

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

Genotyping Report

FMDV serotype: O
Country: Jordan
Year: 2021
Batch: WRLMEG/2021/00018
No. of sequences: 2
Report date: 7th December 2021
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth

This report is prepared on behalf of the Jordan University of Science and Technology (JUST) and covers VP1 sequences submitted to the WRLFMD on 6th December 2021.



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Virus sample name:	JOR/1/2021
Sender reference:	n/a
Location of origin:	n/a
Country of origin:	Jordan
Date of collection:	2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	1
Material submitted for sequencing:	epithelium
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	07/12/2021
Last updated:	07/12/2021
VIBASys IDs: sample 49117, genome 49128, sequence viba_49129, sequencing info 49130	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_49051	JOR/15/2021	sheep	96.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_49055	JOR/16/2021	sheep	96.1	1	O	ME-SA	PanAsia-2	ANT-10
viba_42488	PAK/8/2019	cattle	94.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_34937	PAK/7/2016	cattle	93.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_33639	IRN/8/2017	cattle	93.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faisalabad I/PUN/PAK	cattle	93.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_39040	NIAB/PUN/PAK/205/2017	water buffalo	93.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_33623	IRN/36/2016	sheep	93.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_33635	IRN/5/2017	cattle	93.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_39763	NIAB/PUN/PAK/218/2017		93.2	0	O	ME-SA	PanAsia-2	ANT-10

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_719	IRN/88/2009		91.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	89.1	0	O	ME-SA	PanAsia-2	FAR-09
viba_293	BHU/3/2009	cattle	88.8	0	O	ME-SA	Ind-2001	d
viba_650	IRN/8/2005	ovine	88.6	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		88.5	0	O	ME-SA	PanAsia-2	TER-08
viba_666	IRN/18/2010	cattle	88.5	0	O	ME-SA	PanAsia-2	BAL-09
viba_285	UKG/35/2001	porcine	88.3	0	O	ME-SA	PanAsia	
viba_354	PAK/16/2010	cattle	87.9	0	O	ME-SA	PanAsia-2	PUN-10
viba_860	IRN/6/2015	cattle	87.8	0	O	ME-SA	PanAsia-2	QOM-15
viba_505	TUR/264/2009		87.8	0	O	ME-SA	PanAsia-2	SAN-09

Virus sample name:	JOR/2/2021
Sender reference:	n/a
Location of origin:	n/a
Country of origin:	Jordan
Date of collection:	2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	2
Material submitted for sequencing:	blood
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	07/12/2021
Last updated:	07/12/2021
VIBASys IDs: sample 49121, genome 49122, sequence viba_49123, sequencing info 49124	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_15478	IRQ/4/2010	cattle	98.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_15482	IRQ/6/2010	sheep	98.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_15486	IRQ/7/2010	cattle	98.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_15498	IRQ/13/2010	sheep	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_15494	IRQ/12/2010	sheep	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_15490	IRQ/8/2010	cattle	98.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_15346	IRN/59/2010	sheep	98.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_15010	IRN/142/2010	cattle	98.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_15807	PAK/22/2010	cattle	98.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_14070	AFG/219/2010	cattle	98.1	0	O	ME-SA	PanAsia-2	ANT-10

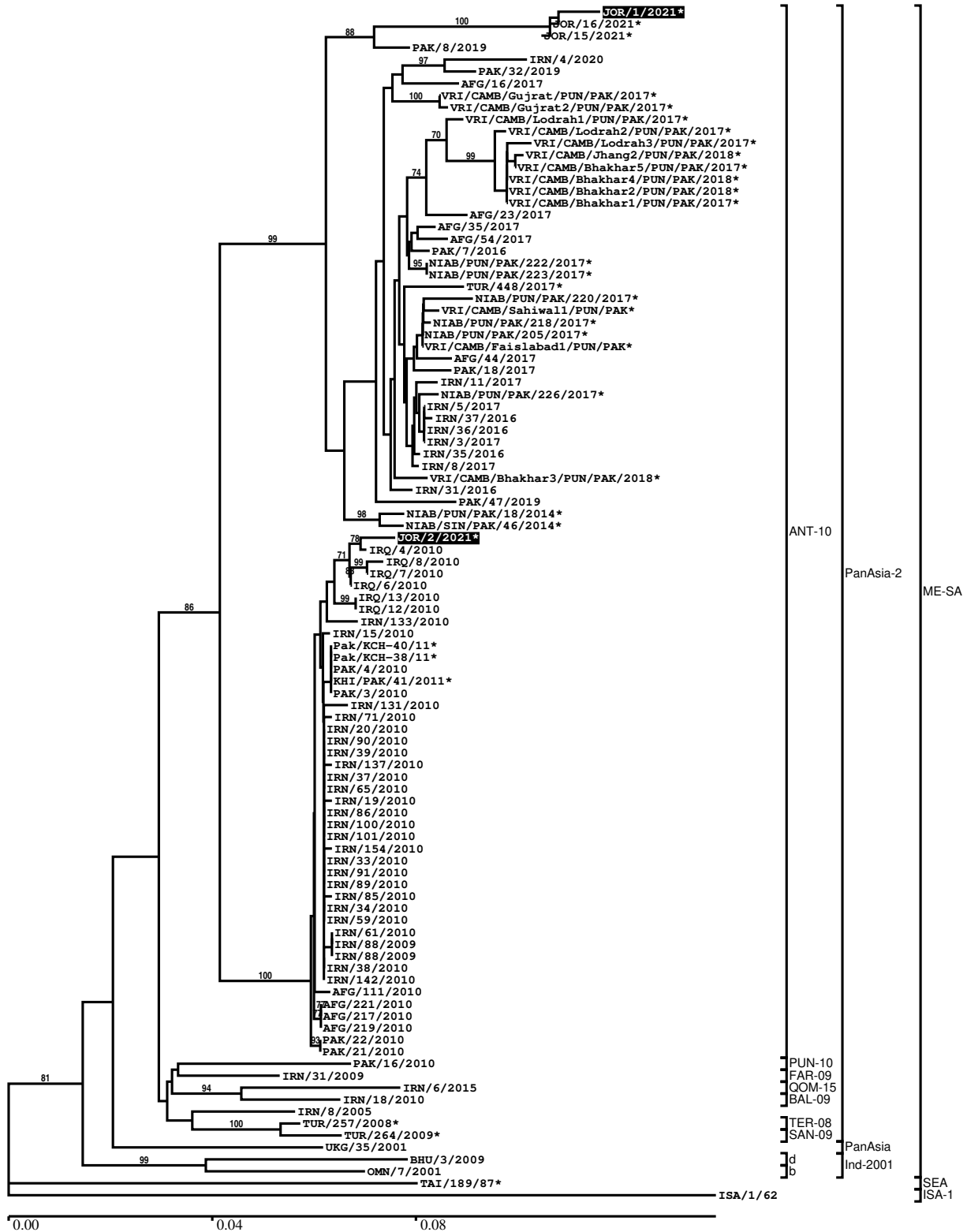
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_719	IRN/88/2009		97.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_491	TUR/257/2008		93.8	0	O	ME-SA	PanAsia-2	TER-08
viba_766	IRN/31/2009	cattle	93.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	93.8	0	O	ME-SA	PanAsia-2	
viba_505	TUR/264/2009		93.2	0	O	ME-SA	PanAsia-2	SAN-09
viba_666	IRN/18/2010	cattle	93.0	0	O	ME-SA	PanAsia-2	BAL-09
viba_354	PAK/16/2010	cattle	92.1	0	O	ME-SA	PanAsia-2	PUN-10
viba_860	IRN/6/2015	cattle	91.5	0	O	ME-SA	PanAsia-2	QOM-15
viba_285	UKG/35/2001	porcine	90.8	0	O	ME-SA	PanAsia	
viba_541	OMN/7/2001	bovine	89.7	0	O	ME-SA	Ind-2001	b

Report on FMDV O in Jordan in 2021

Batch: WRLMEG/2021/00018



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLMEG/2021/00018-Jordan-O (2 sequences)
Sequence database set:	allseqs_O (5378 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
JOR/1/2021*	n/a	cattle	JUST	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/16/2021*	n/a	sheep	JUST	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/15/2021*	n/a	sheep	JUST	Jordan	ME-SA/PanAsia-2/ANT-10
PAK/8/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
IRN/4/2020	n/a	bovine	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
PAK/32/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
AFG/16/2017	n/a	cattle	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Gujrat/PUN/PAK/2017*	MK342182	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Gujrat2/PUN/PAK/2017*	MK342183	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Lodrah1/PUN/PAK/2017*	MK342179	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Lodrah2/PUN/PAK/2017*	MK342180	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Lodrah3/PUN/PAK/2017*	MK342181	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Jhang2/PUN/PAK/2018*	MK342190	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Bhakhar5/PUN/PAK/2017*	MK342188	water buffalo	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Bhakhar4/PUN/PAK/2018*	MK342187	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Bhakhar2/PUN/PAK/2018*	MK342185	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Bhakhar1/PUN/PAK/2017*	MK342184	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
AFG/23/2017	n/a	cattle	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
AFG/35/2017	n/a	cattle	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10

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label	accession	host(s)	lab	country	taxonomic information
AFG/54/2017	n/a	bovine	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
PAK/7/2016	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
NIAB/PUN/PAK/222/2017*	MH085206	n/a	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
NIAB/PUN/PAK/223/2017*	MH085207	n/a	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
TUR/448/2017*	n/a	sheep	FMDI	Turkey	ME-SA/PanAsia-2/ANT-10
NIAB/PUN/PAK/220/2017*	MH085205	n/a	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Sahiwal1/PUN/PAK*	MK292143	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
NIAB/PUN/PAK/218/2017*	MH085204	n/a	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
NIAB/PUN/PAK/205/2017*	MF140436	water buffalo	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Faislabad1/PUN/PAK*	MK292142	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
AFG/44/2017	n/a	bovine	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
PAK/18/2017	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
IRN/11/2017	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
NIAB/PUN/PAK/226/2017*	MH085208	n/a	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
IRN/5/2017	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/37/2016	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/36/2016	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/3/2017	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/35/2016	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/8/2017	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Bhakar3/PUN/PAK/2018*	MK342186	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
IRN/31/2016	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
PAK/47/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
NIAB/PUN/PAK/18/2014*	MF374991	cattle	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
NIAB/SIN/PAK/46/2014*	MF374989	cattle	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
JOR/2/2021*	n/a	cattle	JUST	Jordan	ME-SA/PanAsia-2/ANT-10
IRQ/4/2010	n/a	cattle	WRLFMD	Iraq	ME-SA/PanAsia-2/ANT-10
IRQ/8/2010	n/a	cattle	WRLFMD	Iraq	ME-SA/PanAsia-2/ANT-10
IRQ/7/2010	n/a	cattle	WRLFMD	Iraq	ME-SA/PanAsia-2/ANT-10
IRQ/6/2010	n/a	sheep	WRLFMD	Iraq	ME-SA/PanAsia-2/ANT-10
IRQ/13/2010	n/a	sheep	WRLFMD	Iraq	ME-SA/PanAsia-2/ANT-10
IRQ/12/2010	n/a	sheep	WRLFMD	Iraq	ME-SA/PanAsia-2/ANT-10
IRN/133/2010	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/15/2010	n/a	goat	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
Pak/KCH-40/11*	KU365845	water buffalo	PIADC	Pakistan	ME-SA/PanAsia-2/ANT-10

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label	accession	host(s)	lab	country	taxonomic information
Pak/KCH-38/11*	KU365841	water buffalo	PIADC	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/4/2010	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
KHI/PAK/41/2011*	JX170756	water buffalo	PIADC/LINDHOLM	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/3/2010	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
IRN/131/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/71/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/20/2010	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/90/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/39/2010	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/137/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/37/2010	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/65/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/19/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/86/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/100/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/101/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/154/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/33/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/91/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/89/2010	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/85/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/34/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/59/2010	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/61/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/88/2009	n/a	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/88/2009	KY091282	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/38/2010	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/142/2010	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
AFG/111/2010	n/a	cattle	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
AFG/221/2010	n/a	cattle	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
AFG/217/2010	n/a	cattle	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
AFG/219/2010	n/a	cattle	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
PAK/22/2010	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/21/2010	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/16/2010	KY091285	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/PUN-10

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label	accession	host(s)	lab	country	taxonomic information
IRN/31/2009	KY091284	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/FAR-09
IRN/6/2015	MN276044	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/18/2010	KY091283	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/BAL-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
TUR/264/2009*	n/a	n/a	FMDI-Ankara	Turkey	ME-SA/PanAsia-2/SAN-09
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
BHU/3/2009	KM921814	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
OMN/7/2001	DQ164941	bovine	WRLFMD	Oman	ME-SA/Ind-2001/b
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