

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

## Genotyping Report

FMDV serotype: Asia1  
Country: Iran  
Year: 2020  
Batch: WRLFMD/2021/00009  
No. of sequences: 1  
Report date: 12th August 2021  
Report generated by: Nick Knowles  
Report checked by: Hayley Hicks



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

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Virus sample name:	IRN/1/2020
Sender reference:	IR/1400/67
Location of origin:	Kordestan
Country of origin:	Iran
Date of collection:	26/04/2020
Host species:	bovine
Serotype:	Asia1
Topotype:	ASIA
Lineage:	Sindh-08
Sublineage:	
Sequence length:	627
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	10/07/2021
Primers:	As1-1C530F/EUR-2B52R, FMD-3161F/FMD-4303R
Received for sequencing:	09/08/2021
Created:	12/08/2021
Last updated:	12/08/2021
VIBASys IDs: sample 48384, genome 48385, sequence viba_48386, sequencing info 48387	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_42559	PAK/18/2019	cattle	98.1	0	Asia1	ASIA	Sindh-08	
viba_42531	PAK/3/2019	cattle	98.1	0	Asia1	ASIA	Sindh-08	
viba_42551	PAK/13/2019	cattle	97.9	0	Asia1	ASIA	Sindh-08	
viba_42539	PAK/7/2019	cattle	97.9	0	Asia1	ASIA	Sindh-08	
viba_44826	PAK/75/2019	cattle	97.9	0	Asia1	ASIA	Sindh-08	
viba_42583	PAK/26/2019	cattle	97.9	0	Asia1	ASIA	Sindh-08	
viba_42575	PAK/22/2019	cattle	97.9	0	Asia1	ASIA	Sindh-08	
viba_42579	PAK/25/2019	cattle	97.8	0	Asia1	ASIA	Sindh-08	
viba_42535	PAK/4/2019	cattle	97.8	0	Asia1	ASIA	Sindh-08	
viba_42567	PAK/20/2019	water buffalo	97.8	0	Asia1	ASIA	Sindh-08	

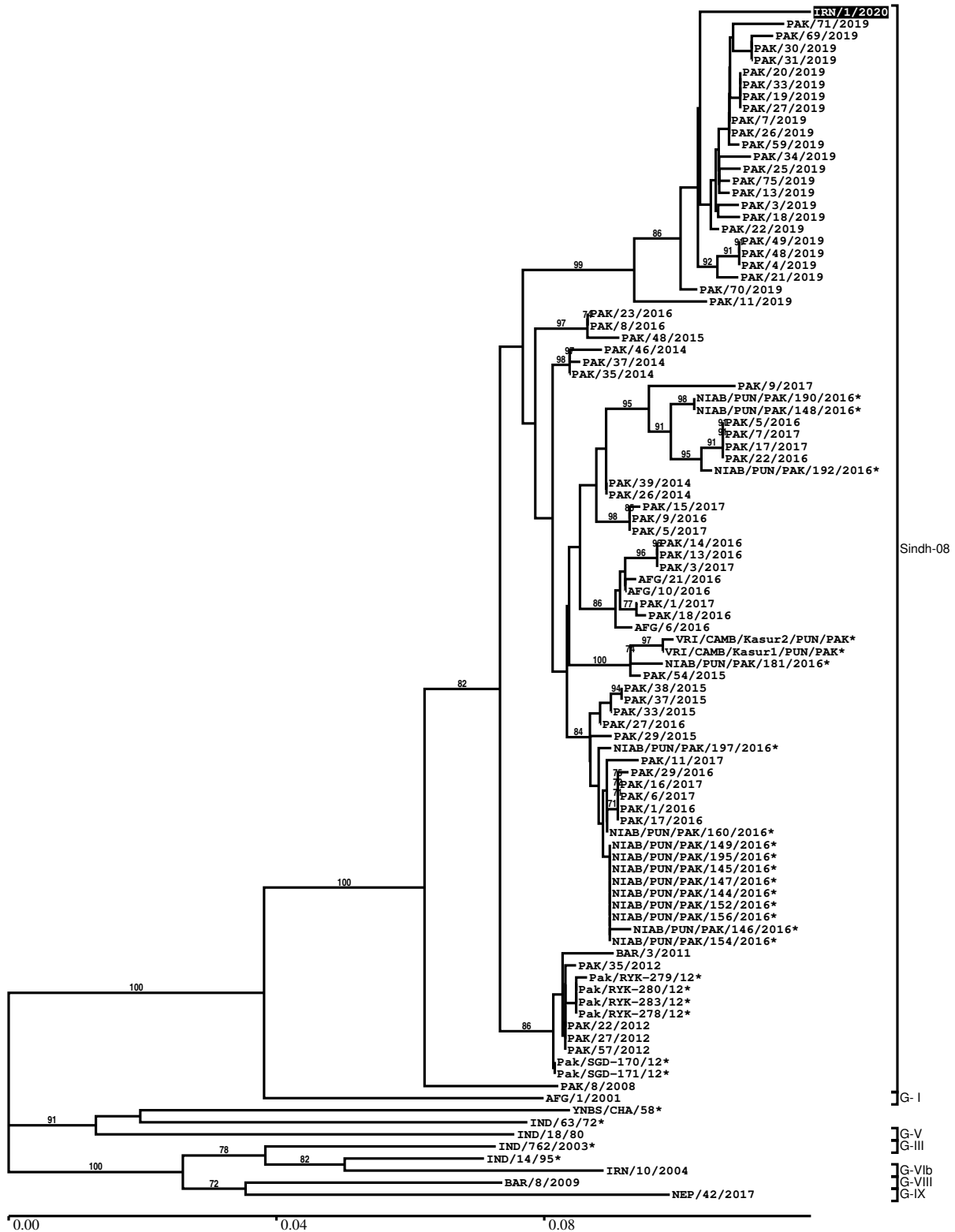
### Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_206	PAK/8/2008	water buffalo	92.0	0	Asia1	ASIA	Sindh-08	
viba_167	AFG/1/2001	bovine	89.6	0	Asia1	ASIA	G- I	
viba_12154	BAR/8/2009	cattle	85.1	0	Asia1	ASIA	G-VIII	
viba_161	IND/14/95	bovine	83.6	0	Asia1	ASIA		
viba_551	YNBS/CHA/58	bovine	83.5	0	Asia1	ASIA		
viba_775	IRN/10/2004	cattle	83.2	0	Asia1	ASIA	G-VIb	
viba_297	IND/63/72		82.9	0	Asia1	ASIA		
viba_737	IND/18/80	bovine	82.7	0	Asia1	ASIA	G-V	
viba_35781	NEP/42/2017	cattle	82.6	0	Asia1	ASIA	G-IX	
viba_385	IND/762/2003	bovine	82.6	0	Asia1	ASIA	G-III	

Report on FMDV Asia1 in Iran in 2020

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\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_Asia1
Query sequence set:	WRLFMD/2021/00009-Iran-Asia1 (1 sequences)
Sequence database set:	allseqs_Asia1 (702 sequences)
Prototype sequence set:	!prototypes_Asia1 (13 sequences)
Number of related sequences reported:	10
Minimal VP1 subsequence match length	600
Sequence alignment method:	muscle (default parameters)
Sequence alignment length:	627
Phylogeny reconstruction method:	fdnadist, fneighbor
Number of bootstrap samples:	1000
Random seed for bootstrapping:	1
Displaying bootstrap values above:	70.0%
Number of sequences in tree capped at:	100
Number of prototype sequences in tree:	10
VIBASys version:	reflabs-1.1.2

## Sequences in the Phylogenetic Tree

All sequences in the tree are in taxonomic group FMDV/Asia1/ASIA

label	accession	host(s)	lab	country	taxonomic information
IRN/1/2020	n/a	bovine	WRLFMD	Iran	Sindh-08
PAK/71/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/69/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/30/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/31/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/20/2019	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/33/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/19/2019	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/27/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/7/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/26/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/59/2019	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/34/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/25/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/75/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/13/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/3/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/18/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/22/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/49/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/48/2019	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/4/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/21/2019	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/70/2019	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/11/2019	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/23/2016	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/8/2016	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/48/2015	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/46/2014	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/37/2014	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/35/2014	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/9/2017	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
NIAB/PUN/PAK/190/2016*	MF140438	water buffalo	NIAB	Pakistan	Sindh-08
NIAB/PUN/PAK/148/2016*	MF115988	cattle	NIAB	Pakistan	Sindh-08
PAK/5/2016	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/7/2017	n/a	cattle	WRLFMD	Pakistan	Sindh-08

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
PAK/17/2017	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/22/2016	n/a	cattle	WRLFMD	Pakistan	Sindh-08
NIAB/PUN/PAK/192/2016*	MF140442	cattle	NIAB	Pakistan	Sindh-08
PAK/39/2014	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/26/2014	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/15/2017	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/9/2016	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/5/2017	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/14/2016	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/13/2016	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/3/2017	n/a	cattle	WRLFMD	Pakistan	Sindh-08
AFG/21/2016	n/a	bovine	WRLFMD	Afghanistan	Sindh-08
AFG/10/2016	n/a	bovine	WRLFMD	Afghanistan	Sindh-08
PAK/1/2017	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/18/2016	n/a	cattle	WRLFMD	Pakistan	Sindh-08
AFG/6/2016	n/a	bovine	WRLFMD	Afghanistan	Sindh-08
VRI/CAMB/Kasur2/PUN/PAK*	MK241890	cattle	VRI-CAMB	Pakistan	Sindh-08
VRI/CAMB/Kasur1/PUN/PAK*	MK241888	cattle	VRI-CAMB	Pakistan	Sindh-08
NIAB/PUN/PAK/181/2016*	MF140441	cattle	NIAB	Pakistan	Sindh-08
PAK/54/2015	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/38/2015	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/37/2015	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/33/2015	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/27/2016	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/29/2015	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
NIAB/PUN/PAK/197/2016*	MF167435	dromedary	NIAB	Pakistan	Sindh-08
PAK/11/2017	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
PAK/29/2016	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/16/2017	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/6/2017	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/1/2016	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/17/2016	n/a	cattle	WRLFMD	Pakistan	Sindh-08
NIAB/PUN/PAK/160/2016*	MF140439	water buffalo	NIAB	Pakistan	Sindh-08
NIAB/PUN/PAK/149/2016*	KY659574	cattle	NIAB	Pakistan	Sindh-08
NIAB/PUN/PAK/195/2016*	MF140443	dromedary	NIAB	Pakistan	Sindh-08
NIAB/PUN/PAK/145/2016*	KY659571	cattle	NIAB	Pakistan	Sindh-08
NIAB/PUN/PAK/147/2016*	KY659573	cattle	NIAB	Pakistan	Sindh-08
NIAB/PUN/PAK/144/2016*	KY659570	cattle	NIAB	Pakistan	Sindh-08
NIAB/PUN/PAK/152/2016*	MF115989	cattle	NIAB	Pakistan	Sindh-08
NIAB/PUN/PAK/156/2016*	MF115991	cattle	NIAB	Pakistan	Sindh-08
NIAB/PUN/PAK/146/2016*	KY659572	cattle	NIAB	Pakistan	Sindh-08
NIAB/PUN/PAK/154/2016*	KY659575	cattle	NIAB	Pakistan	Sindh-08
BAR/3/2011	n/a	n/a	WRLFMD	Bahrain	Sindh-08
PAK/35/2012	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
Pak/RYK-279/12*	KU365814	cattle	PIADC	Pakistan	Sindh-08
Pak/RYK-280/12*	KU365812	cattle	PIADC	Pakistan	Sindh-08
Pak/RYK-283/12*	KU365815	cattle	PIADC	Pakistan	Sindh-08
Pak/RYK-278/12*	KU365813	cattle	PIADC	Pakistan	Sindh-08
PAK/22/2012	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/27/2012	n/a	cattle	WRLFMD	Pakistan	Sindh-08
PAK/57/2012	n/a	water buffalo	WRLFMD	Pakistan	Sindh-08
Pak/SGD-170/12*	KU365819	cattle	PIADC	Pakistan	Sindh-08
Pak/SGD-171/12*	KU365820	cattle	PIADC	Pakistan	Sindh-08
PAK/8/2008	KY091304	water buffalo	WRLFMD	Pakistan	Sindh-08
AFG/1/2001	DQ121109	bovine	WRLFMD	Afghanistan	G- I
YNBS/CHA/58*	AY390432	bovine	LVRI	China	
IND/63/72*	AY304994	n/a	IVRI-	India	
			Bangalore		
IND/18/80	DQ121116	bovine	WRLFMD	India	G-V
IND/762/2003*	DQ101240	bovine	PD-FMD	India	G-III
IND/14/95*	AF390678	bovine	PD-FMD	India	
IRN/10/2004	DQ121119	cattle	WRLFMD	Iran	G-VIb
BAR/8/2009	MG603264	cattle	WRLFMD	Bahrain	G-VIII
NEP/42/2017	n/a	cattle	WRLFMD	Nepal	G-IX

\*, not a WRLFMD Reference Number

n/a, not available