



FMD Genotyping Report

Lab Reference WRL batch Number: WRLFMD/2022/00001

Sender Details:



Date Received: 04/02/2022

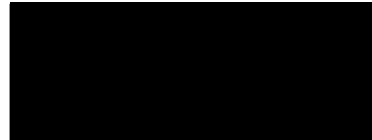
Country of Origin*: PAKISTAN

Sequencing work has now been completed in respect of the samples you submitted and the details are as attached. Please note that all of our phylogenetic trees can be accessed via the internet at:
<http://www.wrlfmd.org/>

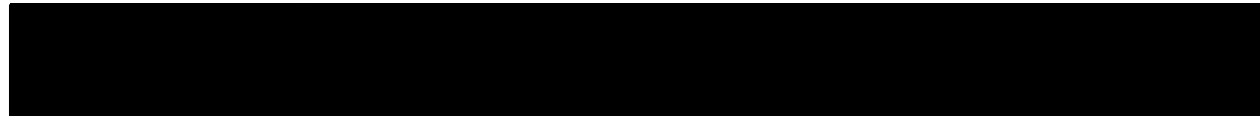
Results Approved By:



Official Stamp:



Date: 16/3/2022



To help us improve the quality of our service, please send any suggestions or requests to the Reference Laboratory by email (reflabsfeedback@pirbright.ac.uk).

* Data supplied by the customer

Batch: IAHB/2022/00202

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

Genotyping Report

FMDV serotype: O
Country: Pakistan
Year: 2021
Batch: WRLFMD/2022/00001
No. of sequences: 19
Report date: 14th March 2022
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:	PAK/1/2021
Sender reference:	PK-07
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	23/02/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	10/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50311, genome 50312, sequence viba_50313, sequencing info 50314	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50317	PAK/3/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50377	PAK/24/2021	cattle	99.5	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		91.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.7	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.1	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	89.0	0	O	ME-SA	Ind-2001	d
viba_354	PAK/16/2010	cattle	89.0	0	O	ME-SA	PanAsia-2	PUN-10
viba_505	TUR/264/2009		88.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_666	IRN/18/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	BAL-09
viba_850	NEP/1/2015	cattle	88.8	1	O	ME-SA	PanAsia-2	KAT-15

Virus sample name:	PAK/3/2021
Sender reference:	PK-05
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	11/03/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	10/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022

VIBASys IDs: sample 50315, genome 50316, sequence viba_50317, sequencing info 50318

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50341	PAK/12/2021	water buffalo	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50377	PAK/24/2021	cattle	99.7	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		91.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.9	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.9	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.4	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.3	0	O	ME-SA	PanAsia	
viba_505	TUR/264/2009		89.1	0	O	ME-SA	PanAsia-2	SAN-09
viba_293	BHU/3/2009	cattle	89.1	0	O	ME-SA	Ind-2001	d
viba_850	NEP/1/2015	cattle	89.0	1	O	ME-SA	PanAsia-2	KAT-15
viba_666	IRN/18/2010	cattle	88.9	0	O	ME-SA	PanAsia-2	BAL-09
viba_354	PAK/16/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	PAK/4/2021
Sender reference:	PK-06
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	11/03/2021
Host species:	water buffalo
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	11/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50319, genome 50320, sequence viba_50321, sequencing info 50322	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50317	PAK/3/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50345	PAK/13/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50349	PAK/14/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.5	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		91.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	89.9	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.7	0	O	ME-SA	PanAsia-2	TER-08
viba_650	IRN/8/2005	ovine	89.6	0	O	ME-SA	PanAsia-2	
viba_505	TUR/264/2009		89.4	0	O	ME-SA	PanAsia-2	SAN-09
viba_285	UKG/35/2001	porcine	89.3	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	88.8	0	O	ME-SA	Ind-2001	d
viba_354	PAK/16/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	PUN-10
viba_850	NEP/1/2015	cattle	88.7	1	O	ME-SA	PanAsia-2	KAT-15
viba_666	IRN/18/2010	cattle	88.6	0	O	ME-SA	PanAsia-2	BAL-09

Virus sample name:	PAK/6/2021
Sender reference:	PK-11
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	30/03/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	11/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50323, genome 50324, sequence viba_50325, sequencing info 50326	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50317	PAK/3/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50377	PAK/24/2021	cattle	99.7	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		91.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.9	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.9	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.4	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.3	0	O	ME-SA	PanAsia	
viba_505	TUR/264/2009		89.1	0	O	ME-SA	PanAsia-2	SAN-09
viba_293	BHU/3/2009	cattle	89.1	0	O	ME-SA	Ind-2001	d
viba_850	NEP/1/2015	cattle	89.0	1	O	ME-SA	PanAsia-2	KAT-15
viba_666	IRN/18/2010	cattle	88.9	0	O	ME-SA	PanAsia-2	BAL-09
viba_354	PAK/16/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	PAK/7/2021
Sender reference:	PK-12
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	07/04/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	10/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50327, genome 50328, sequence viba_50329, sequencing info 50330	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50333	PAK/8/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50317	PAK/3/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50337	PAK/9/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.7	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		92.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	90.1	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	90.0	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		89.6	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.4	0	O	ME-SA	PanAsia	
viba_666	IRN/18/2010	cattle	89.1	0	O	ME-SA	PanAsia-2	BAL-09
viba_293	BHU/3/2009	cattle	89.0	0	O	ME-SA	Ind-2001	d
viba_505	TUR/264/2009		88.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_850	NEP/1/2015	cattle	88.8	1	O	ME-SA	PanAsia-2	KAT-15
viba_860	IRN/6/2015	cattle	88.6	0	O	ME-SA	PanAsia-2	QOM-15

Virus sample name:	PAK/8/2021
Sender reference:	PK-13
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	07/04/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	10/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022

VIBASys IDs: sample 50331, genome 50332, sequence viba_50333, sequencing info 50334

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50329	PAK/7/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50317	PAK/3/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50337	PAK/9/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.7	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		92.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	90.1	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	90.0	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		89.6	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.4	0	O	ME-SA	PanAsia	
viba_666	IRN/18/2010	cattle	89.1	0	O	ME-SA	PanAsia-2	BAL-09
viba_293	BHU/3/2009	cattle	89.0	0	O	ME-SA	Ind-2001	d
viba_505	TUR/264/2009		88.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_850	NEP/1/2015	cattle	88.8	1	O	ME-SA	PanAsia-2	KAT-15
viba_860	IRN/6/2015	cattle	88.6	0	O	ME-SA	PanAsia-2	QOM-15

Virus sample name:	PAK/9/2021
Sender reference:	PK-10
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	08/04/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022

VIBASys IDs: sample 50335, genome 50336, sequence viba_50337, sequencing info 50338

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50333	PAK/8/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50317	PAK/3/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.4	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		91.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.7	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.1	0	O	ME-SA	PanAsia	
viba_666	IRN/18/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	BAL-09
viba_505	TUR/264/2009		88.6	0	O	ME-SA	PanAsia-2	SAN-09
viba_293	BHU/3/2009	cattle	88.6	0	O	ME-SA	Ind-2001	d
viba_850	NEP/1/2015	cattle	88.5	1	O	ME-SA	PanAsia-2	KAT-15
viba_860	IRN/6/2015	cattle	88.3	0	O	ME-SA	PanAsia-2	QOM-15

Virus sample name:	PAK/12/2021
Sender reference:	PK-15
Location of origin:	Kashmore, Sindh
Country of origin:	Pakistan
Date of collection:	23/04/2021
Host species:	water buffalo
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022

VIBASys IDs: sample 50339, genome 50340, sequence viba_50341, sequencing info 50342

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50317	PAK/3/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50377	PAK/24/2021	cattle	99.7	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		91.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.9	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.9	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.4	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.3	0	O	ME-SA	PanAsia	
viba_505	TUR/264/2009		89.1	0	O	ME-SA	PanAsia-2	SAN-09
viba_293	BHU/3/2009	cattle	89.1	0	O	ME-SA	Ind-2001	d
viba_850	NEP/1/2015	cattle	89.0	1	O	ME-SA	PanAsia-2	KAT-15
viba_666	IRN/18/2010	cattle	88.9	0	O	ME-SA	PanAsia-2	BAL-09
viba_354	PAK/16/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	PAK/13/2021
Sender reference:	PK-16
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	19/05/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	15/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022

VIBASys IDs: sample 50343, genome 50344, sequence viba_50345, sequencing info 50346

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50349	PAK/14/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50317	PAK/3/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50321	PAK/4/2021	water buffalo	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.5	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		91.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	90.1	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	89.7	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		89.6	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.4	0	O	ME-SA	PanAsia	
viba_505	TUR/264/2009		89.3	0	O	ME-SA	PanAsia-2	SAN-09
viba_293	BHU/3/2009	cattle	89.0	0	O	ME-SA	Ind-2001	d
viba_354	PAK/16/2010	cattle	89.0	0	O	ME-SA	PanAsia-2	PUN-10
viba_666	IRN/18/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	BAL-09
viba_850	NEP/1/2015	cattle	88.8	1	O	ME-SA	PanAsia-2	KAT-15

Virus sample name:	PAK/14/2021
Sender reference:	PK-17
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	20/05/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022

VIBASys IDs: sample 50347, genome 50348, sequence viba_50349, sequencing info 50350

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50345	PAK/13/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50317	PAK/3/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50321	PAK/4/2021	water buffalo	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.5	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		91.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	90.1	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	89.7	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		89.6	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.4	0	O	ME-SA	PanAsia	
viba_505	TUR/264/2009		89.3	0	O	ME-SA	PanAsia-2	SAN-09
viba_293	BHU/3/2009	cattle	89.0	0	O	ME-SA	Ind-2001	d
viba_354	PAK/16/2010	cattle	89.0	0	O	ME-SA	PanAsia-2	PUN-10
viba_666	IRN/18/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	BAL-09
viba_850	NEP/1/2015	cattle	88.8	1	O	ME-SA	PanAsia-2	KAT-15

Virus sample name:	PAK/15/2021
Sender reference:	PK-18
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	20/05/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50351, genome 50352, sequence viba_50353, sequencing info 50354	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50317	PAK/3/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50377	PAK/24/2021	cattle	99.5	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		91.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.7	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.1	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	89.0	0	O	ME-SA	Ind-2001	d
viba_505	TUR/264/2009		88.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_666	IRN/18/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	BAL-09
viba_850	NEP/1/2015	cattle	88.8	1	O	ME-SA	PanAsia-2	KAT-15
viba_354	PAK/16/2010	cattle	88.6	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	PAK/16/2021
Sender reference:	PK-19
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	20/05/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	15/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022

VIBASys IDs: sample 50355, genome 50356, sequence viba_50357, sequencing info 50358

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50385	PAK/40/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50317	PAK/3/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50377	PAK/24/2021	cattle	99.5	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		91.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.7	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.1	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	89.0	0	O	ME-SA	Ind-2001	d
viba_505	TUR/264/2009		88.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_666	IRN/18/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	BAL-09
viba_850	NEP/1/2015	cattle	88.8	1	O	ME-SA	PanAsia-2	KAT-15
viba_860	IRN/6/2015	cattle	88.6	0	O	ME-SA	PanAsia-2	QOM-15

Virus sample name:	PAK/17/2021
Sender reference:	PK-22
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	29/05/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	4
Material submitted for sequencing:	WRL-LFBK1 & WRL-LFBK2
Harvest date of material:	16/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50359, genome 50360, sequence viba_50361, sequencing info 50362	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50317	PAK/3/2021	cattle	99.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_50365	PAK/18/2021	cattle	99.1	3	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	98.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	98.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	98.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	98.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_50345	PAK/13/2021	cattle	98.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_50369	PAK/21/2021	cattle	98.9	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		91.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.6	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.1	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.0	0	O	ME-SA	PanAsia	
viba_505	TUR/264/2009		88.8	0	O	ME-SA	PanAsia-2	SAN-09
viba_850	NEP/1/2015	cattle	88.8	1	O	ME-SA	PanAsia-2	KAT-15
viba_666	IRN/18/2010	cattle	88.6	0	O	ME-SA	PanAsia-2	BAL-09
viba_354	PAK/16/2010	cattle	88.5	0	O	ME-SA	PanAsia-2	PUN-10
viba_293	BHU/3/2009	cattle	88.3	0	O	ME-SA	Ind-2001	d

Virus sample name:	PAK/18/2021
Sender reference:	PK-23
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	29/05/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	3
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50363, genome 50364, sequence viba_50365, sequencing info 50366	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50317	PAK/3/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_50369	PAK/21/2021	cattle	99.2	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		91.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.7	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	89.3	0	O	ME-SA	PanAsia	
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08
viba_850	NEP/1/2015	cattle	89.0	1	O	ME-SA	PanAsia-2	KAT-15
viba_666	IRN/18/2010	cattle	88.9	0	O	ME-SA	PanAsia-2	BAL-09
viba_505	TUR/264/2009		88.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_354	PAK/16/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	PUN-10
viba_860	IRN/6/2015	cattle	88.6	0	O	ME-SA	PanAsia-2	QOM-15

Virus sample name:	PAK/21/2021
Sender reference:	PK-26
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	03/06/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50367, genome 50368, sequence viba_50369, sequencing info 50370	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50317	PAK/3/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.4	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		91.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.7	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.6	0	O	ME-SA	PanAsia-2	TER-08
viba_505	TUR/264/2009		89.3	0	O	ME-SA	PanAsia-2	SAN-09
viba_285	UKG/35/2001	porcine	89.1	0	O	ME-SA	PanAsia	
viba_850	NEP/1/2015	cattle	89.0	1	O	ME-SA	PanAsia-2	KAT-15
viba_666	IRN/18/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	BAL-09
viba_293	BHU/3/2009	cattle	88.6	0	O	ME-SA	Ind-2001	d
viba_354	PAK/16/2010	cattle	88.6	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	PAK/23/2021
Sender reference:	PK-09
Location of origin:	Bajour, Khyber Pakhtunkhwa
Country of origin:	Pakistan
Date of collection:	15/07/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50371, genome 50372, sequence viba_50373, sequencing info 50374	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50317	PAK/3/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50381	PAK/27/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.7	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		91.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.7	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.1	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	89.0	0	O	ME-SA	Ind-2001	d
viba_505	TUR/264/2009		88.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_666	IRN/18/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	BAL-09
viba_850	NEP/1/2015	cattle	88.8	1	O	ME-SA	PanAsia-2	KAT-15
viba_354	PAK/16/2010	cattle	88.6	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	PAK/24/2021
Sender reference:	PK-20
Location of origin:	Bajour, Khyber Pakhtunkhwa
Country of origin:	Pakistan
Date of collection:	09/09/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50375, genome 50376, sequence viba_50377, sequencing info 50378	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50317	PAK/3/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.5	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		91.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.6	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.1	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.0	0	O	ME-SA	PanAsia	
viba_505	TUR/264/2009		88.8	0	O	ME-SA	PanAsia-2	SAN-09
viba_293	BHU/3/2009	cattle	88.8	0	O	ME-SA	Ind-2001	d
viba_850	NEP/1/2015	cattle	88.7	1	O	ME-SA	PanAsia-2	KAT-15
viba_666	IRN/18/2010	cattle	88.6	0	O	ME-SA	PanAsia-2	BAL-09
viba_354	PAK/16/2010	cattle	88.5	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	PAK/27/2021
Sender reference:	PK-27
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	30/09/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022
VIBASys IDs: sample 50379, genome 50380, sequence viba_50381, sequencing info 50382	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50373	PAK/23/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50317	PAK/3/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50385	PAK/40/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_50357	PAK/16/2021	cattle	99.5	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		91.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.6	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.1	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.0	0	O	ME-SA	PanAsia	
viba_505	TUR/264/2009		88.8	0	O	ME-SA	PanAsia-2	SAN-09
viba_293	BHU/3/2009	cattle	88.8	0	O	ME-SA	Ind-2001	d
viba_850	NEP/1/2015	cattle	88.7	1	O	ME-SA	PanAsia-2	KAT-15
viba_666	IRN/18/2010	cattle	88.6	0	O	ME-SA	PanAsia-2	BAL-09
viba_354	PAK/16/2010	cattle	88.5	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	PAK/40/2021
Sender reference:	PK-45
Location of origin:	Karachi (Malir), Sindh
Country of origin:	Pakistan
Date of collection:	19/11/2021
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK2
Harvest date of material:	24/02/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	07/03/2022
Created:	13/03/2022
Last updated:	13/03/2022

VIBASys IDs: sample 50383, genome 50384, sequence viba_50385, sequencing info 50386

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50357	PAK/16/2021	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_50317	PAK/3/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50341	PAK/12/2021	water buffalo	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50325	PAK/6/2021	cattle	99.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_50333	PAK/8/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50353	PAK/15/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50373	PAK/23/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50329	PAK/7/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50313	PAK/1/2021	cattle	99.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_50377	PAK/24/2021	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10

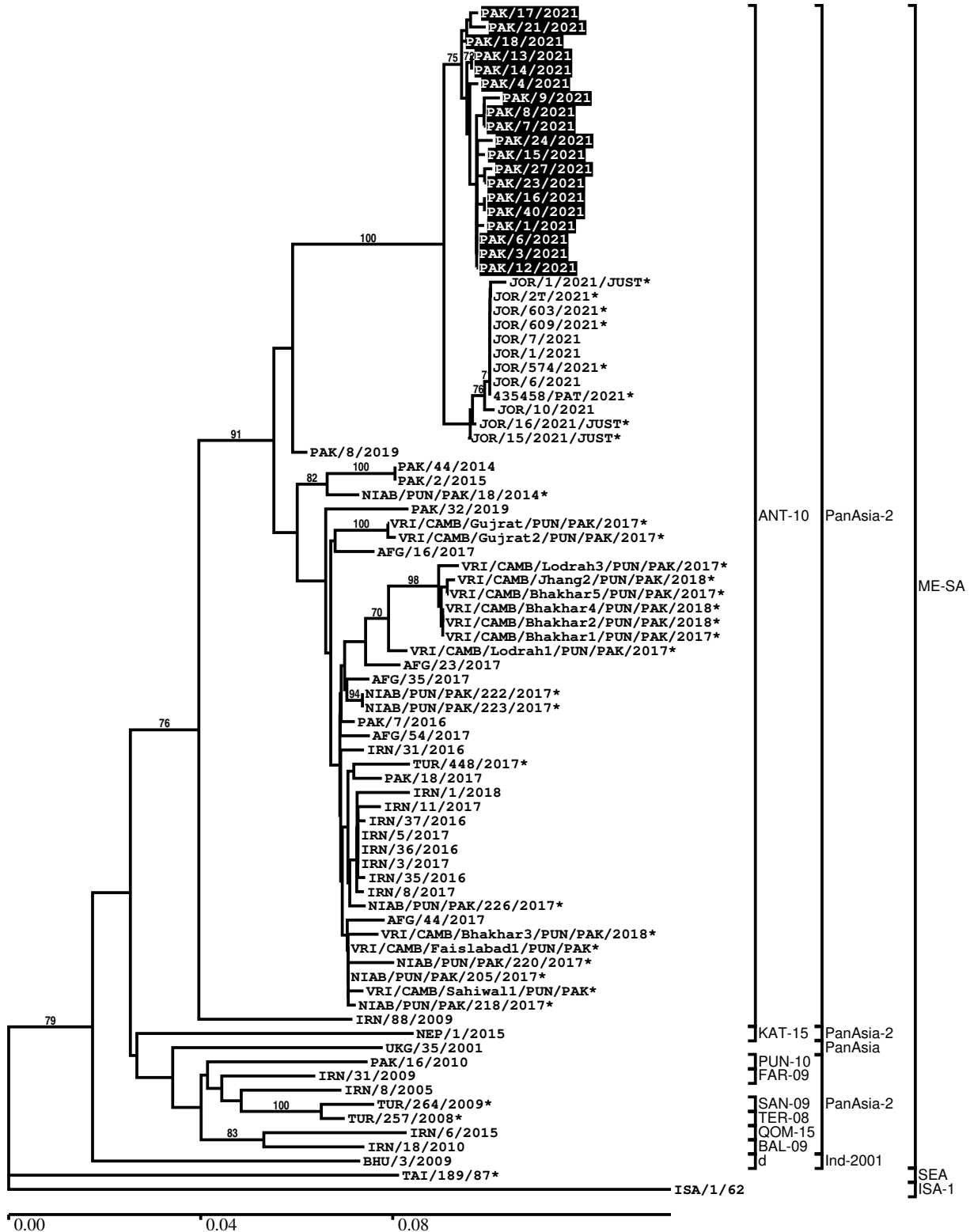
Most Closely Related Prototype Sequences

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		91.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_650	IRN/8/2005	ovine	89.7	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	89.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		89.3	0	O	ME-SA	PanAsia-2	TER-08
viba_285	UKG/35/2001	porcine	89.1	0	O	ME-SA	PanAsia	
viba_293	BHU/3/2009	cattle	89.0	0	O	ME-SA	Ind-2001	d
viba_505	TUR/264/2009		88.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_666	IRN/18/2010	cattle	88.8	0	O	ME-SA	PanAsia-2	BAL-09
viba_850	NEP/1/2015	cattle	88.8	1	O	ME-SA	PanAsia-2	KAT-15
viba_860	IRN/6/2015	cattle	88.6	0	O	ME-SA	PanAsia-2	QOM-15

Report on FMDV O in Pakistan in 2021

Batch: WRLFMD/2022/00001



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLFMD/2022/00001-Pakistan-O (19 sequences)
Sequence database set:	allseqs_O (5552 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
PAK/17/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/21/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/18/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/13/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/14/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/4/2021	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/9/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/8/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/7/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/24/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/15/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/27/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/23/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/16/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/40/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/1/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/6/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/3/2021	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/12/2021	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10

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label	accession	host(s)	lab	country	taxonomic information
JOR/1/2021/JUST*	n/a	cattle	JUST	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/2T/2021*	n/a	sheep	JUST	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/603/2021*	n/a	cattle	JUST	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/609/2021*	n/a	cattle	JUST	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/7/2021	n/a	cattle	WRLFMD	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/1/2021	n/a	cattle	WRLFMD	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/574/2021*	n/a	cattle	JUST	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/6/2021	n/a	cattle	WRLFMD	Jordan	ME-SA/PanAsia-2/ANT-10
435458/PAT/2021*	n/a	sheep	KVI	Palestinian AT	ME-SA/PanAsia-2/ANT-10
JOR/10/2021	n/a	sheep	WRLFMD	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/16/2021/JUST*	n/a	sheep	JUST	Jordan	ME-SA/PanAsia-2/ANT-10
JOR/15/2021/JUST*	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
PAK/44/2014	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/2/2015	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
PAK/32/2019	n/a	cattle	WRLFMD	Pakistan	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
AFG/16/2017	n/a	cattle	WRLFMD	Afghanistan	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
VRI/CAMB/Lodrah1/PUN/PAK/2017*	MK342179	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
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
PAK/7/2016	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
AFG/54/2017	n/a	bovine	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
IRN/31/2016	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
TUR/448/2017*	n/a	sheep	FMDI	Turkey	ME-SA/PanAsia-2/ANT-10

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label	accession	host(s)	lab	country	taxonomic information
PAK/18/2017	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
IRN/1/2018	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/11/2017	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/5/2017	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
NIAB/PUN/PAK/226/2017*	MH085208	n/a	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
AFG/44/2017	n/a	bovine	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Bhakhar3/PUN/PAK/2018*	MK342186	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
VRI/CAMB/Faislabad1/PUN/PAK*	MK292142	cattle	VRI-CAMB	Pakistan	ME-SA/PanAsia-2/ANT-10
NIAB/PUN/PAK/220/2017*	MH085205	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/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
IRN/88/2009	KY091282	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
NEP/1/2015	MN276045	cattle	WRLFMD	Nepal	ME-SA/PanAsia-2/KAT-15
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
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/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
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
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