

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

## Genotyping Report

FMDV serotype: O  
Country: Israel  
Year: 2021  
Batch: WRLMEG/2021/00001  
No. of sequences: 3  
Report date: 8th January 2021  
Report generated by: Nick Knowles  
Report checked by: Jemma Wadsworth



Copyright © 2021 The Pirbright Institute, Ash Road, Pirbright, Woking GU24 0NF, United Kingdom.

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

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

The contents of this report should not be reproduced without permission.

Virus sample name:	401026/ISR/2021
Sender reference:	401026
Location of origin:	Eilon, Northern district
Country of origin:	Israel
Date of collection:	01/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	QOM-15
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:	08/01/2021
Last updated:	08/01/2021
VIBASys IDs: sample 47227, genome 47228, sequence viba_47229, sequencing info 47230	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47233	401025/ISR/2021	goat	100.0	0	O	ME-SA	PanAsia-2	QOM-15
viba_47237	401247/ISR/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	QOM-15
viba_45472	TUR/183/2020.75	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_45464	TUR/170/2020.731	cattle	98.1	0	O	ME-SA	PanAsia-2	QOM-15
viba_41841	TUR/4/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	QOM-15
viba_41837	TUR/3/2019	cattle	97.5	0	O	ME-SA	PanAsia-2	QOM-15
viba_41845	TUR/7/2019	cattle	97.5	0	O	ME-SA	PanAsia-2	QOM-15
viba_41829	TUR/1/2019	cattle	97.3	0	O	ME-SA	PanAsia-2	QOM-15
viba_34055	TUR/276/2017.519		96.7	1	O	ME-SA	PanAsia-2	QOM-15
viba_23740	KUW/2/2016	cattle	96.4	0	O	ME-SA	PanAsia-2	QOM-15

### 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_860	IRN/6/2015	cattle	95.9	0	O	ME-SA	PanAsia-2	QOM-15
viba_666	IRN/18/2010	cattle	93.0	0	O	ME-SA	PanAsia-2	BAL-09
viba_766	IRN/31/2009	cattle	91.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		91.3	0	O	ME-SA	PanAsia-2	TER-08
viba_505	TUR/264/2009		91.0	0	O	ME-SA	PanAsia-2	SAN-09
viba_650	IRN/8/2005	ovine	90.8	0	O	ME-SA	PanAsia-2	
viba_719	IRN/88/2009		90.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_850	NEP/1/2015	cattle	90.2	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_293	BHU/3/2009	cattle	89.7	0	O	ME-SA	Ind-2001	d

Virus sample name:	401025/ISR/2021
Sender reference:	401025
Location of origin:	Zar'it, Northern district
Country of origin:	Israel
Date of collection:	01/2021
Host species:	goat
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	QOM-15
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:	08/01/2021
Last updated:	08/01/2021
VIBASys IDs: sample 47231, genome 47232, sequence viba_47233, sequencing info 47234	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47229	401026/ISR/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	QOM-15
viba_47237	401247/ISR/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	QOM-15
viba_45472	TUR/183/2020.75	cattle	98.7	0	O	ME-SA	PanAsia-2	QOM-15
viba_45464	TUR/170/2020.731	cattle	98.1	0	O	ME-SA	PanAsia-2	QOM-15
viba_41841	TUR/4/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	QOM-15
viba_41837	TUR/3/2019	cattle	97.5	0	O	ME-SA	PanAsia-2	QOM-15
viba_41845	TUR/7/2019	cattle	97.5	0	O	ME-SA	PanAsia-2	QOM-15
viba_41829	TUR/1/2019	cattle	97.3	0	O	ME-SA	PanAsia-2	QOM-15
viba_34055	TUR/276/2017.519		96.7	1	O	ME-SA	PanAsia-2	QOM-15
viba_23740	KUW/2/2016	cattle	96.4	0	O	ME-SA	PanAsia-2	QOM-15

#### 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_860	IRN/6/2015	cattle	95.9	0	O	ME-SA	PanAsia-2	QOM-15
viba_666	IRN/18/2010	cattle	93.0	0	O	ME-SA	PanAsia-2	BAL-09
viba_766	IRN/31/2009	cattle	91.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		91.3	0	O	ME-SA	PanAsia-2	TER-08
viba_505	TUR/264/2009		91.0	0	O	ME-SA	PanAsia-2	SAN-09
viba_650	IRN/8/2005	ovine	90.8	0	O	ME-SA	PanAsia-2	
viba_719	IRN/88/2009		90.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_850	NEP/1/2015	cattle	90.2	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_293	BHU/3/2009	cattle	89.7	0	O	ME-SA	Ind-2001	d

Virus sample name:	401247/ISR/2021
Sender reference:	401247
Location of origin:	Ma'ale Gamla, Northern district
Country of origin:	Israel
Date of collection:	01/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	QOM-15
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:	08/01/2021
Last updated:	08/01/2021
VIBASys IDs: sample 47235, genome 47236, sequence viba_47237, sequencing info 47238	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_47233	401025/ISR/2021	goat	99.5	0	O	ME-SA	PanAsia-2	QOM-15
viba_47229	401026/ISR/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	QOM-15
viba_45472	TUR/183/2020.75	cattle	98.9	0	O	ME-SA	PanAsia-2	QOM-15
viba_45464	TUR/170/2020.731	cattle	98.3	0	O	ME-SA	PanAsia-2	QOM-15
viba_41841	TUR/4/2019	cattle	97.9	0	O	ME-SA	PanAsia-2	QOM-15
viba_41837	TUR/3/2019	cattle	97.6	0	O	ME-SA	PanAsia-2	QOM-15
viba_41845	TUR/7/2019	cattle	97.6	0	O	ME-SA	PanAsia-2	QOM-15
viba_41829	TUR/1/2019	cattle	97.5	0	O	ME-SA	PanAsia-2	QOM-15
viba_34055	TUR/276/2017.519		96.8	1	O	ME-SA	PanAsia-2	QOM-15
viba_23740	KUW/2/2016	cattle	96.5	0	O	ME-SA	PanAsia-2	QOM-15

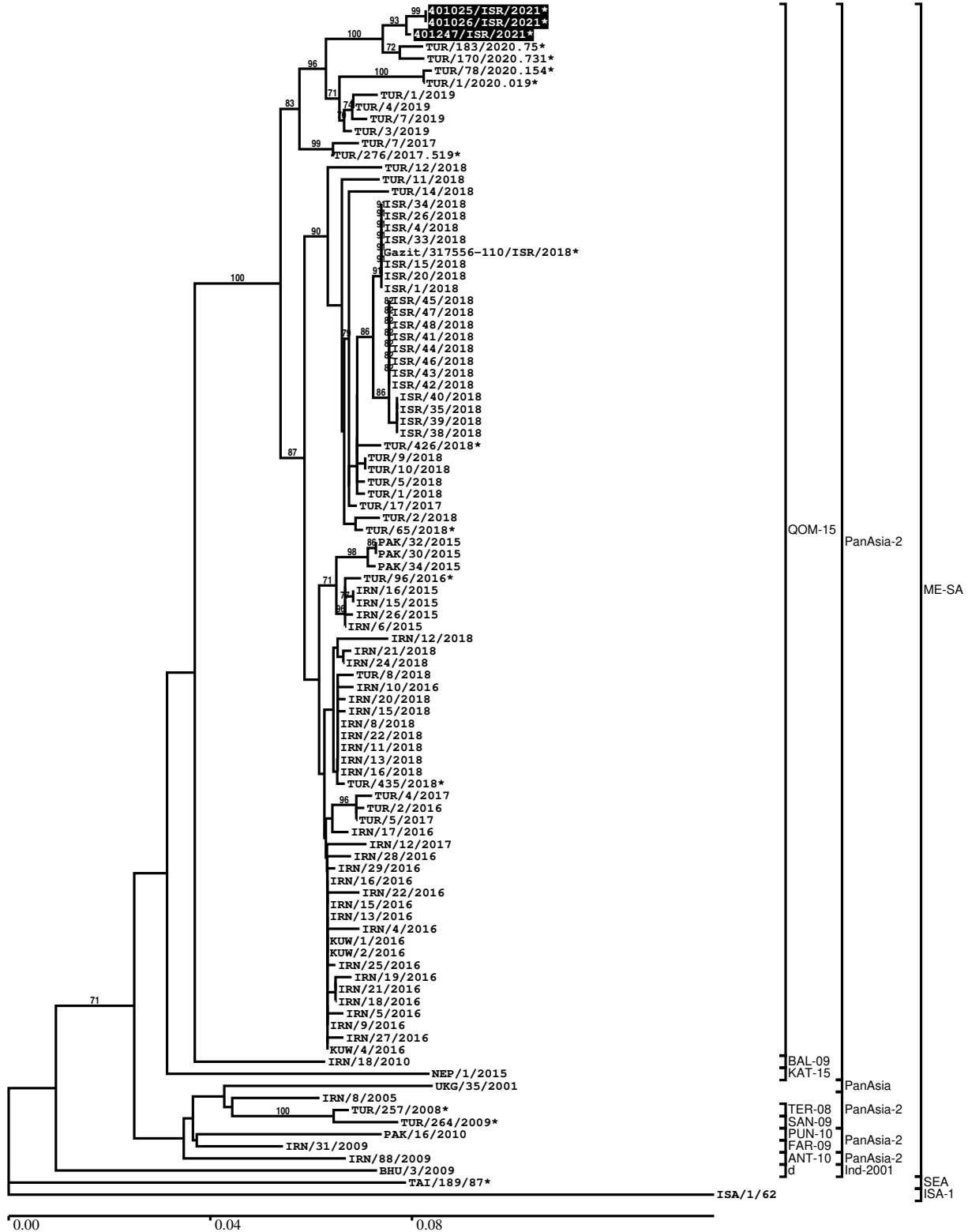
#### Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_860	IRN/6/2015	cattle	96.1	0	O	ME-SA	PanAsia-2	QOM-15
viba_666	IRN/18/2010	cattle	93.2	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_491	TUR/257/2008		91.5	0	O	ME-SA	PanAsia-2	TER-08
viba_719	IRN/88/2009		91.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	91.0	0	O	ME-SA	PanAsia-2	
viba_505	TUR/264/2009		90.8	0	O	ME-SA	PanAsia-2	SAN-09
viba_850	NEP/1/2015	cattle	90.4	1	O	ME-SA	PanAsia-2	KAT-15
viba_354	PAK/16/2010	cattle	90.0	0	O	ME-SA	PanAsia-2	PUN-10
viba_285	UKG/35/2001	porcine	89.9	0	O	ME-SA	PanAsia	

Report on FMDV O in Israel in 2021

Batch: WRLMEG/2021/00001



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLMEG/2021/00001-Israel-O (3 sequences)
Sequence database set:	allseqs_O (5118 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:	11
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
401025/ISR/2021*	n/a	goat	KVI	Israel	ME-SA/PanAsia-2/QOM-15
401026/ISR/2021*	n/a	cattle	KVI	Israel	ME-SA/PanAsia-2/QOM-15
401247/ISR/2021*	n/a	cattle	KVI	Israel	ME-SA/PanAsia-2/QOM-15
TUR/183/2020.75*	n/a	cattle	FMDI	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/170/2020.731*	n/a	cattle	FMDI	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/78/2020.154*	n/a	sheep	FMDI	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/1/2020.019*	n/a	cattle	FMDI	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/1/2019	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/4/2019	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/7/2019	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/3/2019	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/7/2017	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/276/2017.519*	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
TUR/11/2018	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
ISR/34/2018	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/4/2018	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
Gazit/317556-110/ISR/2018*	n/a	cattle	KVI	Israel	ME-SA/PanAsia-2/QOM-15
ISR/15/2018	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/11/2018	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/47/2018	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/41/2018	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/46/2018	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/42/2018	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/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/38/2018	n/a	sheep	WRLFMD	Israel	ME-SA/PanAsia-2/QOM-15

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
TUR/426/2018*	n/a	n/a	FMDI	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/9/2018	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/5/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/1/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/17/2017	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
PAK/32/2015	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/QOM-15
PAK/30/2015	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/PanAsia-2/QOM-15
PAK/34/2015	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/QOM-15
TUR/96/2016*	n/a	n/a	FMDI-Ankara	Turkey	ME-SA/PanAsia-2/QOM-15
IRN/16/2015	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/15/2015	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/26/2015	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/6/2015	MN276044	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/12/2018	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/21/2018	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
TUR/8/2018	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
IRN/10/2016	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/20/2018	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/15/2018	n/a	sheep	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/13/2018	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
TUR/435/2018*	n/a	n/a	FMDI	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/4/2017	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/2/2016	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
TUR/5/2017	n/a	cattle	WRLFMD	Turkey	ME-SA/PanAsia-2/QOM-15
IRN/17/2016	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/12/2017	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/28/2016	n/a	sheep	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/22/2016	n/a	sheep	WRLFMD	Iran	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
IRN/4/2016	n/a	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
KUW/1/2016	n/a	cattle	WRLFMD	Kuwait	ME-SA/PanAsia-2/QOM-15
KUW/2/2016	n/a	cattle	WRLFMD	Kuwait	ME-SA/PanAsia-2/QOM-15
IRN/25/2016	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/19/2016	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
IRN/18/2016	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/5/2016	n/a	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/9/2016	n/a	dog	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/27/2016	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
KUW/4/2016	n/a	cattle	WRLFMD	Kuwait	ME-SA/PanAsia-2/QOM-15
IRN/18/2010	KY091283	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/BAL-09
NEP/1/2015	MN276045	cattle	WRLFMD	Nepal	ME-SA/PanAsia-2/KAT-15
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
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
TUR/264/2009*	n/a	n/a	FMDI-Ankara	Turkey	ME-SA/PanAsia-2/SAN-09
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
BHU/3/2009	KM921814	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
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