

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

## Genotyping Report

FMDV serotype: O  
Country: Palestinian AT  
Year: 2019  
Batch: WRLFMD/2019/00026  
No. of sequences: 2  
Report date: 26th June 2019  
Report generated by: Nick Knowles  
Report checked by: Jemma Wadsworth



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

email: [reporting@pirbright.ac.uk](mailto:reporting@pirbright.ac.uk)

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Virus sample name:	PAT/3/2019
Sender reference:	347345 (19)
Location of origin:	Hebron
Country of origin:	Palestinian AT
Date of collection:	04/04/2019
Host species:	goat
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	QOM-15
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	14/06/2019
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	24/06/2019
Created:	26/06/2019
Last updated:	26/06/2019

VIBASys IDs: sample 42301, genome 42302, sequence viba\_42303, sequencing info 42304

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_42307	PAT/4/2019	goat	100.0	0	O	ME-SA	PanAsia-2	QOM-15
viba_41222	Bani Naim/347345/PAT/2019	goat	100.0	0	O	ME-SA	PanAsia-2	QOM-15
viba_39900	ISR/34/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_36404	ISR/2/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_36255	Gazit/317556-470/ISR/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_39868	ISR/26/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_39848	ISR/14/2018	gazelle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_39896	ISR/33/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_39844	ISR/13/2018	gazelle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_36408	ISR/3/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15

### Most Closely Related Prototype Sequences

see [http://www.wrlfmd.org/fmd\\_genotyping/prototypes.htm](http://www.wrlfmd.org/fmd_genotyping/prototypes.htm)

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_860	IRN/6/2015	cattle	96.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_666	IRN/18/2010	cattle	93.4	0	O	ME-SA	PanAsia-2	BAL-09
viba_766	IRN/31/2009	cattle	91.9	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	91.6	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		91.0	0	O	ME-SA	PanAsia-2	TER-08
viba_719	IRN/88/2009		91.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_850	NEP/1/2015	cattle	90.7	1	O	ME-SA	PanAsia-2	KAT-15
viba_354	PAK/16/2010	cattle	90.2	0	O	ME-SA	PanAsia-2	PUN-10
viba_505	TUR/264/2009		90.0	0	O	ME-SA	PanAsia-2	SAN-09
viba_285	UKG/35/2001	porcine	88.8	0	O	ME-SA	PanAsia	

Virus sample name:	PAT/4/2019
Sender reference:	347345 (20)
Location of origin:	Hebron
Country of origin:	Palestinian AT
Date of collection:	08/04/2019
Host species:	goat
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	QOM-15
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	14/06/2019
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	24/06/2019
Created:	26/06/2019
Last updated:	26/06/2019
VIBASys IDs: sample 42305, genome 42306, sequence viba_42307, sequencing info 42308	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_42303	PAT/3/2019	goat	100.0	0	O	ME-SA	PanAsia-2	QOM-15
viba_41222	Bani Naim/347345/PAT/2019	goat	100.0	0	O	ME-SA	PanAsia-2	QOM-15
viba_39900	ISR/34/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_36404	ISR/2/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_36255	Gazit/317556-470/ISR/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_39868	ISR/26/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_39848	ISR/14/2018	gazelle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_39896	ISR/33/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_39844	ISR/13/2018	gazelle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_36408	ISR/3/2018	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15

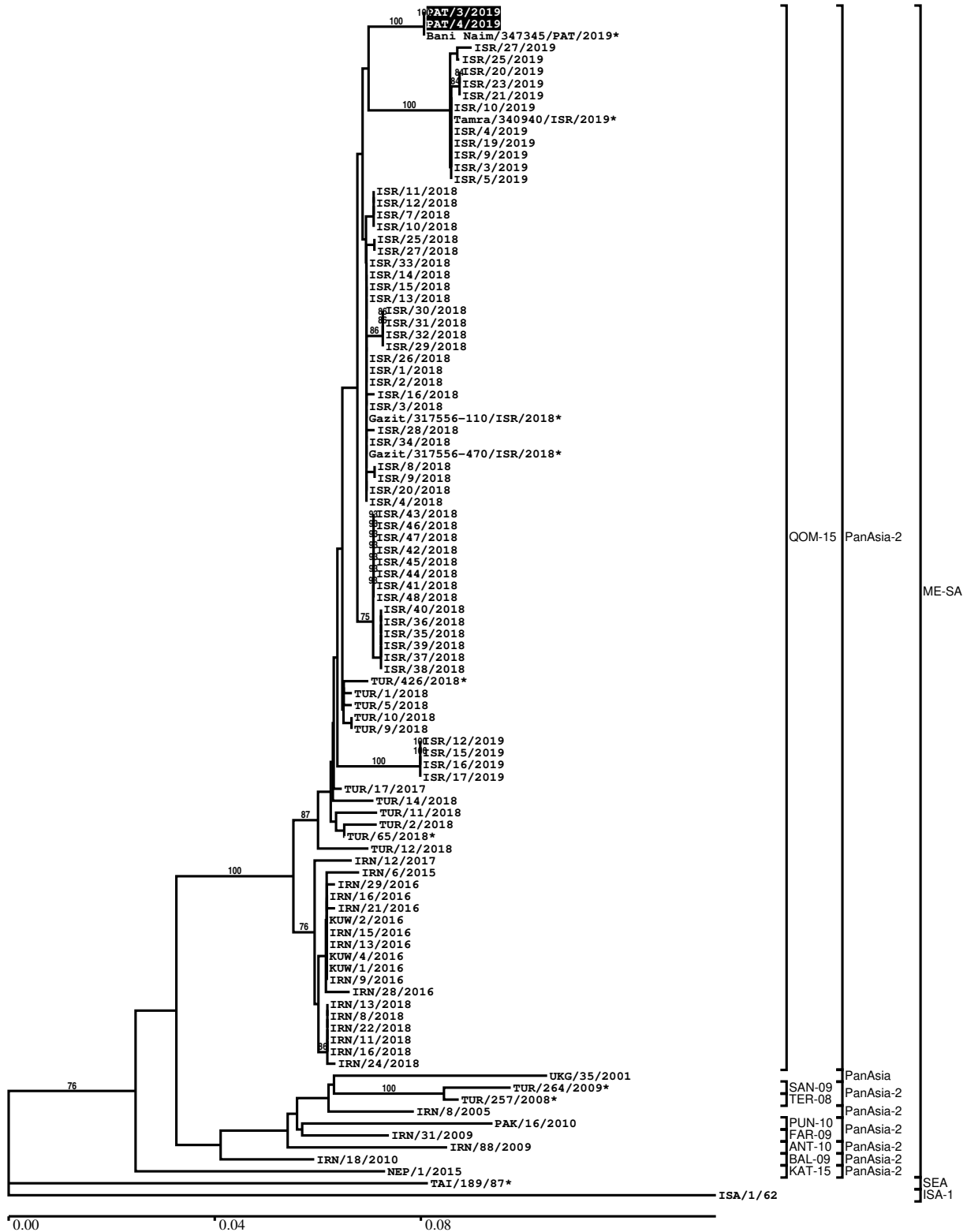
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see [http://www.wrlfmd.org/fmd\\_genotyping/prototypes.htm](http://www.wrlfmd.org/fmd_genotyping/prototypes.htm)

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viba_860	IRN/6/2015	cattle	96.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_666	IRN/18/2010	cattle	93.4	0	O	ME-SA	PanAsia-2	BAL-09
viba_766	IRN/31/2009	cattle	91.9	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	91.6	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		91.0	0	O	ME-SA	PanAsia-2	TER-08
viba_719	IRN/88/2009		91.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_850	NEP/1/2015	cattle	90.7	1	O	ME-SA	PanAsia-2	KAT-15
viba_354	PAK/16/2010	cattle	90.2	0	O	ME-SA	PanAsia-2	PUN-10
viba_505	TUR/264/2009		90.0	0	O	ME-SA	PanAsia-2	SAN-09
viba_285	UKG/35/2001	porcine	88.8	0	O	ME-SA	PanAsia	

Report on FMDV O in Palestinian AT in 2019

Batch: WRLFMD/2019/00026



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLFMD/2019/00026-Palestinian AT-O (2 sequences)
Sequence database set:	allseqs_O (4580 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:	10
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
PAT/3/2019	n/a	goat	WRLFMD	Palestinian AT	ME-SA/PanAsia-2/QOM-15
PAT/4/2019	n/a	goat	WRLFMD	Palestinian AT	ME-SA/PanAsia-2/QOM-15
Bani Naim/347345/PAT/2019*	n/a	goat	KVI	Palestinian AT	ME-SA/PanAsia-2/QOM-15
ISR/27/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/25/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/20/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/23/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/21/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/10/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
Tamra/340940/ISR/2019*	n/a	cattle	KVI	Israel	ME-SA/PanAsia-2/QOM-15
ISR/4/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/19/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/9/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/3/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/5/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/11/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/12/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/7/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/10/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/25/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/27/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/33/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/14/2018	n/a	gazelle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/15/2018	n/a	gazelle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/13/2018	n/a	gazelle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/30/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/31/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/32/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/29/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/26/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/1/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/2/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/16/2018	n/a	gazelle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/3/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
Gazit/317556-110/ISR/2018*	n/a	cattle	KVI	Israel	ME-SA/PanAsia-2/QOM-15
ISR/28/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
ISR/34/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
Gazit/317556-470/ISR/2018*	n/a	cattle	KVI	Israel	ME-SA/PanAsia-2/QOM-15
ISR/8/2018	n/a	gazelle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/9/2018	n/a	gazelle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/20/2018	n/a	gazelle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/4/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/43/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/46/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/47/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/42/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/45/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/44/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/41/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/48/2018	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/40/2018	n/a	sheep	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/36/2018	n/a	sheep	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/35/2018	n/a	sheep	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/39/2018	n/a	sheep	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/37/2018	n/a	sheep	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/38/2018	n/a	sheep	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
TUR/426/2018*	n/a	n/a	FMDI	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/1/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/5/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/10/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/9/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
ISR/12/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/15/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/16/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
ISR/17/2019	n/a	cattle	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15
TUR/17/2017	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/14/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/11/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/2/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/65/2018*	n/a	n/a	FMDI	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/12/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
IRN/12/2017	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/6/2015	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/29/2016	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/16/2016	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/21/2016	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
KUW/2/2016	n/a	cattle	WRLFMD	Kuwait	ME-SA/PanAsia-2/QOM-15
IRN/15/2016	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/13/2016	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
KUW/4/2016	n/a	cattle	WRLFMD	Kuwait	ME-SA/PanAsia-2/QOM-15
KUW/1/2016	n/a	cattle	WRLFMD	Kuwait	ME-SA/PanAsia-2/QOM-15
IRN/9/2016	n/a	dog	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/28/2016	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/13/2018	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/8/2018	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/22/2018	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/11/2018	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/16/2018	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/24/2018	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
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
IRN/8/2005	KY091281	ovine	WRLFMD	Iran	ME-SA/PanAsia-2
PAK/16/2010	KY091285	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/PUN-10
IRN/31/2009	KY091284	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/FAR-09
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
NEP/1/2015	n/a	cattle	WRLFMD	Nepal	ME-SA/PanAsia-2/KAT-15
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