

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

Genotyping Report

FMDV serotype: O
Country: Cambodia
Year: 2019
Batch: WRLMEG/2021/00016
No. of sequences: 13
Report date: 2nd December 2021
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



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email: reporting@pirbright.ac.uk

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Virus sample name:	CAM2/2019
Sender reference:	CAM2/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	21/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49061, genome 49062, sequence viba_49063, sequencing info 49064	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49071	CAM4/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49075	CAM5/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49067	CAM3/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49083	CAM8/2019	cattle	99.7	0	O	ME-SA	PanAsia	
viba_40580	VIT/5/2018	porcine	99.5	0	O	ME-SA	PanAsia	
viba_49079	CAM7/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49087	CAM9/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49095	CAM12/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49091	CAM11/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49099	CAM13/2019	cattle	99.5	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.3	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	91.2	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	90.7	0	O	ME-SA	Ind-2001	a
viba_541	OMN/7/2001	bovine	90.0	0	O	ME-SA	Ind-2001	b
viba_505	TUR/264/2009		89.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_397	UAE/4/2008	gazelle	89.6	0	O	ME-SA	Ind-2001	c
viba_30238	MUR/19/2016	cattle	89.6	0	O	ME-SA	Ind-2001	e
viba_766	IRN/31/2009	cattle	89.4	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	89.4	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08

Virus sample name:	CAM3/2019
Sender reference:	CAM3/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	21/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49065, genome 49066, sequence viba_49067, sequencing info 49068	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49071	CAM4/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49075	CAM5/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49063	CAM2/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49083	CAM8/2019	cattle	99.7	0	O	ME-SA	PanAsia	
viba_40580	VIT/5/2018	porcine	99.5	0	O	ME-SA	PanAsia	
viba_49079	CAM7/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49087	CAM9/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49095	CAM12/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49091	CAM11/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49099	CAM13/2019	cattle	99.5	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.3	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	91.2	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	90.7	0	O	ME-SA	Ind-2001	a
viba_541	OMN/7/2001	bovine	90.0	0	O	ME-SA	Ind-2001	b
viba_505	TUR/264/2009		89.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_397	UAE/4/2008	gazelle	89.6	0	O	ME-SA	Ind-2001	c
viba_30238	MUR/19/2016	cattle	89.6	0	O	ME-SA	Ind-2001	e
viba_766	IRN/31/2009	cattle	89.4	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	89.4	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08

Virus sample name:	CAM4/2019
Sender reference:	CAM4/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	21/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49069, genome 49070, sequence viba_49071, sequencing info 49072	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49075	CAM5/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49067	CAM3/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49063	CAM2/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49083	CAM8/2019	cattle	99.7	0	O	ME-SA	PanAsia	
viba_40580	VIT/5/2018	porcine	99.5	0	O	ME-SA	PanAsia	
viba_49079	CAM7/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49087	CAM9/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49095	CAM12/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49091	CAM11/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49099	CAM13/2019	cattle	99.5	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.3	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	91.2	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	90.7	0	O	ME-SA	Ind-2001	a
viba_541	OMN/7/2001	bovine	90.0	0	O	ME-SA	Ind-2001	b
viba_505	TUR/264/2009		89.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_397	UAE/4/2008	gazelle	89.6	0	O	ME-SA	Ind-2001	c
viba_30238	MUR/19/2016	cattle	89.6	0	O	ME-SA	Ind-2001	e
viba_766	IRN/31/2009	cattle	89.4	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	89.4	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08

Virus sample name:	CAM5/2019
Sender reference:	CAM5/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	21/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49073, genome 49074, sequence viba_49075, sequencing info 49076	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49071	CAM4/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49067	CAM3/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49063	CAM2/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49083	CAM8/2019	cattle	99.7	0	O	ME-SA	PanAsia	
viba_40580	VIT/5/2018	porcine	99.5	0	O	ME-SA	PanAsia	
viba_49079	CAM7/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49087	CAM9/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49095	CAM12/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49091	CAM11/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49099	CAM13/2019	cattle	99.5	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.3	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	91.2	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	90.7	0	O	ME-SA	Ind-2001	a
viba_541	OMN/7/2001	bovine	90.0	0	O	ME-SA	Ind-2001	b
viba_505	TUR/264/2009		89.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_397	UAE/4/2008	gazelle	89.6	0	O	ME-SA	Ind-2001	c
viba_30238	MUR/19/2016	cattle	89.6	0	O	ME-SA	Ind-2001	e
viba_766	IRN/31/2009	cattle	89.4	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	89.4	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08

Virus sample name:	CAM7/2019
Sender reference:	CAM7/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	22/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49077, genome 49078, sequence viba_49079, sequencing info 49080	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49087	CAM9/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49095	CAM12/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49091	CAM11/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49099	CAM13/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49083	CAM8/2019	cattle	99.8	0	O	ME-SA	PanAsia	
viba_49071	CAM4/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49075	CAM5/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49067	CAM3/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49063	CAM2/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_40580	VIT/5/2018	porcine	99.1	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.2	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	90.7	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	90.5	0	O	ME-SA	Ind-2001	a
viba_505	TUR/264/2009		89.7	0	O	ME-SA	PanAsia-2	SAN-09
viba_541	OMN/7/2001	bovine	89.6	0	O	ME-SA	Ind-2001	b
viba_491	TUR/257/2008		89.4	0	O	ME-SA	PanAsia-2	TER-08
viba_650	IRN/8/2005	ovine	89.3	0	O	ME-SA	PanAsia-2	
viba_30238	MUR/19/2016	cattle	89.2	0	O	ME-SA	Ind-2001	e
viba_397	UAE/4/2008	gazelle	89.1	0	O	ME-SA	Ind-2001	c
viba_359	Manisa/TUR/69		89.0	0	O	ME-SA		

Virus sample name:	CAM8/2019
Sender reference:	CAM8/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	22/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49081, genome 49082, sequence viba_49083, sequencing info 49084	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49079	CAM7/2019	cattle	99.8	0	O	ME-SA	PanAsia	
viba_49087	CAM9/2019	cattle	99.8	0	O	ME-SA	PanAsia	
viba_49095	CAM12/2019	cattle	99.8	0	O	ME-SA	PanAsia	
viba_49091	CAM11/2019	cattle	99.8	0	O	ME-SA	PanAsia	
viba_49099	CAM13/2019	cattle	99.8	0	O	ME-SA	PanAsia	
viba_49071	CAM4/2019	cattle	99.7	0	O	ME-SA	PanAsia	
viba_49075	CAM5/2019	cattle	99.7	0	O	ME-SA	PanAsia	
viba_49067	CAM3/2019	cattle	99.7	0	O	ME-SA	PanAsia	
viba_49063	CAM2/2019	cattle	99.7	0	O	ME-SA	PanAsia	
viba_40580	VIT/5/2018	porcine	99.2	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.0	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	90.8	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	90.4	0	O	ME-SA	Ind-2001	a
viba_541	OMN/7/2001	bovine	89.7	0	O	ME-SA	Ind-2001	b
viba_505	TUR/264/2009		89.6	0	O	ME-SA	PanAsia-2	SAN-09
viba_397	UAE/4/2008	gazelle	89.3	0	O	ME-SA	Ind-2001	c
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08
viba_30238	MUR/19/2016	cattle	89.3	0	O	ME-SA	Ind-2001	e
viba_359	Manisa/TUR/69		89.1	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	89.1	0	O	ME-SA	PanAsia-2	FAR-09

Virus sample name:	CAM9/2019
Sender reference:	CAM9/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	22/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49085, genome 49086, sequence viba_49087, sequencing info 49088	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49079	CAM7/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49095	CAM12/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49091	CAM11/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49099	CAM13/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49083	CAM8/2019	cattle	99.8	0	O	ME-SA	PanAsia	
viba_49071	CAM4/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49075	CAM5/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49067	CAM3/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49063	CAM2/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_40580	VIT/5/2018	porcine	99.1	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.2	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	90.7	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	90.5	0	O	ME-SA	Ind-2001	a
viba_505	TUR/264/2009		89.7	0	O	ME-SA	PanAsia-2	SAN-09
viba_541	OMN/7/2001	bovine	89.6	0	O	ME-SA	Ind-2001	b
viba_491	TUR/257/2008		89.4	0	O	ME-SA	PanAsia-2	TER-08
viba_650	IRN/8/2005	ovine	89.3	0	O	ME-SA	PanAsia-2	
viba_30238	MUR/19/2016	cattle	89.2	0	O	ME-SA	Ind-2001	e
viba_397	UAE/4/2008	gazelle	89.1	0	O	ME-SA	Ind-2001	c
viba_359	Manisa/TUR/69		89.0	0	O	ME-SA		

Virus sample name:	CAM11/2019
Sender reference:	CAM11/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	27/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49089, genome 49090, sequence viba_49091, sequencing info 49092	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49079	CAM7/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49087	CAM9/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49095	CAM12/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49099	CAM13/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49083	CAM8/2019	cattle	99.8	0	O	ME-SA	PanAsia	
viba_49071	CAM4/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49075	CAM5/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49067	CAM3/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49063	CAM2/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_40580	VIT/5/2018	porcine	99.1	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.2	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	90.7	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	90.5	0	O	ME-SA	Ind-2001	a
viba_505	TUR/264/2009		89.7	0	O	ME-SA	PanAsia-2	SAN-09
viba_541	OMN/7/2001	bovine	89.6	0	O	ME-SA	Ind-2001	b
viba_491	TUR/257/2008		89.4	0	O	ME-SA	PanAsia-2	TER-08
viba_650	IRN/8/2005	ovine	89.3	0	O	ME-SA	PanAsia-2	
viba_30238	MUR/19/2016	cattle	89.2	0	O	ME-SA	Ind-2001	e
viba_397	UAE/4/2008	gazelle	89.1	0	O	ME-SA	Ind-2001	c
viba_359	Manisa/TUR/69		89.0	0	O	ME-SA		

Virus sample name:	CAM12/2019
Sender reference:	CAM12/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	27/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49093, genome 49094, sequence viba_49095, sequencing info 49096	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49079	CAM7/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49087	CAM9/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49091	CAM11/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49099	CAM13/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49083	CAM8/2019	cattle	99.8	0	O	ME-SA	PanAsia	
viba_49071	CAM4/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49075	CAM5/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49067	CAM3/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49063	CAM2/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_40580	VIT/5/2018	porcine	99.1	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.2	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	90.7	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	90.5	0	O	ME-SA	Ind-2001	a
viba_505	TUR/264/2009		89.7	0	O	ME-SA	PanAsia-2	SAN-09
viba_541	OMN/7/2001	bovine	89.6	0	O	ME-SA	Ind-2001	b
viba_491	TUR/257/2008		89.4	0	O	ME-SA	PanAsia-2	TER-08
viba_650	IRN/8/2005	ovine	89.3	0	O	ME-SA	PanAsia-2	
viba_30238	MUR/19/2016	cattle	89.2	0	O	ME-SA	Ind-2001	e
viba_397	UAE/4/2008	gazelle	89.1	0	O	ME-SA	Ind-2001	c
viba_359	Manisa/TUR/69		89.0	0	O	ME-SA		

Virus sample name:	CAM13/2019
Sender reference:	CAM13/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	27/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49097, genome 49098, sequence viba_49099, sequencing info 49100	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49079	CAM7/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49087	CAM9/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49095	CAM12/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49091	CAM11/2019	cattle	100.0	0	O	ME-SA	PanAsia	
viba_49083	CAM8/2019	cattle	99.8	0	O	ME-SA	PanAsia	
viba_49071	CAM4/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49075	CAM5/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49067	CAM3/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_49063	CAM2/2019	cattle	99.5	0	O	ME-SA	PanAsia	
viba_40580	VIT/5/2018	porcine	99.1	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.2	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	90.7	0	O	ME-SA	Ind-2001	d
viba_705	KUW/3/97	bovine	90.5	0	O	ME-SA	Ind-2001	a
viba_505	TUR/264/2009		89.7	0	O	ME-SA	PanAsia-2	SAN-09
viba_541	OMN/7/2001	bovine	89.6	0	O	ME-SA	Ind-2001	b
viba_491	TUR/257/2008		89.4	0	O	ME-SA	PanAsia-2	TER-08
viba_650	IRN/8/2005	ovine	89.3	0	O	ME-SA	PanAsia-2	
viba_30238	MUR/19/2016	cattle	89.2	0	O	ME-SA	Ind-2001	e
viba_397	UAE/4/2008	gazelle	89.1	0	O	ME-SA	Ind-2001	c
viba_359	Manisa/TUR/69		89.0	0	O	ME-SA		

Virus sample name:	CAM22/2019
Sender reference:	CAM22/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	21/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49101, genome 49102, sequence viba_49103, sequencing info 49104	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_45030	VIT/12/2020	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_45057	VIT/22/2019	cattle	99.4	0	O	ME-SA	Ind-2001	e
viba_47287	LAO/2/2020	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_47299	LAO/5/2020	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_48005	MAY/35/2020(2)	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_47291	LAO/3/2020	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_47316	TAI/4/2020	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_45065	VIT/33/2019	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_45022	VIT/7/2020	porcine	99.2	0	O	ME-SA	Ind-2001	e
viba_44999	VIT/32/2019	cattle	99.2	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30238	MUR/19/2016	cattle	95.6	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.5	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.3	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	89.9	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	88.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	88.3	0	O	ME-SA	PanAsia-2	
viba_719	IRN/88/2009		88.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_285	UKG/35/2001	porcine	88.2	0	O	ME-SA	PanAsia	
viba_666	IRN/18/2010	cattle	87.7	0	O	ME-SA	PanAsia-2	BAL-09

Virus sample name:	CAM29/2019
Sender reference:	CAM29/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	22/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49105, genome 49106, sequence viba_49107, sequencing info 49108	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47287	LAO/2/2020	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_47299	LAO/5/2020	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_48005	MAY/35/2020(2)	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_47291	LAO/3/2020	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_47316	TAI/4/2020	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_45022	VIT/7/2020	porcine	99.7	0	O	ME-SA	Ind-2001	e
viba_44983	VIT/27/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44979	VIT/25/2019	porcine	99.7	0	O	ME-SA	Ind-2001	e
viba_44987	VIT/28/2019	water buffalo	99.7	0	O	ME-SA	Ind-2001	e
viba_47295	LAO/4/2020	cattle	99.7	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30238	MUR/19/2016	cattle	95.7	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.7	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	90.9	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	89.6	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	88.5	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		88.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_650	IRN/8/2005	ovine	87.9	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	87.2	0	O	ME-SA	PanAsia-2	BAL-09

Virus sample name:	CAM30/2019
Sender reference:	CAM30/2019
Location of origin:	Kampong Speu
Country of origin:	Cambodia
Date of collection:	22/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	02/12/2021
Last updated:	02/12/2021
VIBASys IDs: sample 49109, genome 49110, sequence viba_49111, sequencing info 49112	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47287	LAO/2/2020	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_47299	LAO/5/2020	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_48005	MAY/35/2020(2)	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_47291	LAO/3/2020	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_47316	TAI/4/2020	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_45022	VIT/7/2020	porcine	99.8	0	O	ME-SA	Ind-2001	e
viba_44983	VIT/27/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44979	VIT/25/2019	porcine	99.8	0	O	ME-SA	Ind-2001	e
viba_44987	VIT/28/2019	water buffalo	99.8	0	O	ME-SA	Ind-2001	e
viba_47295	LAO/4/2020	cattle	99.8	0	O	ME-SA	Ind-2001	e

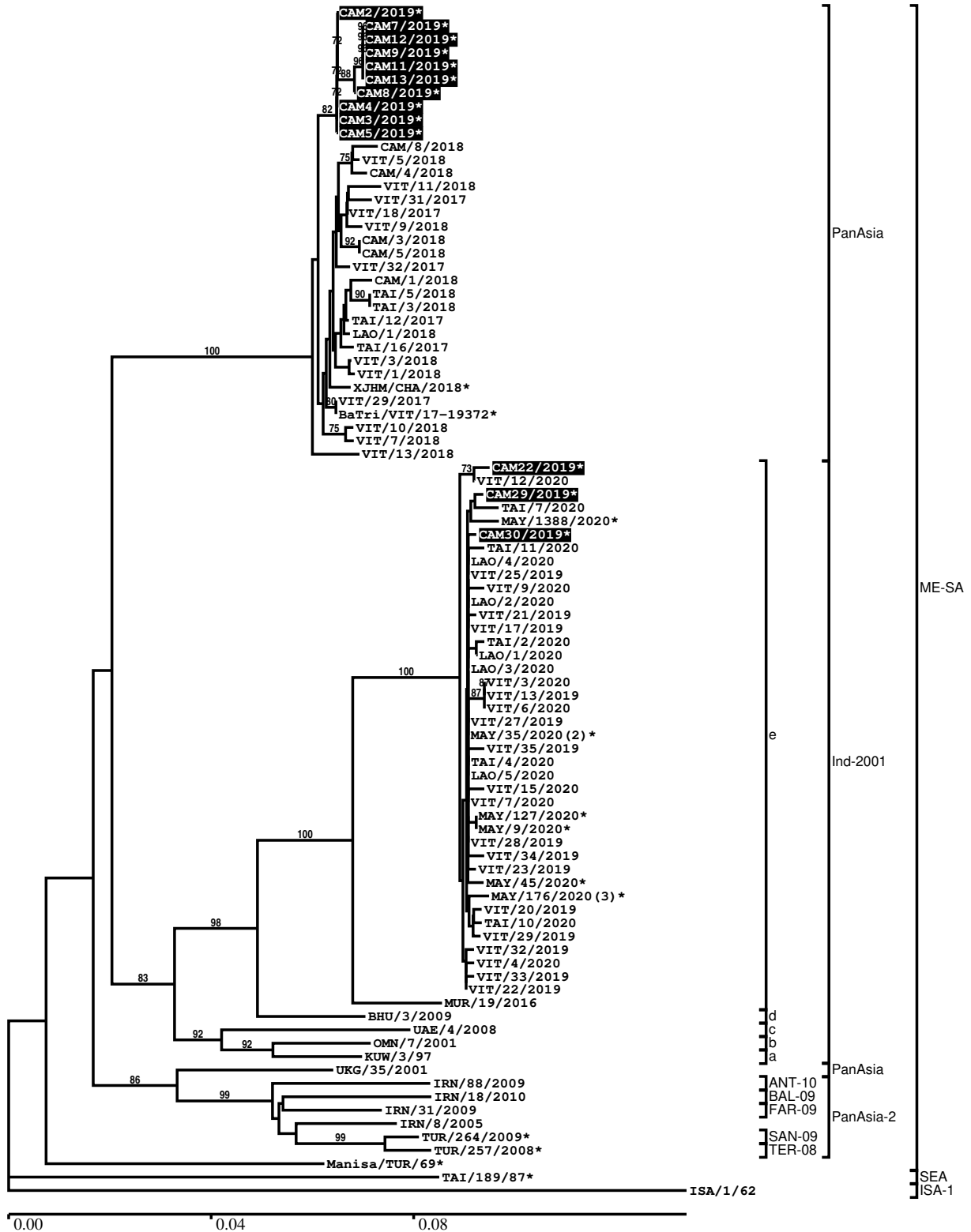
Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmd-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30238	MUR/19/2016	cattle	95.9	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.8	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.0	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	89.7	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	88.3	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.0	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	87.7	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	87.4	0	O	ME-SA	PanAsia-2	BAL-09

Report on FMDV O in Cambodia in 2019

Batch: WRLMEG/2021/00016



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLMEG/2021/00016-Cambodia-O (13 sequences)
Sequence database set:	allseqs_O (5376 sequences)
Prototype sequence set:	!prototypes_O (49 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:	13
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
CAM2/2019*	OK107516	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM7/2019*	OK107520	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM12/2019*	OK107524	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM9/2019*	OK107522	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM11/2019*	OK107523	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM13/2019*	OK107525	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM8/2019*	OK107521	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM4/2019*	OK107518	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM3/2019*	OK107517	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM5/2019*	OK107519	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM/8/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
VIT/5/2018	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
CAM/4/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
VIT/11/2018	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/31/2017	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/18/2017	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/9/2018	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
CAM/3/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
CAM/5/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
VIT/32/2017	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
CAM/1/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
TAI/5/2018	n/a	cattle	WRLFMD	Thailand	ME-SA/PanAsia
TAI/3/2018	n/a	cattle	WRLFMD	Thailand	ME-SA/PanAsia
TAI/12/2017	n/a	cattle	WRLFMD	Thailand	ME-SA/PanAsia
LAO/1/2018	n/a	cattle	WRLFMD	Laos	ME-SA/PanAsia
TAI/16/2017	n/a	cattle	WRLFMD	Thailand	ME-SA/PanAsia
VIT/3/2018	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/1/2018	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
XJHM/CHA/2018*	MH807443	cattle	LVRI	China	ME-SA/PanAsia
VIT/29/2017	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
BaTri/VIT/17-19372*	n/a	cattle	RAHO6	Vietnam	ME-SA/PanAsia
VIT/10/2018	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/7/2018	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/13/2018	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/PanAsia
CAM22/2019*	MZ634454	cattle	APQA	Cambodia	ME-SA/Ind-2001/e
VIT/12/2020	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e

continued on next page

label	accession	host(s)	lab	country	taxonomic information
CAM29/2019*	MZ634455	cattle	APQA	Cambodia	ME-SA/Ind-2001/e
TAI/7/2020	n/a	cattle	WRLFMD	Thailand	ME-SA/Ind-2001/e
MAY/1388/2020*	n/a	cattle	MNFMDL	Malaysia	ME-SA/Ind-2001/e
CAM30/2019*	MZ634456	cattle	APQA	Cambodia	ME-SA/Ind-2001/e
TAI/11/2020	n/a	cattle	WRLFMD	Thailand	ME-SA/Ind-2001/e
LAO/4/2020	n/a	cattle	WRLFMD	Laos	ME-SA/Ind-2001/e
VIT/25/2019	n/a	porcine	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/9/2020	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
LAO/2/2020	n/a	cattle	WRLFMD	Laos	ME-SA/Ind-2001/e
VIT/21/2019	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/17/2019	n/a	porcine	WRLFMD	Vietnam	ME-SA/Ind-2001/e
TAI/2/2020	n/a	cattle	WRLFMD	Thailand	ME-SA/Ind-2001/e
LAO/1/2020	n/a	cattle	WRLFMD	Laos	ME-SA/Ind-2001/e
LAO/3/2020	n/a	cattle	WRLFMD	Laos	ME-SA/Ind-2001/e
VIT/3/2020	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/13/2019	n/a	porcine	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/6/2020	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/27/2019	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
MAY/35/2020(2)*	n/a	cattle	MNFMDL	Malaysia	ME-SA/Ind-2001/e
VIT/35/2019	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
TAI/4/2020	n/a	cattle	WRLFMD	Thailand	ME-SA/Ind-2001/e
LAO/5/2020	n/a	cattle	WRLFMD	Laos	ME-SA/Ind-2001/e
VIT/15/2020	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/7/2020	n/a	porcine	WRLFMD	Vietnam	ME-SA/Ind-2001/e
MAY/127/2020*	n/a	cattle	MNFMDL	Malaysia	ME-SA/Ind-2001/e
MAY/9/2020*	n/a	cattle	MNFMDL	Malaysia	ME-SA/Ind-2001/e
VIT/28/2019	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/34/2019	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/23/2019	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/Ind-2001/e
MAY/45/2020*	n/a	cattle	MNFMDL	Malaysia	ME-SA/Ind-2001/e
MAY/176/2020(3)*	n/a	cattle	MNFMDL	Malaysia	ME-SA/Ind-2001/e
VIT/20/2019	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/Ind-2001/e
TAI/10/2020	n/a	cattle	WRLFMD	Thailand	ME-SA/Ind-2001/e
VIT/29/2019	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/32/2019	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/4/2020	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/33/2019	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
VIT/22/2019	n/a	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
MUR/19/2016	MG972510	cattle	WRLFMD	Mauritius	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/264/2009*	n/a	n/a	FMDI-Ankara	Turkey	ME-SA/PanAsia-2/SAN-09
TUR/257/2008*	n/a	n/a	FMDI-Ankara	Turkey	ME-SA/PanAsia-2/TER-08
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	ME-SA
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

*, not a WRLFMD Reference Number

n/a, not available