

FAO World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD)

Genotyping Report

FMDV serotype: O
Country: Malaysia
Year: 2016, 2017, 2018
Batch: WRLFMD/2018/00021
No. of sequences: 11
Report date: 29th August 2018
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



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www: <http://www.wrlfmd.org/>

email: reporting@pirbright.ac.uk

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Virus sample name:	MAY/12/2016
Sender reference:	MVKKB 4489/16
Location of origin:	Batang Melaka, Jasin, Jasin, Melaka
Country of origin:	Malaysia
Date of collection:	15/09/2016
Host species:	cattle
Serotype:	O
Topotype:	SEA
Lineage:	Mya-98
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37151, genome 37152, sequence viba_37153, sequencing info 37154	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30165	MAY/10/2016	cattle	99.8	0	O	SEA	Mya-98	
viba_30161	MAY/9/2016	cattle	99.8	0	O	SEA	Mya-98	
viba_26304	TAI/28/2015	cattle	99.2	0	O	SEA	Mya-98	
viba_31460	VIT/7/2016	cattle	99.2	0	O	SEA	Mya-98	
viba_31452	VIT/4/2016	porcine	99.2	0	O	SEA	Mya-98	
viba_31456	VIT/5/2016	cattle	99.2	0	O	SEA	Mya-98	
viba_31468	VIT/9/2016	cattle	98.9	0	O	SEA	Mya-98	
viba_23841	TAI/4/2016	cattle	98.9	0	O	SEA	Mya-98	
viba_23803	LAO/2/2016	water buffalo	98.9	0	O	SEA	Mya-98	
viba_31476	VIT/11/2016	porcine	98.7	0	O	SEA	Mya-98	

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_199	MYA/7/98	bovine	92.1	0	O	SEA	Mya-98	
viba_68	TAI/189/87	bovine	88.8	0	O	SEA		
viba_576	IND/R2/75		87.0	0	O	ME-SA		
viba_694	CAM/3/98	bovine	86.3	0	O	SEA	Cam-94	
viba_359	Manisa/TUR/69		85.7	0	O	ME-SA		
viba_719	IRN/88/2009		85.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_397	UAE/4/2008	gazelle	85.6	0	O	ME-SA	Ind-2001	c
viba_617	IND/53/79	bovine	85.5	0	O	ME-SA		
viba_705	KUW/3/97	bovine	85.5	0	O	ME-SA	Ind-2001	a
viba_505	TUR/264/2009		85.5	0	O	ME-SA	PanAsia-2	SAN-09

Virus sample name:	MAY/13/2016
Sender reference:	MVKKB 5527/16
Location of origin:	Kuala Krau, Temerloh, Temerloh, Pahang
Country of origin:	Malaysia
Date of collection:	29/11/2016
Host species:	gaur (Indian bison)
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37155, genome 37156, sequence viba_37157, sequencing info 37158	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_31573	170206/SKR/2017	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_31947	SKR/1/2017	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_31082	BAN/GKa-236(pig)/2015	porcine	99.1	0	O	ME-SA	Ind-2001	e
viba_31951	SKR/2/2017	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_31565	170205/SKR/2017	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_31599	Zabaikalskiy/4/RUS/2016	cattle	98.9	0	O	ME-SA	Ind-2001	e
viba_37025	XJ/CHA/2017	cattle	98.9	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	93.4	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	92.7	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.5	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.9	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	89.0	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	88.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	88.5	0	O	ME-SA	PanAsia-2	
viba_719	IRN/88/2009		88.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_666	IRN/18/2010	cattle	88.2	0	O	ME-SA	PanAsia-2	BAL-09
viba_491	TUR/257/2008		88.0	0	O	ME-SA	PanAsia-2	TER-08

Virus sample name:	MAY/1/2017
Sender reference:	MVKKB 1081/17
Location of origin:	Londah, Tampin, Gemas, Negeri Sembilan
Country of origin:	Malaysia
Date of collection:	27/02/2017
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37159, genome 37160, sequence viba_37161, sequencing info 37162	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37165	MAY/2/2017	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_37173	MAY/4/2017	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_37169	MAY/3/2017	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	98.4	0	O	ME-SA	Ind-2001	e
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	98.4	0	O	ME-SA	Ind-2001	e
viba_31599	Zabaikalskiy/4/RUS/2016	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_31082	BAN/GKa-236(pig)/2015	porcine	98.3	0	O	ME-SA	Ind-2001	e
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_37177	MAY/1/2018	cattle	98.1	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	93.2	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.6	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.7	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.1	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.2	0	O	ME-SA	PanAsia	
viba_359	Manisa/TUR/69		87.4	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	87.2	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		87.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.1	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	86.9	0	O	ME-SA		

Virus sample name:	MAY/2/2017
Sender reference:	MVKKB 1206/17
Location of origin:	Pondok Kempas, Jasin, Selandar, Melaka
Country of origin:	Malaysia
Date of collection:	01/03/2017
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37163, genome 37164, sequence viba_37165, sequencing info 37166	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37173	MAY/4/2017	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_37169	MAY/3/2017	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_37161	MAY/1/2017	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_37177	MAY/1/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_31599	Zabaikalskiy/4/RUS/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_31082	BAN/GKa-236(pig)/2015	porcine	98.1	0	O	ME-SA	Ind-2001	e
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	93.0	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.5	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.5	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.0	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.0	0	O	ME-SA	PanAsia	
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	87.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		86.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	86.9	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	86.7	0	O	ME-SA		

Virus sample name:	MAY/3/2017
Sender reference:	MVKKB 1126/17
Location of origin:	Bendang Nering, Batu Kurau, Batu Kurau, Perak
Country of origin:	Malaysia
Date of collection:	03/03/2017
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37167, genome 37168, sequence viba_37169, sequencing info 37170	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37165	MAY/2/2017	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_37173	MAY/4/2017	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_37161	MAY/1/2017	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_37177	MAY/1/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_31599	Zabaikalskiy/4/RUS/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_31082	BAN/GKa-236(pig)/2015	porcine	98.1	0	O	ME-SA	Ind-2001	e
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	93.0	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.5	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.5	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.0	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.0	0	O	ME-SA	PanAsia	
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	87.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		86.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	86.9	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	86.7	0	O	ME-SA		

Virus sample name:	MAY/4/2017
Sender reference:	MVKKB 1208/17
Location of origin:	Lubuk Bandung, Jasin, Chabau, Melaka
Country of origin:	Malaysia
Date of collection:	06/03/2017
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37171, genome 37172, sequence viba_37173, sequencing info 37174	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37165	MAY/2/2017	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_37169	MAY/3/2017	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_37161	MAY/1/2017	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_37177	MAY/1/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_31599	Zabaikalskiy/4/RUS/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_31082	BAN/GKa-236(pig)/2015	porcine	98.1	0	O	ME-SA	Ind-2001	e
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	93.0	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.5	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.5	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.0	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.0	0	O	ME-SA	PanAsia	
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	87.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		86.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	86.9	0	O	ME-SA	PanAsia-2	
viba_617	IND/53/79	bovine	86.7	0	O	ME-SA		

Virus sample name:	MAY/1/2018
Sender reference:	MVKKB 302/18
Location of origin:	Kampong Jorak Illahi, Batu Pahat, Batu Pahat, Johor
Country of origin:	Malaysia
Date of collection:	13/02/2018
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37175, genome 37176, sequence viba_37177, sequencing info 37178	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37165	MAY/2/2017	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_37173	MAY/4/2017	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_37169	MAY/3/2017	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_37161	MAY/1/2017	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_31599	Zabaikalskiy/4/RUS/2016	cattle	97.2	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	97.0	0	O	ME-SA	Ind-2001	e
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	97.0	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	96.8	0	O	ME-SA	Ind-2001	e
viba_31082	BAN/GKa-236(pig)/2015	porcine	96.8	0	O	ME-SA	Ind-2001	e
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	96.8	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	91.5	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	90.5	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	89.3	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	88.0	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	87.7	0	O	ME-SA	PanAsia	
viba_617	IND/53/79	bovine	86.7	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	86.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		86.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	86.6	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	86.6	0	O	ME-SA	PanAsia-2	BAL-09

Virus sample name:	MAY/2/2018
Sender reference:	MVKKB 255/18
Location of origin:	Kampong Segantian Garam, Kuala Muda, Bujang, Kedah
Country of origin:	Malaysia
Date of collection:	14/02/2018
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37179, genome 37180, sequence viba_37181, sequencing info 37182	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37189	MAY/4/2018	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_37185	MAY/3/2018	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_37193	MAY/5/2018	water buffalo	99.1	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_32128	XJPS/CHA/2017		98.1	0	O	ME-SA	Ind-2001	e
viba_32441	MYA/9/2017	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	97.9	0	O	ME-SA	Ind-2001	e
viba_31541	BHU/2/2016	cattle	97.9	0	O	ME-SA	Ind-2001	e
viba_31573	170206/SKR/2017	cattle	97.9	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	93.2	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	92.3	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.3	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.9	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.8	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	88.2	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	88.0	0	O	ME-SA	PanAsia-2	
viba_359	Manisa/TUR/69		88.0	0	O	ME-SA		
viba_666	IRN/18/2010	cattle	87.8	0	O	ME-SA	PanAsia-2	BAL-09
viba_719	IRN/88/2009		87.6	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	MAY/3/2018
Sender reference:	MVKKB 650/18
Location of origin:	Kampong Hulu Jabor, Kemaman, Jabor, Terengganu
Country of origin:	Malaysia
Date of collection:	04/04/2018
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37183, genome 37184, sequence viba_37185, sequencing info 37186	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37189	MAY/4/2018	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_37181	MAY/2/2018	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_37193	MAY/5/2018	water buffalo	99.2	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	98.4	0	O	ME-SA	Ind-2001	e
viba_32128	XJPS/CHA/2017		98.3	0	O	ME-SA	Ind-2001	e
viba_32441	MYA/9/2017	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_31541	BHU/2/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_31573	170206/SKR/2017	cattle	98.1	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	93.4	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	92.4	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.5	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.1	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.7	0	O	ME-SA	PanAsia	
viba_359	Manisa/TUR/69		88.2	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	88.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	87.9	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	87.7	0	O	ME-SA	PanAsia-2	BAL-09
viba_719	IRN/88/2009		87.5	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	MAY/4/2018
Sender reference:	MVKKB 627/18
Location of origin:	Kampong Sg Karang Darat, Kuantan, Sungai Karang, Pahang
Country of origin:	Malaysia
Date of collection:	20/04/2018
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37187, genome 37188, sequence viba_37189, sequencing info 37190	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37185	MAY/3/2018	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_37181	MAY/2/2018	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_37193	MAY/5/2018	water buffalo	99.2	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	98.4	0	O	ME-SA	Ind-2001	e
viba_32128	XJPS/CHA/2017		98.3	0	O	ME-SA	Ind-2001	e
viba_32441	MYA/9/2017	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_31541	BHU/2/2016	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_31573	170206/SKR/2017	cattle	98.1	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	93.4	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	92.4	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.5	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.1	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.7	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	88.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	87.9	0	O	ME-SA	PanAsia-2	
viba_359	Manisa/TUR/69		87.8	0	O	ME-SA		
viba_666	IRN/18/2010	cattle	87.7	0	O	ME-SA	PanAsia-2	BAL-09
viba_719	IRN/88/2009		87.5	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	MAY/5/2018
Sender reference:	MVKKB 824/18
Location of origin:	Jalan Kahang, Kluang, Kahang, Johor
Country of origin:	Malaysia
Date of collection:	30/05/2018
Host species:	water buffalo
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/08/2018
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	20/08/2018
Created:	29/08/2018
Last updated:	29/08/2018
VIBASys IDs: sample 37191, genome 37192, sequence viba_37193, sequencing info 37194	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37189	MAY/4/2018	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_37185	MAY/3/2018	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_37181	MAY/2/2018	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	97.9	0	O	ME-SA	Ind-2001	e
viba_32128	XJPS/CHA/2017		97.8	0	O	ME-SA	Ind-2001	e
viba_32441	MYA/9/2017	cattle	97.8	0	O	ME-SA	Ind-2001	e
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	97.8	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	97.6	0	O	ME-SA	Ind-2001	e
viba_31541	BHU/2/2016	cattle	97.6	0	O	ME-SA	Ind-2001	e
viba_31573	170206/SKR/2017	cattle	97.6	0	O	ME-SA	Ind-2001	e

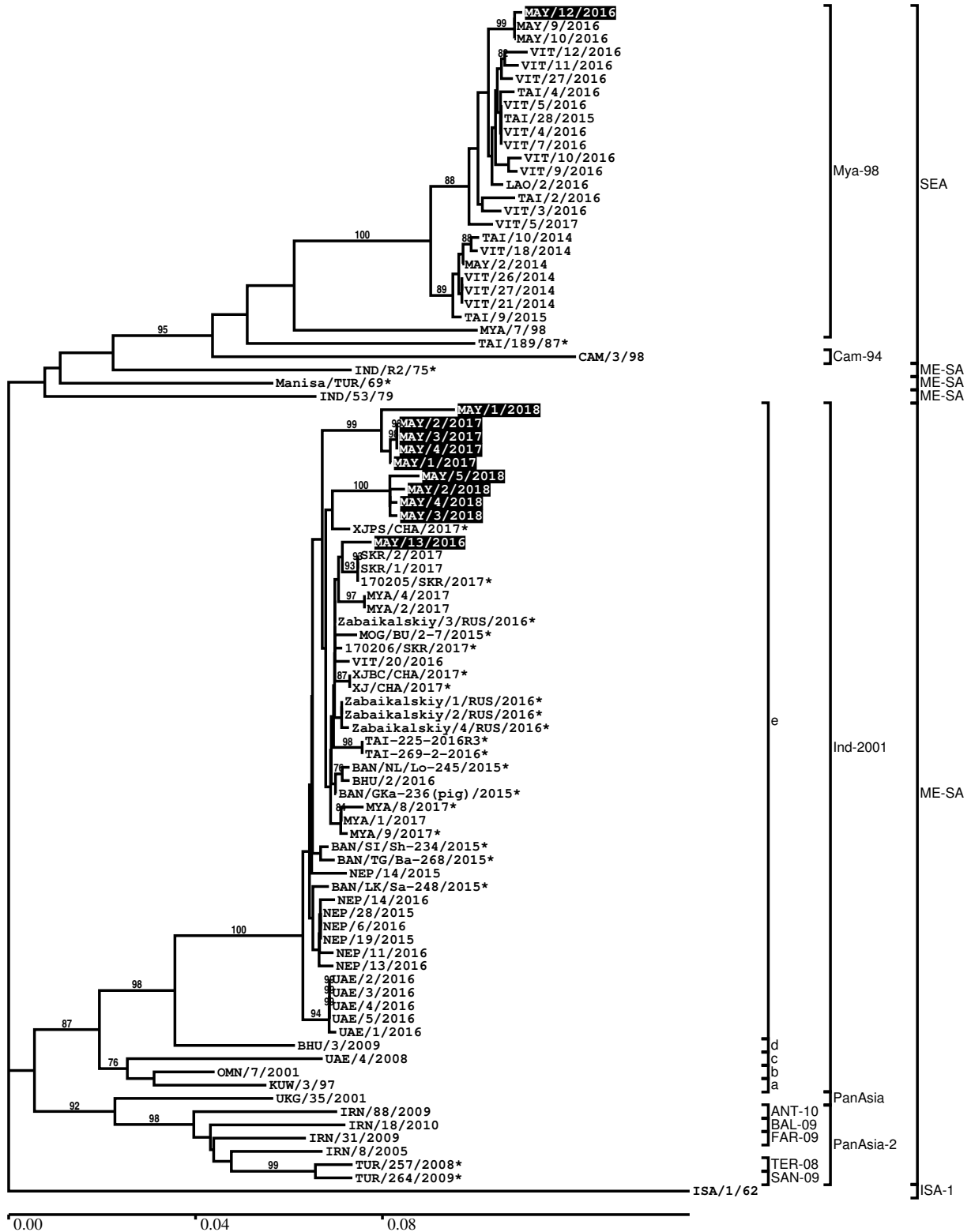
Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_293	BHU/3/2009	cattle	92.9	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	92.0	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.0	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.6	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.5	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	87.7	0	O	ME-SA	PanAsia-2	
viba_359	Manisa/TUR/69		87.7	0	O	ME-SA		
viba_666	IRN/18/2010	cattle	87.5	0	O	ME-SA	PanAsia-2	BAL-09
viba_719	IRN/88/2009		87.3	0	O	ME-SA	PanAsia-2	ANT-10

Report on FMDV O in Malaysia in 2016, 2017, 2018

Batch: WRLFMD/2018/00021



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLFMD/2018/00021-Malaysia-O (11 sequences)
Sequence database set:	allseqs_O (3842 sequences)
Prototype sequence set:	!prototypes_O (48 sequences)
Number of related sequences reported:	10
Minimal VP1 subsequence match length	600
Sequence alignment method:	muscle (default parameters)
Sequence alignment length:	636
Phylogeny reconstruction method:	fdnadist, fneighbor
Number of bootstrap samples:	1000
Random seed for bootstrapping:	1
Displaying bootstrap values above:	70.0%
Number of sequences in tree capped at:	100
Number of prototype sequences in tree:	17
VIBASys version:	reflabs-1.1.2

Sequences in the Phylogenetic Tree

All sequences in the tree are in taxonomic group FMDV/O

label	accession	host(s)	lab	country	taxonomic information
MAY/12/2016	n/a	cattle	WRLFMD	Malaysia	SEA/Mya-98
MAY/9/2016	n/a	cattle	WRLFMD	Malaysia	SEA/Mya-98
MAY/10/2016	n/a	cattle	WRLFMD	Malaysia	SEA/Mya-98
VIT/12/2016	n/a	porcine	WRLFMD	Vietnam	SEA/Mya-98
VIT/11/2016	n/a	porcine	WRLFMD	Vietnam	SEA/Mya-98
VIT/27/2016	n/a	bovine	WRLFMD	Vietnam	SEA/Mya-98
TAI/4/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
VIT/5/2016	n/a	cattle	WRLFMD	Vietnam	SEA/Mya-98
TAI/28/2015	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
VIT/4/2016	n/a	porcine	WRLFMD	Vietnam	SEA/Mya-98
VIT/7/2016	n/a	cattle	WRLFMD	Vietnam	SEA/Mya-98
VIT/10/2016	n/a	cattle	WRLFMD	Vietnam	SEA/Mya-98
VIT/9/2016	n/a	cattle	WRLFMD	Vietnam	SEA/Mya-98
LAO/2/2016	n/a	water buffalo	WRLFMD	Laos	SEA/Mya-98
TAI/2/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
VIT/3/2016	n/a	cattle	WRLFMD	Vietnam	SEA/Mya-98
VIT/5/2017	n/a	porcine	WRLFMD	Vietnam	SEA/Mya-98
TAI/10/2014	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
VIT/18/2014	n/a	cattle	WRLFMD	Vietnam	SEA/Mya-98
MAY/2/2014	n/a	cattle	WRLFMD	Malaysia	SEA/Mya-98
VIT/26/2014	n/a	cattle	WRLFMD	Vietnam	SEA/Mya-98
VIT/27/2014	n/a	cattle	WRLFMD	Vietnam	SEA/Mya-98
VIT/21/2014	n/a	cattle	WRLFMD	Vietnam	SEA/Mya-98
TAI/9/2015	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
MYA/7/98	DQ164925	bovine	WRLFMD	Myanmar	SEA/Mya-98
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
CAM/3/98	AJ294910	bovine	WRLFMD	Cambodia	SEA/Cam-94
IND/R2/75*	AF204276	n/a	PD-FMD	India	ME-SA
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	ME-SA
IND/53/79	AF292107	bovine	PD-FMD	India	ME-SA
MAY/1/2018	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/2/2017	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/3/2017	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/4/2017	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/1/2017	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/5/2018	n/a	water buffalo	WRLFMD	Malaysia	ME-SA/Ind-2001/e

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label	accession	host(s)	lab	country	taxonomic information
MAY/2/2018	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/4/2018	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/3/2018	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
XJPS/CHA/2017*	KY696707	n/a	LVRI	China	ME-SA/Ind-2001/e
MAY/13/2016	n/a	gaur (Indian bison)	WRLFMD	Malaysia	ME-SA/Ind-2001/e
SKR/2/2017	MG972600	cattle	WRLFMD	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
SKR/1/2017	MG972599	cattle	WRLFMD	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
170205/SKR/2017*	n/a	cattle	QIA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
MYA/4/2017	MG972519	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e
MYA/2/2017	MG972518	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e
Zabaikalskiy/3/RUS/2016*	MG972584	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
MOG/BU/2-7/2015*	LC320038	cattle	NIAH-Japan	Mongolia	ME-SA/Ind-2001/e
170206/SKR/2017*	n/a	cattle	QIA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
VIT/20/2016	MG972619	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
XJBC/CHA/2017*	KY696708	n/a	LVRI	China	ME-SA/Ind-2001/e
XJ/CHA/2017*	MF461724	cattle	LVRI	China	ME-SA/Ind-2001/e
Zabaikalskiy/1/RUS/2016*	MG983720	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
Zabaikalskiy/2/RUS/2016*	MG972583	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
Zabaikalskiy/4/RUS/2016*	MG972585	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
TAI-225-2016R3*	MG972601	cattle	TRRL	Thailand	ME-SA/Ind-2001/e
TAI-269-2-2016*	MG972602	cattle	TRRL	Thailand	ME-SA/Ind-2001/e
BAN/NL/Lo-245/2015*	KY077611	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
BHU/2/2016	MG972480	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/e
BAN/GKa-236(pig)/2015*	KX712091	porcine	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
MYA/8/2017*	MG972522	water buffalo	TRRL	Myanmar	ME-SA/Ind-2001/e
MYA/1/2017	MG972517	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e
MYA/9/2017*	MG972523	cattle	TRRL	Myanmar	ME-SA/Ind-2001/e
BAN/SI/Sh-234/2015*	KY077610	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
BAN/TG/Ba-268/2015*	KY077621	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
NEP/14/2015	MG972546	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
BAN/LK/Sa-248/2015*	KY077612	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
NEP/14/2016	MG972562	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/28/2015	KY449052	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/6/2016	KY449054	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/19/2015	KY449051	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/11/2016	MG972559	goats	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/13/2016	MG972561	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
UAE/2/2016	MG972607	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/e
UAE/3/2016	MG972608	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/e
UAE/4/2016	MG972609	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/e
UAE/5/2016	MG972610	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/e
UAE/1/2016	MG972606	cattle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/e
BHU/3/2009	KM921814	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
UAE/4/2008	KM921876	gazelle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/c
OMN/7/2001	DQ164941	bovine	WRLFMD	Oman	ME-SA/Ind-2001/b
KUW/3/97	DQ164904	bovine	WRLFMD	Kuwait	ME-SA/Ind-2001/a
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
IRN/88/2009	KY091282	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/18/2010	KY091283	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/BAL-09
IRN/31/2009	KY091284	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/FAR-09
IRN/8/2005	KY091281	ovine	WRLFMD	Iran	ME-SA/PanAsia-2
TUR/257/2008*	n/a	n/a	FMDI-Ankara	Turkey	ME-SA/PanAsia-2/TER-08

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label	accession	host(s)	lab	country	taxonomic information
TUR/264/2009*	n/a	n/a	FMDI-Ankara	Turkey	ME-SA/PanAsia-2/SAN-09
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

*, not a WRLFMD Reference Number

n/a, not available