

APPENDIX 1: Details of the 110 Malaysian *Shigella* strains used in this study

No.	<i>Shigella</i>		Year	Place	Source	Virulence-associated gene						
	Code	Strain				set1B	set1A	ial	ipaH	sen		
1.	TH2/00	<i>S. flexneri</i> 3a	2000	Seremban	Stool							
2.	TH3/00	<i>S. flexneri</i> 2a	2000	Alor Star	Stool	•	•	•	•	•	•	•
3.	TH4/00	<i>S. flexneri</i> 2a	2000	Kota Baru	Stool	•	•	•	•	•	•	•
4.	TH5/00	<i>S. flexneri</i> 2a	2000	Alor Star	Stool	•	•	•	•	•	•	•
5.	TH7/00	<i>S. flexneri</i> 3a	2000	K. T'ganu	Stool							
6.	TH8/00	<i>S. flexneri</i> 2a	2000	Kelantan	Stool	•	•	•	•	•	•	•
7.	TH10/00	<i>S. flexneri</i> 2a	2000	P. Pinang	Stool	•	•	•	•	•	•	•
8.	TH11/00	<i>S. flexneri</i> 6	2000	Alor Star	Stool							
9.	TH12/00	<i>S. dysenteriae</i> 2	2000	Ipoh	Stool							
10.	TH13/00	<i>S. flexneri</i> 2a	2000	Ipoh	Stool	•	•	•	•	•	•	•
11.	TH14/00	<i>S. flexneri</i> 2a	2000	HUKM	Stool	•	•	•	•	•	•	•
12.	TH15/00	<i>S. flexneri</i> 2a	2000	Kelantan	Stool							
13.	TH2/99	<i>S. flexneri</i> 1a	1999	Ipoh	Stool							
14.	TH5/99	<i>S. flexneri</i> 2a	1999	Kota Baru	Stool							
15.	TH8/99	<i>S. flexneri</i> 2a	1999	Kota Baru	Stool	•	•	•	•	•	•	•
16.	TH11/99	<i>S. flexneri</i> 4a	1999	Ipoh	Stool	•	•	•	•	•	•	•
17.	TH13/99	<i>S. flexneri</i> 3c	1999	Ipoh	Stool							
18.	TH14/99	<i>S. flexneri</i> 2a	1999	Klang	Stool	•	•	•	•	•	•	•
19.	TH21/99	<i>S. flexneri</i> 2a	1999	T. Intan	Stool	•	•	•	•	•	•	•
20.	TH22/99	<i>S. flexneri</i> 2a	1999	Alor Star	Stool	•	•	•	•	•	•	•
21.	TH23/99	<i>S. flexneri</i> 3a	1999	A. Star	Stool	•	•	•	•	•	•	•
22.	TH1/98	<i>S. flexneri</i> 3a	1998	P. Pinang	Stool							
23.	TH2/98	<i>S. flexneri</i> 3a	1998	P. Pinang	Stool							
24.	TH3/98	<i>S. flexneri</i> 3a	1998	Ipoh	Stool							
25.	TH6/98	<i>S. flexneri</i> 2a	1998	Ipoh	Stool	•	•	•	•	•	•	•

No.	Shigella		Year	Place	Source	Virulence-associated gene				
	Code	Strain				set1B	set1A	ial	ipaH	sen
26.	TH7/98	<i>S. flexneri</i> 3a	1998	Ipoh	Stool			•		
27.	TH9/98	<i>S. flexneri</i> 2a	1998	Ipoh	Stool	•		•		
28.	TH10/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•		•		
29.	TH15/98	<i>S. flexneri</i> 3c	1998	Ipoh	Stool					
30.	TH16/98	<i>S. flexneri</i> 3c	1998	Ipoh	Stool					
31.	TH17/98	<i>S. flexneri</i> 3a	1998	Ipoh	Stool					
32.	TH18/98	<i>S. flexneri</i> 2a	1998	Ipoh	Stool	•		•		
33.	TH19/98	<i>S. flexneri</i> 2a	1998	Ipoh	Stool	•		•		•
34.	TH20/98	<i>S. flexneri</i> 3c	1998	Ipoh	Stool					
35.	TH21/98	<i>S. flexneri</i> 3a	1998	Ipoh	Stool	•	•	•		•
36.	TH22/98	<i>S. flexneri</i> 3a	1998	HUKM	Stool					
37.	TH23/98	<i>S. flexneri</i> 2a	1998	HUKM	Stool	•		•		
38.	TH24/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•		•		
39.	TH25/98	<i>S. flexneri</i> 3c	1998	P. Pinang	Stool					
40.	TH26/98	<i>S. boydii</i> 6	1998	Klang	Stool					
41.	TH27/98	<i>S. flexneri</i> 3c	1998	Ipoh	Stool			•		
42.	TH28/98	<i>S. dysenteriae</i> 2	1998	Ipoh	Stool			•		
43.	TH29/98	<i>S. flexneri</i> 3a	1998	Ipoh	Stool					
44.	TH30/98	<i>S. flexneri</i> 3a	1998	Ipoh	Stool					
45.	TH31/98	<i>S. flexneri</i> 2a	1998	Ipoh	Stool	•		•		•
46.	TH32/98	<i>S. dysenteriae</i> 2	1998	Ipoh	Stool			•		•
47.	TH33/98	<i>S. dysenteriae</i> 2	1998	Ipoh	Stool			•		•
48.	TH34/98	<i>S. flexneri</i> 3c	1998	Ipoh	Stool			•		•
49.	TH35/98	<i>S. dysenteriae</i> 2	1998	Ipoh	Stool			•		•
50.	TH36/98	<i>S. flexneri</i> 3c	1998	Ipoh	Stool					•

No.	Shigella		Year	Place	Source	Virulence-associated gene				
	Code	Strain				set1B	set1A	ial	ipaH	sen
51.	TH37/98	<i>S. dysenteriae</i> 2	1998	Ipoh	Stool			•	•	
52.	TH38/98	<i>S. dysenteriae</i> 2	1998	Ipoh	Stool				•	
53.	TH39/98	<i>S. flexneri</i> 1a	1998	Ipoh	Stool				•	
54.	TH40/98	<i>S. dysenteriae</i> 2	1998	Ipoh	Stool			•	•	
55.	TH41/98	<i>S. flexneri</i> 2a	1998	Ipoh	Stool			•	•	
56.	TH42/98	<i>S. flexneri</i> 3c	1998	Ipoh	Stool			•	•	•
57.	TH43/98	<i>S. flexneri</i> 2a	1998	Ipoh	Stool				•	
58.	TH44/98	<i>S. flexneri</i> 1a	1998	Ipoh	Stool				•	
59.	TH46/98	<i>S. flexneri</i> 3a	1998	J. Baru	Blood	•	•	•	•	
60.	TH47/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•	•	•	•	
61.	TH48/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•	•	•	•	
62.	TH49/98	<i>S. dysenteriae</i> 2	1998	Ipoh	Stool				•	•
63.	TH50/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•	•	•	•	
64.	TH52/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•	•	•	•	•
65.	TH53/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•	•	•	•	•
66.	TH54/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•	•	•	•	•
67.	TH55/98	<i>S. flexneri</i> 2a	1998	Seremban	Stool	•	•	•	•	•
68.	TH56/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•	•	•	•	•
69.	TH57/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•	•	•	•	•
70.	TH58/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•	•	•	•	•
71.	TH59/98	<i>S. flexneri</i> 2a	1998	Ipoh	Stool			•	•	•
72.	TH60/98	<i>S. flexneri</i> 2a	1998	Ipoh	Stool	•	•			•
73.	TH61/98	<i>S. flexneri</i> 2a	1998	P. Pinang	Stool	•	•			•
74.	TH62/98	<i>S. flexneri</i> 2a	1998	HKL	Stool				•	•
75.	TH63/98	<i>S. flexneri</i> 2a	1998	P. Pinang	Stool	•	•			•

No.	<i>Shigella</i>		Year	Place	Source	Virulence-associated gene				
	Code	Strain				set1B	set1A	ial	ipahH	sen
76.	TH64/98	<i>S. flexneri</i> y	1998	Ipoh	Stool				•	
77.	TH65/98	<i>S. flexneri</i> 3a	1998	Ipoh	Stool				•	•
78.	TH67/98	<i>S. flexneri</i> 1b	1998	Ipoh	Stool				•	
79.	TH69/98	<i>S. flexneri</i> 1b	1998	Ipoh	Stool				•	
80.	TH71/98	<i>S. flexneri</i> 1b	1998	Ipoh	Stool				•	
81.	TH72/98	<i>S. flexneri</i> 3c	1998	Ipoh	Stool				•	
82.	TH73/98	<i>S. flexneri</i> 3a	1998	Ipoh	Stool				•	•
83.	TH74/98	<i>S. flexneri</i> 2a	1998	Kota Baru	Stool	•	•	•	•	•
84.	TH2/97	<i>S. flexneri</i> 2a	1997	Ipoh	Stool	•	•	•	•	•
85.	TH5/97	<i>S. flexneri</i> 2a	1997	Ipoh	Stool	•	•	•	•	•
86.	TH10/97	<i>S. flexneri</i> 2a	1997	Ipoh	Stool	•	•	•	•	•
87.	TH13/97	<i>S. flexneri</i> 2a	1997	Ipoh	Stool	•	•	•	•	•
88.	TH14/97	<i>S. flexneri</i> 2a	1997	Ipoh	Stool	•	•	•	•	•
89.	TH15/97	<i>S. flexneri</i> 2a	1997	HKL	Stool	•	•	•	•	•
90.	TH17/97	<i>S. flexneri</i> 2a	1997	Ipoh	Stool	•	•	•	•	•
91.	TH19/97	<i>S. flexneri</i> 3a	1997	Ipoh	Stool			•	•	•
92.	TH20/97	<i>S. flexneri</i> 3a	1997	HKL	Stool			•	•	•
93.	TH21/97	<i>S. flexneri</i> 3a	1997	HKL	Stool			•	•	•
94.	TH23/97	<i>S. dysenteriae</i> 2	1997	Ipoh	Stool			•	•	•
95.	TH24/97	<i>S. flexneri</i> 2a	1997	HUKM	Stool	•	•	•	•	•
96.	TC1/00	<i>S. sonnei</i>	2000	HUKM	Stool			•	•	•
97.	TC2/00	<i>S. sonnei</i>	2000	Klang	Stool			•	•	•
98.	TC4/00	<i>S. sonnei</i>	2000	Kota Baru	Stool			•	•	•
99.	TC5/00	<i>S. sonnei</i>	2000	K. T. ganu	Stool			•	•	•
100.	TC1/99	<i>S. sonnei</i>	1999	Kota Baru	Stool			•	•	•

No.	<i>Shigella</i>		Year	Place	Source	Virulence-associated gene				
	Code	Strain				<i>set1B</i>	<i>set1A</i>	<i>ial</i>	<i>ipaH</i>	<i>sen</i>
101.	TC2/99	<i>S. sonnei</i>	1999	Ipoh	Stool				•	
102.	TC3/99	<i>S. sonnei</i>	1999	Alor Star	Stool					
103.	TC4/99	<i>S. sonnei</i>	1999	Ipoh	Stool				•	
104.	TC2/98	<i>S. sonnei</i>	1998	Ipoh	Stool			•		
105.	TC3/98	<i>S. sonnei</i>	1998	Ipoh	Stool				•	
106.	TC4/98	<i>S. sonnei</i>	1998	Ipoh	Stool				•	
107.	TC1/97	<i>S. sonnei</i>	1997	J. Baru	Stool			•		
108.	TC2/97	<i>S. sonnei</i>	1997	HKL	Stool				•	
109.	TC3/97	<i>S. sonnei</i>	1997	HKL	Stool				•	
110.	TC5/97	<i>S. sonnei</i>	1997	Sg. Petani	Stool		•			•

• denotes presence of gene

## APPENDIX 2

### STANDARD NUCLEOTIDE-NUCLEOTIDE BLAST SEARCH RESULTS

#### *set1B*

□ >gi|791133|emb|Z47381.1|SF2AETX1 S.flexneri 2a set1A and set1B genes for enterotoxin 1  
Length = 1098

Score = 208 bits (105), Expect = 1e-51  
Identities = 112/113 (99%), Gaps = 1/113 (0%)  
Strand = Plus / Plus

Query: 1 ggttcagcgtaatat-cccttcatactggctcctgtcattccaggtgtccgggacagagg 59  
|||||  
Sbjct: 104 ggttcagcgtaatatcccttcatactggctcctgtcattccaggtgtccgggacagagg 163

Query: 60 taccttccctccggaatgacataaattcctgttcctgcatTTTTATCCACAAT 112  
|||||  
Sbjct: 164 taccttccctccggaatgacataaattcctgttcctgcatTTTTATCCACAAT 216

#### *set1A*

□ >gi|791133|emb|Z47381.1|SF2AETX1 S.flexneri 2a set1A and set1B genes for enterotoxin 1  
Length = 1098

Score = 391 bits (197), Expect = e-106  
Identities = 197/197 (100%)  
Strand = Plus / Plus

Query: 1 caggatcctatctcttactgtctgaaactgctttgtttttgttcatgcccaaaaactccca 60  
|||||  
Sbjct: 573 caggatcctatctcttactgtctgaaactgctttgtttttgttcatgcccaaaaactccca 632

Query: 61 ctgagccggatcattcaggtgttccccacagagtggtaccatagctggcagatttcag 120  
|||||  
Sbjct: 633 ctgagccggatcattcaggtgttccccacagagtggtaccatagctggcagatttcag 692

Query: 121 aatatagaagcgggtctggctgttgagtatcatgctgtacaggttccctggagtgcgggt 180  
|||||  
Sbjct: 693 aatatagaagcgggtctggctgttgagtatcatgctgtacaggttccctggagtgcgggt 752

Query: 181 accaccnaagggggata 197  
|||||  
Sbjct: 753 accaccnaagggggata 769

ial

Γ >gi|287439|db|D13663.1|SHFPMYSH Shigella flexneri plasmid pMYSH6000 DNA, region-5 contains complete cds  
Length = 7874

Score = 363 bits (183), Expect = 6e-98  
Identities = 186/187 (99%)  
Strand = Plus / Plus

Query: 1 tttagattggctccattatctttcttcttccatttttaataacgggtataaattctcca 60  
|||||  
Sbjct: 5473 tttagattggctccattatctttcttcttccatttttaataacgggtataaattctcca 5532

Query: 61 tctattagaataacctgtgatcttctctgttgcacaggttaattactcttggaaggta 120  
|||||  
Sbjct: 5533 tctattagaataacctgtgatcttctctgttgcacaggttaattactcttggaaggta 5592

Query: 121 gacataggtctctctgtctttgaaacatgtttatttccttatgttcaaggaataatggt 180  
|||||  
Sbjct: 5593 gacataggtctctctgtctttgaaacatgtttatttccttatgttcaaggaataatggt 5652

Query: 181 ggctccc 187  
|||||  
Sbjct: 5653 ggctccc 5659

ipaH

Γ >gi|152751|gb|M76445.1|SHFIPAHZ Shigella flexneri ipaH gene, 5'end  
Length = 1992

Score = 525 bits (265), Expect = e-146  
Identities = 265/265 (100%)  
Strand = Plus / Minus

Query: 1 cggcagtgccggaggtcatttgcgtcactcccacacggccatagaaaagcatttcctca 60  
|||||  
Sbjct: 1441 cggcagtgccggaggtcatttgcgtcactcccacacggccatagaaaagcatttcctca 1382

Query: 61 cggcagtgccggagagctgaagtctctctgcgagcattggtctggaagccaggttagacttcta 120  
|||||  
Sbjct: 1381 cggcagtgccggagagctgaagtctctctgcgagcattggtctggaagccaggttagacttcta 1322

Query: 121 tctcaccacaaaaatggagagttctgactttatcccgggcaatgtcctccagaatttcca 180  
|||||  
Sbjct: 1321 tctcaccacaaaaatggagagttctgactttatcccgggcaatgtcctccagaatttcca 1262

Query: 181 ggccgaacatttcctcgtcccagggagagcagagcggcggatcattatcgaaaagccct 240  
|||||  
Sbjct: 1261 ggccgaacatttcctcgtcccagggagagcagagcggcggatcattatcgaaaagccct 1202

Query: 241 ctgatgcctgatggaccaggagggt 265  
|||||  
Sbjct: 1201 ctgatgcctgatggaccaggagggt 1177

sen

┌>gi|1109753|emb|Z54211.1|ECSHET2B S.flexneri senA gene (isolate 2457T)  
Length = 2940

Score = 406 bits (205), Expect = e-111  
Identities = 205/205 (100%)  
Strand = Plus / Minus

Query: 1 aaactgactgtagataatcttcttgatgaaaaacatcagaaatgttatggctcttatatcc 60  
|||||  
Sbjct: 1349 aaactgactgtagataatcttcttgatgaaaaacatcagaaatgttatggctcttatatcc 1290

Query: 61 gacggtatgtctatatttgggacagacatactccaacaagcatgtcctccataatcaga 120  
|||||  
Sbjct: 1289 gacggtatgtctatatttgggacagacatactccaacaagcatgtcctccataatcaga 1230

Query: 121 tggcctgataatcttactcaccaccaagttatttatcacgcgatgcggtatgggattgact 180  
|||||  
Sbjct: 1229 tggcctgataatcttactcaccaccaagttatttatcacgcgatgcggtatgggattgact 1170

Query: 181 gagctaataccaaaaagtaacaagag 205  
|||||  
Sbjct: 1169 gagctaataccaaaaagtaacaagag 1145