
so131/01	food	128	4	4	64	256	1216	16	16	16	4	32	33
so916/01	food	128	128	.5	16	256	1216	16	128	16	8	28	30
so156/01	human	128	128	.5	16	256	1216	16	128	16	8	30	31
sh3605/00	food	128	4	.5	16	256	1216	16	128	32	8	31	31
so619/01	food	128	4	.5	16	256	1216	16	128	32	8	30	30
so2480/00	food	128	4	.5	16	256	608	8	.125	16	8	33	33
sh3508/00	human	128	4	.5	16	256	1216	32	128	32	8	31	31
so1055/01	food	128	4	.5	16	256	1216	8	128	16	8	30	31
so269/01	food	128	4	.5	16	256	1216	16	128	32	8	30	31
so165/01	food	128	128	1	16	256	1216	16	128	128	4	31	31
so110/01	food	4	2	.125	16	256	1216	16	128	16	8	33	34
so190/01	food	4	4	.5	16	256	1216	8	128	16	8	30	32
so183/01	food	128	4	.5	16	256	1216	16	128	32	8	34	35
so201/01	food	128	4	.06	2	256	608	8	.25	32	2	30	31
so1741/01	food	128	4	.5	16	256	1216	8	8	32	16	34	35
so299/01	food	128	2	.5	16	256	152	2	8	4	4	33	33
so2429/00	food	128	4	.5	16	256	1216	8	128	32	8	35	35
so1072/01	food	128	4	.5	16	256	76	16	.125	32	8	30	31
so174/01	food	128	4	.5	16	256	1216	16	128	128	8	29	30
so2151/01	food	128	2	.5	16	256	76	8	2	64	8	31	31
so2202/01	food	128	4	.5	16	256	76	16	.12	16	8	30	31
so2159/01	food	128	64	4	32	256	608	16	.125	32	8	30	30
so226/01	food	128	4	.5	16	256	1216	16	128	16	8	32	33

PATIENT_ID	ORIGIN	AMP	CHL	CIP	GEN	NAL	SMX	TCY	SXT	STR	NEO	CTX	CTC
so189/01	food	128	4	.25	32	256	1216	16	128	32	4	33	33
so1663/01	food	2	4	.25	32	256	1216	8	128	128	4	32	32
so278/01	food	4	8	.25	2	256	1216	16	128	32	2	32	33
so180/01	food	128	128	4	64	256	1216	32	128	128	4	33	33
so1599/01	food	128	128	4	8	256	1216	4	128	16	2	33	33
so1603/01	food	128	128	4	32	256	1216	8	128	128	4	31	32
so1418/01	food	128	128	4	64	256	1216	16	128	64	4	33	34
so1459/01	food	128	4	.25	64	256	1216	16	128	32	4	33	34
so2150/01	food	128	4	.25	32	256	1216	16	128	32	2	33	33
so285/01	food	128	4	1	64	256	1216	16	128	64	4	36	36
so91/01	food	128	4	.25	64	256	1216	16	128	32	4	33	33
so916/01	human	128	4	.25	32	256	1216	16	128	32	4	30	32
so242/01	food	2	8	.03	2	8	1216	16	.25	128	2	32	33
so310/01	food	128	4	.25	32	256	1216	8	128	128	4	33	34
so279/01	food	128	4	.25	64	256	152	16	128	128	4	33	34
so125/01	food	128	4	.25	16	256	1216	8	128	32	2	35	35
so311/01	food	128	4	.25	32	256	76	16	.12	16	4	35	35
so314/01	food	128	128	4	64	256	1216	32	128	128	4	31	31
so113/01	food	128	8	1	2	256	76	16	.5	128	4	33	33
so1803/01	food	128	8	2	2	256	76	8	.12	128	2	31	33
so165/01	human	2	4	.03	2	128	1216	64	.12	128	2	32	32
so177/01	food	128	4	.5	32	256	1216	16	128	128	4	32	32
so2341/01	food	64	8	.5	64	256	1216	64	16	8	4	28	29
so2338/01	food	64	8	1	64	256	1216	64	16	32	4	29	30
so195/01	food	64	4	.25	64	256	1216	64	16	32	4	29	29
so2474/01	food	8	128	1	64	256	1216	64	1	32	8	30	31
so244/00	food	64	4	.25	128	256	76	2	.25	8	8	30	30
so305/02	food	64	4	.25	2	256	1216	64	16	32	2	29	29
so2332/02	food	64	4	.5	64	256	152	2	1	64	8	28	29
so2328/02	food	64	4	.25	2	256	76	2	.25	8	8	31	32
so2270/02	food	64	4	.25	2	256	76	2	.25	8	4	31	31
so2268/02	food	64	4	.25	2	256	76	2	.25	16	4	30	30
so2336/02	food	64	4	.25	2	256	76	2	.25	16	4	29	30
so2335/02	food	64	4	.25	2	256	76	2	.25	8	4	29	29
so2462/02	food	2	2	.5	128	128	76	2	.25	32	32	30	30
so2312/02	food	64	4	.5	2	256	38	2	.125	8	4	26	26
so2349/02	food	64	4	.25	64	256	1216	64	16	16	8	28	29
so2350/02	food	64	4	.25	2	256	1216	128	16	32	2	30	30
so2277/02	food	64	4	.5	2	256	76	2	.25	32	8	29	29
so2347/02	food	64	4	.25	64	256	1216	128	16	32	4	28	29
so2303/02	food	64	4	.5	2	128	76	2	.25	16	4	29	30
so2294/02	food	2	2	.25	8	256	1216	16	16	64	16	29	29
so2263/02	food	64	4	.5	2	256	76	2	.25	8	4	30	31
so2310/02	food	64	4	.5	2	256	76	2	.125	8	4	29	30
so2347/02	food	128	4	.25	128	256	1216	64	16	32	8	29	30
so2256/02	food	128	4	.5	8	256	1216	64	16	128	8	30	32
so1328/02	food	128	4	.25	64	256	1216	64	16	16	4	30	30

PATIENT ID	ORIGIN	AMP	CHL	CIP	GEN	NAL	SMX	TCY	SXT	STR	NEO	CTX	CTC
so1225/02	food	128	2	.25	2	256	76	2	.5	16	2	29	30
so2439/02	food	128	4	.25	2	256	76	2	.25	16	2	30	30
so2422/02	food	128	4	.25	128	256	1216	64	16	16	4	31	32
so1719/02	food	128	8	.25	128	256	1216	64	16	32	4	28	29
so2247/02	food	128	4	.25	2	256	608	128	16	32	2	28	29
so2313/02	food	2	32	.5	2	256	608	128	16	32	2	26	26
so1555/02	food	128	4	.25	128	256	1216	128	16	32	16	28	29
so119/02	food	128	4	.5	64	256	1216	128	16	32	8	29	29
so894/02	food	128	4	.5	128	256	1216	2	16	32	4	28	29
so165/02	food	2	4	.25	8	256	1216	32	16	64	4	34	35
so1794/02	food	2	4	.03	8	128	76	2	.25	32	16	29	30
so174/01	food	128	4	.5	64	256	1216	128	16	16	4	27	30
so176/01	food	128	4	.5	128	256	76	2	1	16	16	28	29
so172/01	food	2	4	.25	2	256	608	64	16	16	2	28	29
so1189//01	food	128	4	.25	128	256	1216	64	16	32	4	34	34
so1684/01	food	128	4	.25	4	256	1216	128	16	32	4	29	30
so259/01	food	2	4	.5	32	256	76	2	.5	8	4	29	30
so1459/02	food	128	4	.25	64	256	76	2	.25	8	8	27	28
so2275/02	food	128	4	.25	4	256	38	2	.125	8	4	27	28
so1060/01	food	128	4	.25	32	256	1216	64	16	16	4	30	30
so1052/01	food	128	4	.25	2	256	76	2	.25	8	4	28	29
so1040/01	food	128	4	.25	128	256	1216	64	16	64	8	31	33
so1384/01	food	2	4	.25	32	256	1216	64	16	8	4	30	33
so128/01	food	128	4	.25	64	256	1216	64	16	16	4	29	29
so189/02	food	128	4	.25	128	256	1216	64	16	32	4	29	32
so164/01	food	128	4	.25	64	256	1216	64	16	16	4	29	29
so171/01	food	2	2	.25	2	256	1216	64	16	64	8	34	38
so158/01	food	128	4	.25	128	256	1216	128	16	32	8	30	30
so184/01	food	2	4	.5	128	256	1216	2	16	32	8	29	30
so151/01	food	2	4	.25	2	256	1216	64	16	32	4	28	31
so3597/00	food	128	16	.5	128	256	76	2	.25	16	8	30	30
so1376/02	food	128	4	.5	64	256	1216	64	16	32	8	31	32
so1459/02	food	128	16	.5	64	256	1216	128	16	32	8	29	31
so179/01	food	2	4	.5	8	256	1216	128	16	64	8	31	31
so2342/02	food	128	4	.25	2	256	76	2	.25	4	2	29	29
so2344/02	food	128	4	.25	64	256	1216	64	16	32	8	30	32
so189/02	food	128	4	.25	64	256	1216	32	16	32	8	31	31
so1749/02	food	128	4	.25	64	256	1216	64	16	16	8	29	31
so119/02	food	2	4	.125	64	256	1216	32	16	8	4	30	30
so276/01	food	2	4	.25	2	256	1216	64	16	64	8	31	31
so221/01	food	2	4	.03	2	8	1216	128	.5	128	2	29	30
so287/01	food	128	4	.125	128	256	1216	64	16	16	8	30	30
so312/01	food	128	4	.25	128	256	1216	64	16	16	8	31	32
so263/01	food	128	128	4	128	256	1216	64	16	128	32	29	30
so219/01	food	4	4	.5	32	256	1216	128	16	32	4	30	32
so111/01	food	128	4	.25	64	256	1216	128	16	16	4	29	32
so1059/01	food	128	4	.5	64	256	1216	128	16	32	4	30	30

PATIENT ID	ORIGIN	AMP	CHL	CIP	GEN	NAL	SMX	TCY	SXT	STR	NEO	CTX	CTC
so2610/00	food	128	8	.5	64	256	1216	128	16	16	8	30	31
so1058/00	food	128	8	.5	128	8	1216	128	16	8	8	28	30
so121/01	food	2	4	.25	64	8	1216	128	16	8	4	31	30
so181/01	food	128	4	.5	64	256	1216	2	16	64	8	30	31
so147/01	food	2	4	.25	4	256	1216	128	16	16	4	28	29
so178/01	food	2	4	.25	2	256	1216	64	16	16	4	30	31
so2325/02	food	128	4	.25	2	256	76	2	.25	16	4	29	30
so2320/02	food	128	4	.25	2	256	76	2	.25	16	4	30	30
so258/00	food	4	4	1	2	256	152	2	.5	16	2	31	32
so2192/01	food	128	4	.5	2	256	304	128	16	16	2	31	31
so190/01	food	128	8	4	128	256	1216	128	16	32	8	29	30
so183/01	food	128	4	.25	32	256	1216	128	16	16	4	30	31
so187/01	food	2	4	.25	64	256	1216	64	16	16	8	30	30
so224/01	food	2	4	.25	128	256	1216	64	16	32	4	32	32
so278/01	food	128	4	.25	16	256	1216	128	16	32	4	30	32
so161/01	food	2	4	.25	2	256	304	128	16	32	4	28	31
so162/01	food	128	4	.5	2	128	1216	16	16	64	8	30	31
so2841/00	food	128	8	.5	32	128	1216	16	16	64	8	29	30
so307/01	food	128	4	.5	64	128	1216	16	16	64	8	30	32
so2271/02	food	128	16	.5	4	128	1216	32	16	64	8	31	32
so2317/02	food	128	4	.5	2	128	1216	2	.5	16	4	29	30
so2360/02	food	128	4	.25	2	128	76	2	.5	16	2	28	30
so3052/02	food	2	4	.312	2	8	1216	2	.5	16	2	29	31
so1187/01	food	128	4	.5	64	128	1216	16	16	32	2	30	31
so3051/02	food	128	4	1	16	128	1216	8	16	16	4	31	32
so2348/02	food	128	4	.5	16	128	1216	16	16	32	4	30	30
so2355/02	food	128	4	.5	2	128	1216	2	.5	16	8	29	30
so2395/02	food	128	4	.5	2	128	1216	2	.5	16	4	30	31
so3030/02	food	4	8	.0312	2	8	1216	2	.5	8	2	31	31
so3484/02	food	128	64	.5	64	128	1216	16	16	64	2	31	32
so119/01	food	4	4	.0312	2	8	1216	2	1	16	2	29	30
so2412/02	food	128	32	2	64	128	76	16	2	128	4	30	31
so2356/02	food	128	16	2	16	128	1216	16	1	128	4	29	30
so898/02	food	128	16	2	128	128	76	64	16	16	8	30	30
so2352/02	food	2	2	.5	64	128	76	32	16	32	4	29	29
so2382/02	human	128	8	1	64	128	1216	16	16	128	2	30	30
so1722/02	food	4	8	.5	32	128	1216	16	16	64	2	32	32
so2547/02	food	8	128	2	32	128	1216	64	2	16	4	30	31