

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

Genotyping Report

FMDV serotype: O
Country: Pakistan
Year: 2017, 2019, 2020
Batch: WRLFMD/2020/00002
No. of sequences: 30
Report date: 29th June 2020
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



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Virus sample name:	PAK/18/2017
Sender reference:	PK/20/48 (4308)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	28/11/2017
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	17/03/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44828, genome 44829, sequence viba_44830, sequencing info 44831	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_39743	VRI/CAMB/Faisalabad1/PUN/PAK	cattle	99.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_39040	NIAB/PUN/PAK/205/2017	water buffalo	99.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_39763	NIAB/PUN/PAK/218/2017		99.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_33635	IRN/5/2017	cattle	99.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_33631	IRN/3/2017	sheep	99.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_33623	IRN/36/2016	sheep	99.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_33639	IRN/8/2017	cattle	98.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_39779	NIAB/PUN/PAK/226/2017		98.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_39747	VRI/CAMB/Sahiwal1/PUN/PAK	cattle	98.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_33627	IRN/37/2016	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		93.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	91.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	91.3	0	O	ME-SA	PanAsia-2	PUN-10
viba_650	IRN/8/2005	ovine	91.2	0	O	ME-SA	PanAsia-2	
viba_491	TUR/257/2008		90.8	0	O	ME-SA	PanAsia-2	TER-08
viba_666	IRN/18/2010	cattle	90.5	0	O	ME-SA	PanAsia-2	BAL-09
viba_505	TUR/264/2009		90.2	0	O	ME-SA	PanAsia-2	SAN-09
viba_285	UKG/35/2001	porcine	89.9	0	O	ME-SA	PanAsia	
viba_860	IRN/6/2015	cattle	89.6	0	O	ME-SA	PanAsia-2	QOM-15
viba_850	NEP/1/2015	cattle	89.4	1	O	ME-SA	PanAsia-2	KAT-15

Virus sample name:	PAK/35/2019
Sender reference:	PK/20/1 (4506)
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	02/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	17/03/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44832, genome 44833, sequence viba_44834, sequencing info 44835

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44846	PAK/42/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44890	PAK/55/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.8	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44929	PAK/67/2019	cattle	99.5	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	97.2	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.4	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.7	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	89.5	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	88.5	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.3	0	O	ME-SA	PanAsia	
viba_354	PAK/16/2010	cattle	87.8	0	O	ME-SA	PanAsia-2	PUN-10
viba_617	IND/53/79	bovine	87.7	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.7	0	O	ME-SA		

Virus sample name:	PAK/36/2019
Sender reference:	PK/20/2 (4562)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	08/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	17/03/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44836, genome 44837, sequence viba_44838, sequencing info 44839

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44874	PAK/51/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44878	PAK/52/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_36750	BHU/2/2018	cattle	98.9	0	O	ME-SA	Ind-2001	e
viba_36754	BHU/3/2018	cattle	98.9	0	O	ME-SA	Ind-2001	e
viba_41608	NEP/16/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41664	NEP/33/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41628	NEP/23/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41572	NEP/5/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41692	NEP/40/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41716	NEP/46/2018	cattle	98.7	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	97.0	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	91.8	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.6	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.9	0	O	ME-SA	Ind-2001	c
viba_359	Manisa/TUR/69		87.8	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_576	IND/R2/75		87.7	0	O	ME-SA		
viba_285	UKG/35/2001	porcine	87.7	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.5	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	PAK/41/2019
Sender reference:	PK/20/7 (4581)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	16/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44840, genome 44841, sequence viba_44842, sequencing info 44843

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44846	PAK/42/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44890	PAK/55/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.8	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44929	PAK/67/2019	cattle	99.5	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	97.2	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.4	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.7	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	89.5	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	88.5	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.3	0	O	ME-SA	PanAsia	
viba_354	PAK/16/2010	cattle	87.8	0	O	ME-SA	PanAsia-2	PUN-10
viba_617	IND/53/79	bovine	87.7	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.7	0	O	ME-SA		

Virus sample name:	PAK/42/2019
Sender reference:	PK/20/8 (4583)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	16/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44844, genome 44845, sequence viba_44846, sequencing info 44847	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_42476	PAK/1/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44890	PAK/55/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.8	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44929	PAK/67/2019	cattle	99.5	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	97.2	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.4	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.7	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	89.5	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	88.5	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.3	0	O	ME-SA	PanAsia	
viba_354	PAK/16/2010	cattle	87.8	0	O	ME-SA	PanAsia-2	PUN-10
viba_617	IND/53/79	bovine	87.7	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.7	0	O	ME-SA		

Virus sample name:	PAK/43/2019
Sender reference:	PK/20/9 (4584)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	16/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44848, genome 44849, sequence viba_44850, sequencing info 44851	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44846	PAK/42/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44890	PAK/55/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.8	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44929	PAK/67/2019	cattle	99.5	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	97.2	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.4	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.7	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	89.5	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	88.5	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.3	0	O	ME-SA	PanAsia	
viba_354	PAK/16/2010	cattle	87.8	0	O	ME-SA	PanAsia-2	PUN-10
viba_617	IND/53/79	bovine	87.7	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.7	0	O	ME-SA		

Virus sample name:	PAK/44/2019
Sender reference:	PK/20/10 (4586)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	16/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44852, genome 44853, sequence viba_44854, sequencing info 44855

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44858	PAK/45/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44890	PAK/55/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44929	PAK/67/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.8	0	O	ME-SA	Ind-2001	e
viba_44846	PAK/42/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	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	97.2	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.4	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.6	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	89.5	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.1	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	88.1	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	87.9	0	O	ME-SA	PanAsia-2	PUN-10
viba_719	IRN/88/2009		87.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_617	IND/53/79	bovine	87.7	0	O	ME-SA		

Virus sample name:	PAK/45/2019
Sender reference:	PK/20/11 (4588)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	16/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44856, genome 44857, sequence viba_44858, sequencing info 44859

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44854	PAK/44/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44890	PAK/55/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44929	PAK/67/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.8	0	O	ME-SA	Ind-2001	e
viba_44846	PAK/42/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	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	97.2	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.4	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.6	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	89.5	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.1	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	88.1	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	87.9	0	O	ME-SA	PanAsia-2	PUN-10
viba_719	IRN/88/2009		87.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_617	IND/53/79	bovine	87.7	0	O	ME-SA		

Virus sample name:	PAK/46/2019
Sender reference:	PK/20/44 (9)
Location of origin:	Gujranwala, Punjab
Country of origin:	Pakistan
Date of collection:	19/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	17/03/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44860, genome 44861, sequence viba_44862, sequencing info 44863

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44901	PAK/59/2019	water buffalo	99.7	0	O	ME-SA	Ind-2001	e
viba_36750	BHU/2/2018	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_36754	BHU/3/2018	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_41608	NEP/16/2018	cattle	97.9	0	O	ME-SA	Ind-2001	e
viba_41664	NEP/33/2018	cattle	97.9	0	O	ME-SA	Ind-2001	e
viba_41628	NEP/23/2018	cattle	97.9	0	O	ME-SA	Ind-2001	e
viba_41692	NEP/40/2018	cattle	97.9	0	O	ME-SA	Ind-2001	e
viba_41716	NEP/46/2018	cattle	97.9	0	O	ME-SA	Ind-2001	e
viba_41568	NEP/4/2018	cattle	97.9	0	O	ME-SA	Ind-2001	e
viba_41604	NEP/14/2018	cattle	97.9	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	96.2	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	92.1	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	90.1	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.3	0	O	ME-SA	Ind-2001	c
viba_354	PAK/16/2010	cattle	87.7	0	O	ME-SA	PanAsia-2	PUN-10
viba_766	IRN/31/2009	cattle	87.5	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	87.1	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		86.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_359	Manisa/TUR/69		86.9	0	O	ME-SA		

Virus sample name:	PAK/47/2019
Sender reference:	PK/20/12 (4592)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	24/01/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44864, genome 44865, sequence viba_44866, sequencing info 44867	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_42500	PAK/16/2019	cattle	99.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_42492	PAK/12/2019	cattle	98.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_44882	PAK/53/2019	water buffalo	98.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_44905	PAK/60/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44909	PAK/61/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44917	PAK/63/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44913	PAK/62/2019	water buffalo	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faislabad1/PUN/PAK	cattle	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_44894	PAK/57/2019	cattle	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_44898	PAK/58/2019	cattle	98.3	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		93.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	91.3	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	91.0	0	O	ME-SA	PanAsia-2	PUN-10
viba_491	TUR/257/2008		90.8	0	O	ME-SA	PanAsia-2	TER-08
viba_650	IRN/8/2005	ovine	90.7	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	90.5	0	O	ME-SA	PanAsia-2	BAL-09
viba_505	TUR/264/2009		90.2	0	O	ME-SA	PanAsia-2	SAN-09
viba_850	NEP/1/2015	cattle	89.7	1	O	ME-SA	PanAsia-2	KAT-15
viba_860	IRN/6/2015	cattle	89.6	0	O	ME-SA	PanAsia-2	QOM-15
viba_285	UKG/35/2001	porcine	89.6	0	O	ME-SA	PanAsia	

Virus sample name:	PAK/50/2019
Sender reference:	PK/20/15 (4656)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	04/02/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44868, genome 44869, sequence viba_44870, sequencing info 44871	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44890	PAK/55/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.7	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44846	PAK/42/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	cattle	99.5	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	97.3	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	91.8	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	91.2	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	89.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.5	0	O	ME-SA	PanAsia	
viba_354	PAK/16/2010	cattle	88.2	0	O	ME-SA	PanAsia-2	PUN-10
viba_617	IND/53/79	bovine	88.0	0	O	ME-SA		
viba_719	IRN/88/2009		87.9	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	PAK/51/2019
Sender reference:	PK/20/16 (4661)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	04/02/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44872, genome 44873, sequence viba_44874, sequencing info 44875

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44878	PAK/52/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44838	PAK/36/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_36750	BHU/2/2018	cattle	98.9	0	O	ME-SA	Ind-2001	e
viba_36754	BHU/3/2018	cattle	98.9	0	O	ME-SA	Ind-2001	e
viba_41608	NEP/16/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41664	NEP/33/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41628	NEP/23/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41572	NEP/5/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41692	NEP/40/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41716	NEP/46/2018	cattle	98.7	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	97.0	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	91.8	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.6	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.3	0	O	ME-SA	Ind-2001	c
viba_576	IND/R2/75		88.0	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.8	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	87.7	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.5	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	PAK/52/2019
Sender reference:	PK/20/17 (4662)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	04/02/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44876, genome 44877, sequence viba_44878, sequencing info 44879

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44874	PAK/51/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44838	PAK/36/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_36750	BHU/2/2018	cattle	98.9	0	O	ME-SA	Ind-2001	e
viba_36754	BHU/3/2018	cattle	98.9	0	O	ME-SA	Ind-2001	e
viba_41608	NEP/16/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41664	NEP/33/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41628	NEP/23/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41572	NEP/5/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41692	NEP/40/2018	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_41716	NEP/46/2018	cattle	98.7	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	97.0	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	91.8	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.6	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	90.3	0	O	ME-SA	Ind-2001	c
viba_576	IND/R2/75		88.0	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.8	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	87.8	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	87.7	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.5	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	PAK/53/2019
Sender reference:	PK/20/18 (4669)
Location of origin:	Chakwal, Punjab
Country of origin:	Pakistan
Date of collection:	06/02/2019
Host species:	water buffalo
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	10/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44880, genome 44881, sequence viba_44882, sequencing info 44883

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_42492	PAK/12/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_44866	PAK/47/2019	cattle	98.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_44905	PAK/60/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44909	PAK/61/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44917	PAK/63/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44913	PAK/62/2019	water buffalo	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44894	PAK/57/2019	cattle	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_44898	PAK/58/2019	cattle	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_42500	PAK/16/2019	cattle	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faislabad1/PUN/PAK	cattle	97.6	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		93.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	91.3	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	91.0	0	O	ME-SA	PanAsia-2	PUN-10
viba_491	TUR/257/2008		90.5	0	O	ME-SA	PanAsia-2	TER-08
viba_666	IRN/18/2010	cattle	90.5	0	O	ME-SA	PanAsia-2	BAL-09
viba_650	IRN/8/2005	ovine	90.4	0	O	ME-SA	PanAsia-2	
viba_505	TUR/264/2009		89.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_850	NEP/1/2015	cattle	89.4	1	O	ME-SA	PanAsia-2	KAT-15
viba_860	IRN/6/2015	cattle	89.3	0	O	ME-SA	PanAsia-2	QOM-15
viba_285	UKG/35/2001	porcine	89.1	0	O	ME-SA	PanAsia	

Virus sample name:	PAK/54/2019
Sender reference:	PK/20/19 (4671)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	06/02/2019
Host species:	water buffalo
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44884, genome 44885, sequence viba_44886, sequencing info 44887

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44890	PAK/55/2019	cattle	100.0	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44846	PAK/42/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44929	PAK/67/2019	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	97.3	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	91.8	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.9	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	88.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.2	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_354	PAK/16/2010	cattle	87.9	0	O	ME-SA	PanAsia-2	PUN-10
viba_617	IND/53/79	bovine	87.8	0	O	ME-SA		

Virus sample name:	PAK/55/2019
Sender reference:	PK/20/20 (4672)
Location of origin:	Rawalpindi, Punjab
Country of origin:	Pakistan
Date of collection:	06/02/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	12/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44888, genome 44889, sequence viba_44890, sequencing info 44891

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44886	PAK/54/2019	water buffalo	100.0	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44846	PAK/42/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44929	PAK/67/2019	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	97.3	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	91.8	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.9	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	88.6	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.2	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_354	PAK/16/2010	cattle	87.9	0	O	ME-SA	PanAsia-2	PUN-10
viba_617	IND/53/79	bovine	87.8	0	O	ME-SA		

Virus sample name:	PAK/57/2019
Sender reference:	PK/20/22 (4819)
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	26/02/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44892, genome 44893, sequence viba_44894, sequencing info 44895	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44898	PAK/58/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_42492	PAK/12/2019	cattle	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_44866	PAK/47/2019	cattle	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_44882	PAK/53/2019	water buffalo	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_44905	PAK/60/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_44909	PAK/61/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_44917	PAK/63/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_42500	PAK/16/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_44913	PAK/62/2019	water buffalo	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faislabad1/PUN/PAK	cattle	97.2	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		92.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	91.3	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	90.5	0	O	ME-SA	PanAsia-2	PUN-10
viba_491	TUR/257/2008		90.4	0	O	ME-SA	PanAsia-2	TER-08
viba_650	IRN/8/2005	ovine	90.2	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	90.0	0	O	ME-SA	PanAsia-2	BAL-09
viba_860	IRN/6/2015	cattle	89.6	0	O	ME-SA	PanAsia-2	QOM-15
viba_505	TUR/264/2009		89.4	0	O	ME-SA	PanAsia-2	SAN-09
viba_285	UKG/35/2001	porcine	89.4	0	O	ME-SA	PanAsia	
viba_850	NEP/1/2015	cattle	89.1	1	O	ME-SA	PanAsia-2	KAT-15

Virus sample name:	PAK/58/2019
Sender reference:	PK/20/23 (4820)
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	26/02/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy2
Harvest date of material:	12/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44896, genome 44897, sequence viba_44898, sequencing info 44899	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44894	PAK/57/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_42492	PAK/12/2019	cattle	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_44866	PAK/47/2019	cattle	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_44882	PAK/53/2019	water buffalo	98.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_44905	PAK/60/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_44909	PAK/61/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_44917	PAK/63/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_42500	PAK/16/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_44913	PAK/62/2019	water buffalo	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faisalabad1/PUN/PAK	cattle	97.2	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		92.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	91.3	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	90.5	0	O	ME-SA	PanAsia-2	PUN-10
viba_491	TUR/257/2008		90.4	0	O	ME-SA	PanAsia-2	TER-08
viba_650	IRN/8/2005	ovine	90.2	0	O	ME-SA	PanAsia-2	
viba_666	IRN/18/2010	cattle	90.0	0	O	ME-SA	PanAsia-2	BAL-09
viba_860	IRN/6/2015	cattle	89.6	0	O	ME-SA	PanAsia-2	QOM-15
viba_505	TUR/264/2009		89.4	0	O	ME-SA	PanAsia-2	SAN-09
viba_285	UKG/35/2001	porcine	89.4	0	O	ME-SA	PanAsia	
viba_850	NEP/1/2015	cattle	89.1	1	O	ME-SA	PanAsia-2	KAT-15

Virus sample name:	PAK/59/2019
Sender reference:	PK/20/42 (1)
Location of origin:	Nankana Sahib, Punjab
Country of origin:	Pakistan
Date of collection:	26/02/2019
Host species:	water buffalo
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	17/03/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44808, genome 44900, sequence viba_44901, sequencing info 44902

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44862	PAK/46/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_36750	BHU/2/2018	cattle	98.4	0	O	ME-SA	Ind-2001	e
viba_36754	BHU/3/2018	cattle	98.4	0	O	ME-SA	Ind-2001	e
viba_41608	NEP/16/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_41664	NEP/33/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_41628	NEP/23/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_41692	NEP/40/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_41716	NEP/46/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_41568	NEP/4/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_41604	NEP/14/2018	cattle	98.3	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	96.5	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	92.4	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	90.4	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	87.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	87.5	0	O	ME-SA	PanAsia-2	PUN-10
viba_285	UKG/35/2001	porcine	87.4	0	O	ME-SA	PanAsia	
viba_719	IRN/88/2009		87.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		

Virus sample name:	PAK/60/2019
Sender reference:	PK/20/24 (4828)
Location of origin:	Chakwal, Punjab
Country of origin:	Pakistan
Date of collection:	01/03/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44903, genome 44904, sequence viba_44905, sequencing info 44906

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44909	PAK/61/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_44917	PAK/63/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_44913	PAK/62/2019	water buffalo	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_42492	PAK/12/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44866	PAK/47/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44882	PAK/53/2019	water buffalo	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_42500	PAK/16/2019	cattle	98.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_44894	PAK/57/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_44898	PAK/58/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faislabad1/PUN/PAK	cattle	97.2	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		92.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	91.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	90.7	0	O	ME-SA	PanAsia-2	PUN-10
viba_491	TUR/257/2008		90.5	0	O	ME-SA	PanAsia-2	TER-08
viba_666	IRN/18/2010	cattle	90.4	0	O	ME-SA	PanAsia-2	BAL-09
viba_650	IRN/8/2005	ovine	90.0	0	O	ME-SA	PanAsia-2	
viba_505	TUR/264/2009		89.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_850	NEP/1/2015	cattle	89.4	1	O	ME-SA	PanAsia-2	KAT-15
viba_30238	MUR/19/2016	cattle	89.4	0	O	ME-SA	Ind-2001	e
viba_860	IRN/6/2015	cattle	89.1	0	O	ME-SA	PanAsia-2	QOM-15

Virus sample name:	PAK/61/2019
Sender reference:	PK/20/25 (4829)
Location of origin:	Chakwal, Punjab
Country of origin:	Pakistan
Date of collection:	01/03/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44907, genome 44908, sequence viba_44909, sequencing info 44910	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44905	PAK/60/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_44917	PAK/63/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_44913	PAK/62/2019	water buffalo	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_42492	PAK/12/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44866	PAK/47/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44882	PAK/53/2019	water buffalo	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_42500	PAK/16/2019	cattle	98.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_44894	PAK/57/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_44898	PAK/58/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faislabad1/PUN/PAK	cattle	97.2	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		92.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	91.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	90.7	0	O	ME-SA	PanAsia-2	PUN-10
viba_491	TUR/257/2008		90.5	0	O	ME-SA	PanAsia-2	TER-08
viba_666	IRN/18/2010	cattle	90.4	0	O	ME-SA	PanAsia-2	BAL-09
viba_650	IRN/8/2005	ovine	90.0	0	O	ME-SA	PanAsia-2	
viba_505	TUR/264/2009		89.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_850	NEP/1/2015	cattle	89.4	1	O	ME-SA	PanAsia-2	KAT-15
viba_30238	MUR/19/2016	cattle	89.4	0	O	ME-SA	Ind-2001	e
viba_860	IRN/6/2015	cattle	89.1	0	O	ME-SA	PanAsia-2	QOM-15

Virus sample name:	PAK/62/2019
Sender reference:	PK/20/26 (4832)
Location of origin:	Chakwal, Punjab
Country of origin:	Pakistan
Date of collection:	01/03/2019
Host species:	water buffalo
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44911, genome 44912, sequence viba_44913, sequencing info 44914

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44905	PAK/60/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_44909	PAK/61/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_44917	PAK/63/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_42492	PAK/12/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44866	PAK/47/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44882	PAK/53/2019	water buffalo	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_42500	PAK/16/2019	cattle	98.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_44894	PAK/57/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_44898	PAK/58/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faislabad1/PUN/PAK	cattle	97.2	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		92.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	91.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	90.7	0	O	ME-SA	PanAsia-2	PUN-10
viba_491	TUR/257/2008		90.5	0	O	ME-SA	PanAsia-2	TER-08
viba_666	IRN/18/2010	cattle	90.4	0	O	ME-SA	PanAsia-2	BAL-09
viba_650	IRN/8/2005	ovine	90.0	0	O	ME-SA	PanAsia-2	
viba_505	TUR/264/2009		89.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_850	NEP/1/2015	cattle	89.4	1	O	ME-SA	PanAsia-2	KAT-15
viba_30238	MUR/19/2016	cattle	89.4	0	O	ME-SA	Ind-2001	e
viba_860	IRN/6/2015	cattle	89.1	0	O	ME-SA	PanAsia-2	QOM-15

Virus sample name:	PAK/63/2019
Sender reference:	PK/20/27 (4833)
Location of origin:	Chakwal, Punjab
Country of origin:	Pakistan
Date of collection:	01/03/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44915, genome 44916, sequence viba_44917, sequencing info 44918

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44905	PAK/60/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_44909	PAK/61/2019	cattle	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_44913	PAK/62/2019	water buffalo	100.0	0	O	ME-SA	PanAsia-2	ANT-10
viba_42492	PAK/12/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44866	PAK/47/2019	cattle	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_44882	PAK/53/2019	water buffalo	98.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_42500	PAK/16/2019	cattle	98.1	0	O	ME-SA	PanAsia-2	ANT-10
viba_44894	PAK/57/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_44898	PAK/58/2019	cattle	97.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faislabad1/PUN/PAK	cattle	97.2	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		92.8	0	O	ME-SA	PanAsia-2	ANT-10
viba_766	IRN/31/2009	cattle	91.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	90.7	0	O	ME-SA	PanAsia-2	PUN-10
viba_491	TUR/257/2008		90.5	0	O	ME-SA	PanAsia-2	TER-08
viba_666	IRN/18/2010	cattle	90.4	0	O	ME-SA	PanAsia-2	BAL-09
viba_650	IRN/8/2005	ovine	90.0	0	O	ME-SA	PanAsia-2	
viba_505	TUR/264/2009		89.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_850	NEP/1/2015	cattle	89.4	1	O	ME-SA	PanAsia-2	KAT-15
viba_30238	MUR/19/2016	cattle	89.4	0	O	ME-SA	Ind-2001	e
viba_860	IRN/6/2015	cattle	89.1	0	O	ME-SA	PanAsia-2	QOM-15

Virus sample name:	PAK/64/2019
Sender reference:	PK/20/28 (4839)
Location of origin:	Attock, Punjab
Country of origin:	Pakistan
Date of collection:	08/03/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44919, genome 44920, sequence viba_44921, sequencing info 44922	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44890	PAK/55/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.7	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44846	PAK/42/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	cattle	99.5	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	97.3	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	91.8	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.9	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	88.3	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.1	0	O	ME-SA	PanAsia	
viba_860	IRN/6/2015	cattle	87.8	0	O	ME-SA	PanAsia-2	QOM-15
viba_719	IRN/88/2009		87.6	0	O	ME-SA	PanAsia-2	ANT-10
viba_617	IND/53/79	bovine	87.5	0	O	ME-SA		

Virus sample name:	PAK/66/2019
Sender reference:	PK/20/30 (4851)
Location of origin:	Swat, Khyber Pakhtunkhwa
Country of origin:	Pakistan
Date of collection:	13/03/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44923, genome 44924, sequence viba_44925, sequencing info 44926	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44890	PAK/55/2019	cattle	99.4	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.4	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_44846	PAK/42/2019	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	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	96.7	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.2	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.5	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.6	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_354	PAK/16/2010	cattle	88.1	0	O	ME-SA	PanAsia-2	PUN-10
viba_285	UKG/35/2001	porcine	88.1	0	O	ME-SA	PanAsia	
viba_617	IND/53/79	bovine	88.0	0	O	ME-SA		
viba_719	IRN/88/2009		87.4	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	PAK/67/2019
Sender reference:	PK/20/31 (4882)
Location of origin:	Mansehra, Khyber Pakhtunkhwa
Country of origin:	Pakistan
Date of collection:	19/03/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	11/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44927, genome 44928, sequence viba_44929, sequencing info 44930	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44858	PAK/45/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_44890	PAK/55/2019	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.7	0	O	ME-SA	Ind-2001	e
viba_44846	PAK/42/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	cattle	99.5	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	97.0	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.2	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	91.5	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.6	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.6	0	O	ME-SA	Ind-2001	c
viba_719	IRN/88/2009		87.9	0	O	ME-SA	PanAsia-2	ANT-10
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	87.9	0	O	ME-SA	PanAsia-2	FAR-09
viba_354	PAK/16/2010	cattle	87.8	0	O	ME-SA	PanAsia-2	PUN-10
viba_617	IND/53/79	bovine	87.5	0	O	ME-SA		

Virus sample name:	PAK/68/2019
Sender reference:	PK/20/32 (5086)
Location of origin:	Jhelum, Punjab
Country of origin:	Pakistan
Date of collection:	17/04/2019
Host species:	water buffalo
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	12/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44931, genome 44932, sequence viba_44933, sequencing info 44934

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44925	PAK/66/2019	cattle	98.9	0	O	ME-SA	Ind-2001	e
viba_44890	PAK/55/2019	cattle	98.9	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	98.9	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_44846	PAK/42/2019	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	98.7	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	98.7	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	96.5	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	92.7	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	90.3	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.6	0	O	ME-SA	Ind-2001	c
viba_359	Manisa/TUR/69		87.8	0	O	ME-SA		
viba_285	UKG/35/2001	porcine	87.6	0	O	ME-SA	PanAsia	
viba_617	IND/53/79	bovine	87.5	0	O	ME-SA		
viba_766	IRN/31/2009	cattle	87.5	0	O	ME-SA	PanAsia-2	FAR-09
viba_719	IRN/88/2009		87.1	0	O	ME-SA	PanAsia-2	ANT-10

Virus sample name:	PAK/72/2019
Sender reference:	PK/20/34 (5215)
Location of origin:	Jhelum, Punjab
Country of origin:	Pakistan
Date of collection:	25/06/2019
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	12/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020

VIBASys IDs: sample 44935, genome 44936, sequence viba_44937, sequencing info 44938

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44890	PAK/55/2019	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_44886	PAK/54/2019	water buffalo	99.2	0	O	ME-SA	Ind-2001	e
viba_44858	PAK/45/2019	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_44846	PAK/42/2019	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_42476	PAK/1/2019	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_44854	PAK/44/2019	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_44850	PAK/43/2019	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_44834	PAK/35/2019	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_44842	PAK/41/2019	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_42480	PAK/2/2019	cattle	99.1	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	96.5	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	93.0	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	89.2	0	O	ME-SA	Ind-2001	c
viba_766	IRN/31/2009	cattle	88.2	0	O	ME-SA	PanAsia-2	FAR-09
viba_285	UKG/35/2001	porcine	88.1	0	O	ME-SA	PanAsia	
viba_354	PAK/16/2010	cattle	87.8	0	O	ME-SA	PanAsia-2	PUN-10
viba_617	IND/53/79	bovine	87.7	0	O	ME-SA		
viba_359	Manisa/TUR/69		87.7	0	O	ME-SA		

Virus sample name:	PAK/74/2019
Sender reference:	PK/20/37 (722)
Location of origin:	Karachi, Sindh
Country of origin:	Pakistan
Date of collection:	13/11/2019
Host species:	water buffalo
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	12/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44939, genome 44940, sequence viba_44941, sequencing info 44942	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44945	PAK/3/2020	cattle	98.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_42512	PAK/32/2019	cattle	97.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faisalabad1/PUN/PAK	cattle	96.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_39040	NIAB/PUN/PAK/205/2017	water buffalo	96.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_34937	PAK/7/2016	cattle	96.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_39763	NIAB/PUN/PAK/218/2017	cattle	96.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_33635	IRN/5/2017	cattle	96.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_34280	AFG/35/2017	cattle	96.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_36587	AFG/54/2017	bovine	96.5	0	O	ME-SA	PanAsia-2	ANT-10
viba_33631	IRN/3/2017	sheep	96.5	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		92.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_491	TUR/257/2008		90.2	0	O	ME-SA	PanAsia-2	TER-08
viba_766	IRN/31/2009	cattle	90.2	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	89.9	0	O	ME-SA	PanAsia-2	
viba_354	PAK/16/2010	cattle	89.7	0	O	ME-SA	PanAsia-2	PUN-10
viba_666	IRN/18/2010	cattle	89.7	0	O	ME-SA	PanAsia-2	BAL-09
viba_285	UKG/35/2001	porcine	89.6	0	O	ME-SA	PanAsia	
viba_505	TUR/264/2009		89.3	0	O	ME-SA	PanAsia-2	SAN-09
viba_860	IRN/6/2015	cattle	88.8	0	O	ME-SA	PanAsia-2	QOM-15
viba_293	BHU/3/2009	cattle	88.5	0	O	ME-SA	Ind-2001	d

Virus sample name:	PAK/3/2020
Sender reference:	PK/20/35 (ICT01)
Location of origin:	Islamabad, ICT
Country of origin:	Pakistan
Date of collection:	24/02/2020
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia-2
Sublineage:	ANT-10
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	12/06/2020
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	22/06/2020
Created:	29/06/2020
Last updated:	29/06/2020
VIBASys IDs: sample 44943, genome 44944, sequence viba_44945, sequencing info 44946	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_44941	PAK/74/2019	water buffalo	98.7	0	O	ME-SA	PanAsia-2	ANT-10
viba_42512	PAK/32/2019	cattle	97.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_39743	VRI/CAMB/Faislabad1/PUN/PAK	cattle	96.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_39040	NIAB/PUN/PAK/205/2017	water buffalo	96.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_34937	PAK/7/2016	cattle	96.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_39763	NIAB/PUN/PAK/218/2017	cattle	96.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_33635	IRN/5/2017	cattle	96.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_34280	AFG/35/2017	cattle	96.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_36587	AFG/54/2017	bovine	96.2	0	O	ME-SA	PanAsia-2	ANT-10
viba_33631	IRN/3/2017	sheep	96.2	0	O	ME-SA	PanAsia-2	ANT-10

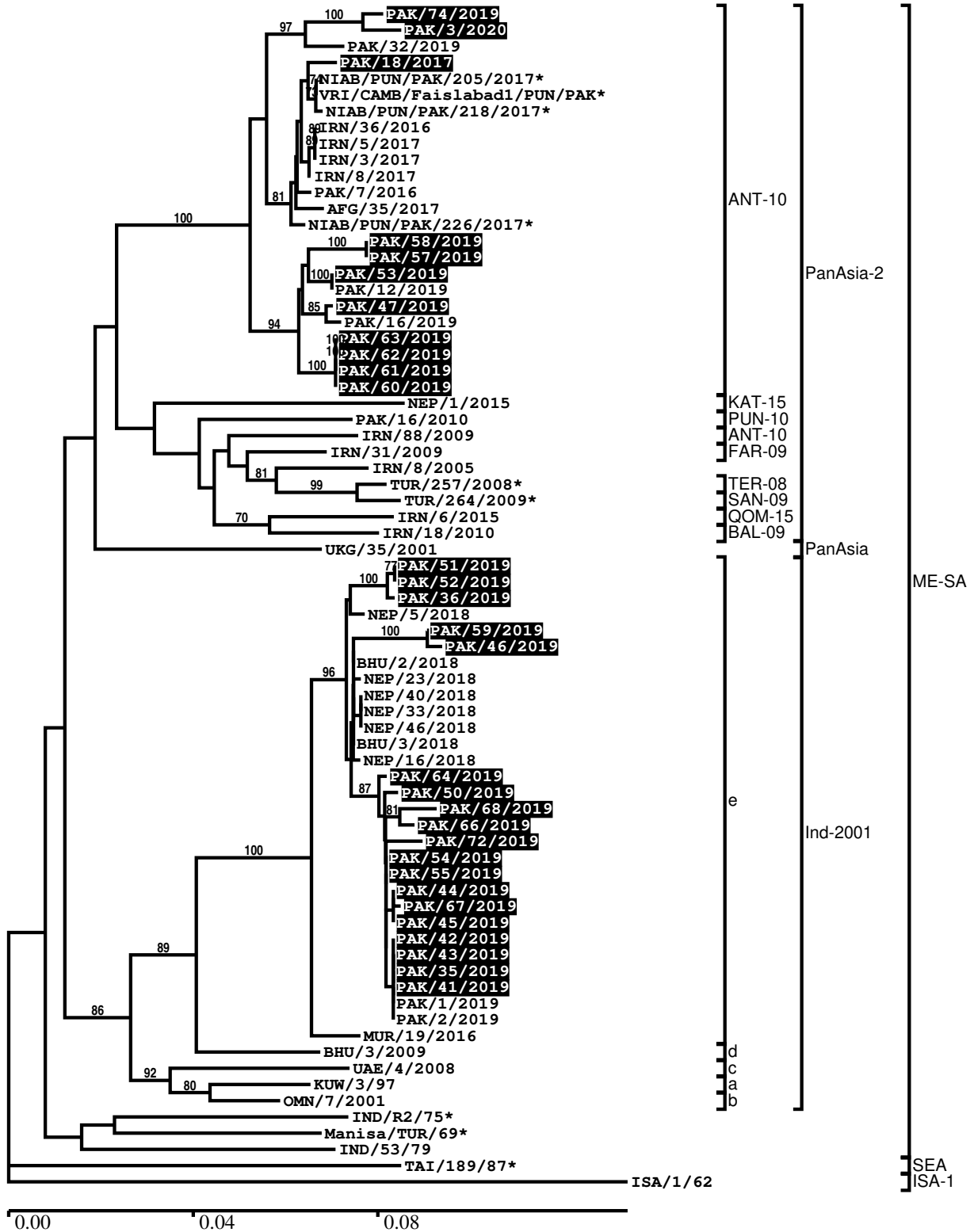
Most Closely Related Prototype Sequences

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		92.3	0	O	ME-SA	PanAsia-2	ANT-10
viba_491	TUR/257/2008		90.7	0	O	ME-SA	PanAsia-2	TER-08
viba_650	IRN/8/2005	ovine	90.7	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	90.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_666	IRN/18/2010	cattle	89.9	0	O	ME-SA	PanAsia-2	BAL-09
viba_505	TUR/264/2009		89.7	0	O	ME-SA	PanAsia-2	SAN-09
viba_354	PAK/16/2010	cattle	89.7	0	O	ME-SA	PanAsia-2	PUN-10
viba_285	UKG/35/2001	porcine	89.7	0	O	ME-SA	PanAsia	
viba_860	IRN/6/2015	cattle	89.0	0	O	ME-SA	PanAsia-2	QOM-15
viba_30238	MUR/19/2016	cattle	88.5	0	O	ME-SA	Ind-2001	e

Report on FMDV O in Pakistan in 2017, 2019, 2020

Batch: WRLFMD/2020/00002



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLFMD/2020/00002-Pakistan-O (30 sequences)
Sequence database set:	allseqs_O (4775 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:	18
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/74/2019	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/3/2020	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/32/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/18/2017	n/a	cattle	WRLFMD	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
NIAB/PUN/PAK/218/2017*	MH085204	n/a	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
IRN/36/2016	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/5/2017	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/3/2017	n/a	sheep	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/8/2017	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
PAK/7/2016	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
AFG/35/2017	n/a	cattle	WRLFMD	Afghanistan	ME-SA/PanAsia-2/ANT-10
NIAB/PUN/PAK/226/2017*	MH085208	n/a	NIAB	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/58/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/57/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/53/2019	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/12/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/47/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/16/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/63/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/62/2019	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/61/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
PAK/60/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/ANT-10
NEP/1/2015	MN276045	cattle	WRLFMD	Nepal	ME-SA/PanAsia-2/KAT-15
PAK/16/2010	KY091285	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/PUN-10
IRN/88/2009	KY091282	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-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/257/2008*	n/a	n/a	FMADI-Ankara	Turkey	ME-SA/PanAsia-2/TER-08
TUR/264/2009*	n/a	n/a	FMADI-Ankara	Turkey	ME-SA/PanAsia-2/SAN-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

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label	accession	host(s)	lab	country	taxonomic information
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
PAK/51/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/52/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/36/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
NEP/5/2018	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
PAK/59/2019	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/46/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
BHU/2/2018	MT276847	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/e
NEP/23/2018	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/40/2018	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/33/2018	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/46/2018	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
BHU/3/2018	n/a	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/e
NEP/16/2018	n/a	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
PAK/64/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/50/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/68/2019	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/66/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/72/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/54/2019	n/a	water buffalo	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/55/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/44/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/67/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/45/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/42/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/43/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/35/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/41/2019	n/a	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/1/2019	MN953619	cattle	WRLFMD	Pakistan	ME-SA/Ind-2001/e
PAK/2/2019	MN953620	cattle	WRLFMD	Pakistan	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
KUW/3/97	DQ164904	bovine	WRLFMD	Kuwait	ME-SA/Ind-2001/a
OMN/7/2001	DQ164941	bovine	WRLFMD	Oman	ME-SA/Ind-2001/b
IND/R2/75*	AF204276	n/a	PD-FMD	India	ME-SA
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	ME-SA
IND/53/79	AF292107	bovine	PD-FMD	India	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