

Supplemental Table 1 (V = virus; S = serum)

Vaccine Virus	Field Virus	Map Distance		Vaccine Virus	Field Virus	Map Distance	
		V-S	V-V			V-S	V-V
ERI/3/98	ARG/81	3.42	3.86	IRN/05	ARG/81	1.14	2.08
	BAR02/09	3.50	4.03		BAR02/09	0.32	1.20
	CRUZ/55	1.90	1.79		CRUZ/55	4.64	5.58
	EGY/72	2.96	3.35		EGY/72	1.64	2.68
	EGY01/06	1.16	1.43		EGY01/06	2.77	3.76
	ERI/98	0.67	0.67		ERI/98	3.99	3.44
	ETH09/08	2.98	2.94		ETH09/08	3.95	5.02
	GER/29	2.47	2.24		GER/29	3.90	4.87
	IRN/05	4.27	4.86		IRN/05	1.07	1.07
	IRN/96	2.75	2.75		IRN/96	3.75	4.31
	IRN01/05	2.92	3.44		IRN01/05	0.82	1.89
	IRN07/04	3.34	3.92		IRN07/04	0.54	1.37
	IRN10/03	1.13	1.59		IRN10/03	2.44	3.32
	IRN22/99	1.45	1.65		IRN22/99	3.03	4.06
	IRN23/09	3.09	3.64		IRN23/09	2.72	2.72
	IRN31/05	3.12	3.70		IRN31/05	0.60	1.56
	IRN32/01	3.20	3.29		IRN32/01	3.71	4.76
	IRN36/07	3.13	3.71		IRN36/07	1.77	1.78
	IRN41/03	3.10	3.50		IRN41/03	1.97	2.32
	IRQ/64	3.54	3.93		IRQ/64	1.40	2.26
	IRQ24/09	4.10	4.63		IRQ24/09	1.22	0.84
	KEN/64	2.71	3.05		KEN/64	1.81	2.56
	KEN/65	2.85	2.57		KEN/65	5.14	6.18
	KEN/66	2.05	2.11		KEN/66	3.26	4.32
	KEN01/03	4.31	4.23		KEN01/03	4.58	5.58
	KEN22/09	1.68	1.59		KEN22/09	3.55	4.59
	LAO7/06	2.02	2.60		LAO7/06	3.36	3.86
	LIB14/09	3.99	4.52		LIB14/09	0.90	0.88
	MAI/97	1.92	2.44		MAI/97	3.55	4.21
	NGR/73	2.47	2.34		NGR/73	4.37	5.42
	PAK02/09	3.37	3.86		PAK02/09	0.83	1.80
	PAK23/09	3.97	4.47		PAK23/09	2.74	2.44
	SAU15/05	3.67	4.26		SAU15/05	1.28	0.97
	SUD/77	3.62	4.00		SUD/77	1.99	2.23
	SUD01/06	2.93	2.76		SUD01/06	4.59	5.65
	TAI/60	2.52	2.22		TAI/60	4.46	5.51
	TAI/87	2.19	1.99		TAI/87	3.87	4.90
	TAI01/06	2.51	3.06		TAI01/06	3.09	3.31
	TOG09/05	2.82	2.69		TOG09/05	4.16	5.23
	TUR04/06	2.04	2.69		TUR04/06	1.94	2.47
TUR20/06	2.53	3.13	TUR20/06	2.07	2.33		
TUR24/07	3.56	4.06	TUR24/07	0.56	1.39		
UGA/66	2.44	3.06	UGA/66	2.20	2.49		
UK/32	4.49	4.85	UK/32	4.18	3.96		
VIT04/04	2.57	3.11	VIT04/04	0.92	1.94		

Vaccine Virus	Field Virus	Map Distance		Vaccine Virus	Field Virus	Map Distance	
		V-S	V-V			V-S	V-V
IRN1/96	ARG/81	3.72	3.71	IRQ24/64	ARG/81	0.50	0.42
	BAR02/09	3.64	3.66		BAR02/09	0.93	1.12
	CRUZ/55	3.82	4.47		CRUZ/55	4.65	4.57
	EGY/72	3.55	3.62		EGY/72	1.07	0.90
	EGY01/06	2.18	2.59		EGY01/06	2.55	2.53
	ERI/98	2.07	4.28		ERI/98	3.92	3.93
	ETH09/08	4.07	2.56		ETH09/08	3.32	3.12
	GER/29	2.53	2.75		GER/29	3.15	3.07
	IRN/05	4.29	4.31		IRN/05	2.05	2.26
	IRN/96	0.83	0.83		IRN/96	3.42	3.55
	IRN01/05	3.44	3.58		IRN01/05	1.04	1.09
	IRN07/04	3.88	4.04		IRN07/04	1.49	1.59
	IRN10/03	1.79	2.25		IRN10/03	2.43	2.48
	IRN22/99	2.85	3.26		IRN22/99	2.79	2.71
	IRN23/09	2.78	3.14		IRN23/09	3.51	3.73
	IRN31/05	3.70	3.88		IRN31/05	1.39	1.46
	IRN32/01	4.43	4.66		IRN32/01	3.18	2.96
	IRN36/07	2.90	3.11		IRN36/07	2.60	2.83
	IRN41/03	2.21	2.04		IRN41/03	1.98	2.21
	IRQ/64	3.65	3.55		IRQ/64	0.27	0.27
	IRQ24/09	3.75	3.66		IRQ24/09	1.81	2.07
	KEN/64	2.23	2.10		KEN/64	1.33	1.48
	KEN/65	4.39	4.84		KEN/65	4.80	4.66
	KEN/66	3.18	3.46		KEN/66	2.78	2.65
	KEN01/03	4.91	4.86		KEN01/03	3.62	3.39
	KEN22/09	2.74	3.07		KEN22/09	3.10	3.01
	LAO7/06	3.36	4.07		LAO7/06	4.08	4.17
	LIB14/09	3.78	3.69		LIB14/09	1.36	1.61
	MAI/97	3.69	4.40		MAI/97	4.14	4.17
	NGR/73	4.02	4.44		NGR/73	4.03	3.89
	PAK02/09	3.73	3.77		PAK02/09	0.70	0.72
	PAK23/09	3.16	3.20		PAK23/09	3.40	3.66
	SAU15/05	3.55	3.66		SAU15/05	2.28	2.52
	SUD/77	2.69	2.38		SUD/77	1.82	2.07
	SUD01/06	4.30	4.64		SUD01/06	4.11	3.94
	TAI/60	3.50	3.76		TAI/60	3.87	3.74
	TAI/87	2.89	3.09		TAI/87	3.25	3.14
	TAI01/06	2.77	3.36		TAI01/06	3.87	4.04
	TOG09/05	3.92	4.15		TOG09/05	3.55	3.37
	TUR04/06	2.64	3.11		TUR04/06	2.67	2.81
TUR07/08	2.96	3.50	TUR07/08	2.96	3.08		
TUR20/06	2.61	3.01	TUR20/06	2.86	3.05		
TUR24/07	3.69	3.67	TUR24/07	0.70	0.88		
UGA/66	2.74	3.21	UGA/66	3.03	3.21		
UK/32	3.26	3.29	UK/32	4.69	4.94		
VIT04/04	3.04	3.23	VIT04/04	1.24	1.34		

Vaccine Virus	Field Virus	Map Distance		Vaccine Virus	Field Virus	Map Distance	
		V-S	V-V			V-S	V-V
MAI/97	ARG/81	3.67	3.87	IRN/99	BAR02/09	2.36	3.03
	BAR02/09	3.48	3.76		EGY/72	1.62	1.94
	CRUZ/55	2.55	2.24		ERI/98	1.77	1.65
	EGY/72	3.38	3.52		IRN/05	3.35	4.06
	EGY01/06	2.50	2.54		IRN/96	2.64	3.26
	ERI/98	2.51	2.44		IRN07/04	2.31	2.86
	ETH09/08	3.99	3.89		IRN22/99	0.88	0.88
	GER/29	4.16	4.15		IRN23/09	3.10	3.86
	IRN/05	3.86	4.21		IRN32/01	2.39	1.77
	IRN/96	4.22	4.40		IRQ/64	2.19	2.71
	IRN01/05	2.96	3.19		IRQ24/09	3.16	3.96
	IRN07/04	2.97	3.24		KEN01/03	3.39	2.98
	IRN10/03	2.28	2.42		LIB14/09	2.94	3.69
	IRN22/99	2.52	2.47		MAI/97	2.51	2.47
	IRN23/09	2.83	3.21		PAK02/09	2.11	2.64
	IRN31/05	2.86	3.12		PAK23/09	3.66	4.52
	IRN32/01	3.87	3.77		SUD/77	2.74	3.58
	IRN36/07	2.92	3.30		SUD01/06	2.67	1.83
	IRN41/03	3.74	4.04		TOG09/05	2.29	1.58
	IRQ/64	3.97	4.17		TUR04/06	1.83	2.49
	IRQ24/09	4.05	4.39	TUR07/08	2.01	2.54	
	KEN/64	3.57	3.80	TUR20/06	2.35	3.10	
	KEN/65	3.85	3.59	UGA/66	2.37	3.06	
	KEN/66	3.17	3.11				
	KEN01/03	5.41	5.35				
	KEN22/09	3.16	3.09				
	LAO7/06	0.57	0.87				
	LIB14/09	4.00	4.32				
	MAI/97	0.41	0.41				
	NGR/73	3.41	3.19				
	PAK02/09	3.47	3.69				
	PAK23/09	3.94	4.32				
	SAU15/05	3.32	3.69				
	SUD/77	4.23	4.53				
	SUD01/06	3.93	3.74				
	TAI/60	3.98	3.84				
	TAI/87	3.75	3.69				
	TAI01/06	1.99	2.35				
	TOG09/05	3.97	3.85				
	TUR04/06	1.69	2.05				
TUR20/06	2.26	2.64					
TUR24/07	3.63	3.89					
UGA/66	1.97	2.36					
UK/32	4.69	5.04					
VIT04/04	2.69	2.93					

Table 2 Supplement

Name given	History of virus	Propagations carried out	Name given	History of virus	Propagations carried out
ARG/81	BHK4 e/t	RS3	KEN/42/66	GP lymph e/t BTY2	RS3
BAR/2/2009	BTY1 e/t RS1	RS2	KEN/46/65	BHK6	RS2
BRA/55	C7 BHK2 BHK4 BHK1	RS1	LAO/7/2006	LK2 BHK1 BTY1 e/t	RS1
EGY/1/2006	BTY1 e/t	RS1	LIB/14/2009	BTY1 e/t RS1	RS2
EGY/1/72	BTY1 e/t	RS2	May-97	Medial vv #VS12	RS4
ERI/98	Medial vv	RS3	NGR/2/73	BTY3 e/t	RS2
ETH/9/2008	BTY1 e/t RS1	RS2	PAK/2/2009	BTY1 e/t RS1	RS2
GER/29	GP lymph, PP3 e/t BTY BHK3 RS1	RS2	PAK/23/2009	RS2 e/t RS1	RS2
IRN/05	BTY1 e/t RS1 BHK4	RS1	POR/01/83	CK2 e/t	RS1
IRN/1/2005	BHK1 e/t	RS2	SAU/15/2005	BTY1 e/t	RS1
IRN/96	Medial vv #VS13	RS2	SUD/1/2006	BTY2 e/t RS1	RS2
IRN/10/2003	BTY2	RS1	SUD/3/77	RS3 e/t	RS2
IRN/99	Medial vv BTY1 e/t BHK1	RS4	TAI/1/2006	BHK4 BTY1 e/t BHK1	RS1
IRN/23/2009	BTY1 e/t RS1	RS2	TAI/118/87	vv, RS7	RS8
IRN/31/2005	BTY1 e/t	RS1	TAI/60	Medial vv #VS15, RS3	RS4
IRN/32/2001	BTY1 e/t	RS1	TOG/9/2005	BTY1 e/t	RS1
IRN/36/2007	BTY1 e/t RS1	RS2	TUR/04/2006	BTY1 e/t RS1	RS2
IRN/41/2003	BTY1 e/t	RS1	TUR/20/2006	BTY1 e/t RS2	RS3
IRN/7/2004	BTY2 e/t	RS1	TUR/24/2007	BTY1 e/t RS2	RS3
IRQ/24/2009	BTY1 e/t RS1	RS2	TUR/7/2008	BTY1 e/t RS1	RS2
IRQ/24/64	BTY1 BHK15 BHK2	RS2	UGA/13/66	e/t BTY3 BHK3	RS2
KEN/1/2003	BTY1 e/t	RS1	UK/32	Cattle filtered pp3 BTY BHK3	RS2
KEN/22/2009	BTY1 e/t RS1	RS2	VIT/4/2004	BTY1 e/t	RS1
KEN/3/64	GP lymph e/t BTY2	RS3			

The following abbreviations were used for the virus history data: BHK = baby hamster kidney cells, BTY = bovine thyroid cells, C = cattle passage, CK = cattle kidney cells, e/t = ether treated, GP lymph = guinea pig lymph, LK = primary lamb kidney cells, PP = plaque picked, RS = renal swine cells and vv = vaccine virus.