

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

Genotyping Report

FMDV serotype: O
Country: Mongolia
Year: 2017, 2018
Batch: WRLFMD/2019/00003
No. of sequences: 6
Report date: 19th February 2019
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



Copyright © 2019 The Pirbright Institute, Ash Road, Pirbright, Woking GU24 0NF, United Kingdom.

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

email: reporting@pirbright.ac.uk

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

Virus sample name:	MOG/16/2017
Sender reference:	O/MOG/SB/18/2017
Location of origin:	Sukhbaatar
Country of origin:	Mongolia
Date of collection:	03/02/2017
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	2
Material submitted for sequencing:	BTy1
Harvest date of material:	07/02/2019
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	14/02/2019
Created:	15/02/2019
Last updated:	15/02/2019

VIBASys IDs: sample 40136, genome 40137, sequence viba_40138, sequencing info 40139

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_33562	MOG/8/2017	cattle	99.5	0	O	ME-SA	PanAsia	
viba_33558	MOG/7/2017	gazelle	99.5	0	O	ME-SA	PanAsia	
viba_33550	MOG/5/2017	cattle	99.5	0	O	ME-SA	PanAsia	
viba_33769	MOG/12/2017	cattle	99.5	0	O	ME-SA	PanAsia	
viba_33554	MOG/6/2017	gazelle	99.5	0	O	ME-SA	PanAsia	
viba_33570	MOG/10/2017a	cattle	99.5	0	O	ME-SA	PanAsia	
viba_33542	MOG/2/2017a	cattle	99.5	0	O	ME-SA	PanAsia	
viba_33546	MOG/3/2017a	cattle	99.5	0	O	ME-SA	PanAsia	
viba_35828	MOG/13/2017	cattle	99.4	0	O	ME-SA	PanAsia	
viba_18732	VIT/5/2011	cattle	99.4	0	O	ME-SA	PanAsia	

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	93.4	0	O	ME-SA	PanAsia	
viba_650	IRN/8/2005	ovine	91.2	0	O	ME-SA	PanAsia-2	
viba_705	KUW/3/97	bovine	91.2	0	O	ME-SA	Ind-2001	a
viba_766	IRN/31/2009	cattle	90.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_293	BHU/3/2009	cattle	90.5	0	O	ME-SA	Ind-2001	d
viba_541	OMN/7/2001	bovine	90.2	0	O	ME-SA	Ind-2001	b
viba_666	IRN/18/2010	cattle	90.2	0	O	ME-SA	PanAsia-2	BAL-09
viba_30238	MUR/19/2016	cattle	90.1	0	O	ME-SA	Ind-2001	e
viba_860	IRN/6/2015	cattle	89.9	0	O	ME-SA	PanAsia-2	QOM-15
viba_491	TUR/257/2008		89.7	0	O	ME-SA	PanAsia-2	TER-08

Virus sample name:	MOG/21/2018
Sender reference:	O/MOG/GS/2/2017
Location of origin:	Govisumber
Country of origin:	Mongolia
Date of collection:	02/01/2018
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:	07/02/2019
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	14/02/2019
Created:	15/02/2019
Last updated:	15/02/2019
VIBASys IDs: sample 40140, genome 40141, sequence viba_40142, sequencing info 40143	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37364	MOG/16/2018	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_37372	MOG/18/2018	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_37328	MOG/2/2018	Bactrian camel	99.7	0	O	ME-SA	Ind-2001	e
viba_40154	MOG/24/2018	porcine	99.7	0	O	ME-SA	Ind-2001	e
viba_37324	MOG/15/2017	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_35832	MOG/14/2017	cattle	99.5	0	O	ME-SA	Ind-2001	e
viba_37348	MOG/11/2018	sheep	99.4	0	O	ME-SA	Ind-2001	e
viba_37360	MOG/15/2018	cattle	99.4	0	O	ME-SA	Ind-2001	e
viba_37356	MOG/13/2018	cattle	99.4	0	O	ME-SA	Ind-2001	e
viba_37340	MOG/9/2018	sheep	99.4	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

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	92.7	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	90.5	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.0	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.2	0	O	ME-SA	PanAsia	
viba_359	Manisa/TUR/69		87.5	0	O	ME-SA		
viba_650	IRN/8/2005	ovine	87.4	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	87.4	0	O	ME-SA	PanAsia-2	FAR-09
viba_666	IRN/18/2010	cattle	87.2	0	O	ME-SA	PanAsia-2	BAL-09

Virus sample name:	MOG/22/2018
Sender reference:	O/MOG/DO/2/2018
Location of origin:	Dornod
Country of origin:	Mongolia
Date of collection:	21/02/2018
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:	08/02/2019
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	14/02/2019
Created:	15/02/2019
Last updated:	15/02/2019
VIBASys IDs: sample 40144, genome 40145, sequence viba_40146, sequencing info 40147	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_40150	MOG/23/2018	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_37189	MAY/4/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_37185	MAY/3/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_37181	MAY/2/2018	cattle	98.1	0	O	ME-SA	Ind-2001	e
viba_37193	MAY/5/2018	water buffalo	97.8	0	O	ME-SA	Ind-2001	e
viba_37139	GZZY/CHA/2018-B	cattle	97.5	0	O	ME-SA	Ind-2001	e
viba_40125	SKR/5/2019	cattle	97.0	0	O	ME-SA	Ind-2001	e
viba_40109	SKR/1/2019	cattle	97.0	0	O	ME-SA	Ind-2001	e
viba_39045	SKR/AS/2019	cattle	97.0	0	O	ME-SA	Ind-2001	e
viba_40117	SKR/3/2019	cattle	97.0	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

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	92.3	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	90.7	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.3	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		
viba_666	IRN/18/2010	cattle	87.2	0	O	ME-SA	PanAsia-2	BAL-09
viba_505	TUR/264/2009		86.9	0	O	ME-SA	PanAsia-2	SAN-09
viba_766	IRN/31/2009	cattle	86.9	0	O	ME-SA	PanAsia-2	FAR-09

Virus sample name:	MOG/23/2018
Sender reference:	O/MOG/DO/3/2018
Location of origin:	Dornod
Country of origin:	Mongolia
Date of collection:	21/02/2018
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:	07/02/2019
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	14/02/2019
Created:	15/02/2019
Last updated:	15/02/2019
VIBASys IDs: sample 40148, genome 40149, sequence viba_40150, sequencing info 40151	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_40146	MOG/22/2018	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_37189	MAY/4/2018	cattle	98.4	0	O	ME-SA	Ind-2001	e
viba_37185	MAY/3/2018	cattle	98.4	0	O	ME-SA	Ind-2001	e
viba_37181	MAY/2/2018	cattle	98.3	0	O	ME-SA	Ind-2001	e
viba_37193	MAY/5/2018	water buffalo	97.9	0	O	ME-SA	Ind-2001	e
viba_37139	GZZY/CHA/2018-B	cattle	97.6	0	O	ME-SA	Ind-2001	e
viba_40125	SKR/5/2019	cattle	97.2	0	O	ME-SA	Ind-2001	e
viba_40109	SKR/1/2019	cattle	97.2	0	O	ME-SA	Ind-2001	e
viba_39045	SKR/AS/2019	cattle	97.2	0	O	ME-SA	Ind-2001	e
viba_40117	SKR/3/2019	cattle	97.2	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_30238	MUR/19/2016	cattle	96.4	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	91.5	0	O	ME-SA	Ind-2001	b
viba_705	KUW/3/97	bovine	90.5	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.1	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.0	0	O	ME-SA	PanAsia	
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		
viba_666	IRN/18/2010	cattle	87.0	0	O	ME-SA	PanAsia-2	BAL-09
viba_766	IRN/31/2009	cattle	87.0	0	O	ME-SA	PanAsia-2	FAR-09
viba_650	IRN/8/2005	ovine	86.9	0	O	ME-SA	PanAsia-2	

Virus sample name:	MOG/24/2018
Sender reference:	O/MOG/DU/1/2018
Location of origin:	Dundgovi
Country of origin:	Mongolia
Date of collection:	26/02/2018
Host species:	porcine
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1 08/02/2019 & BTy2
Harvest date of material:	09/02/2019
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	14/02/2019
Created:	15/02/2019
Last updated:	15/02/2019
VIBASys IDs: sample 40152, genome 40153, sequence viba_40154, sequencing info 40155	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37364	MOG/16/2018	cattle	99.8	0	O	ME-SA	Ind-2001	e
viba_40142	MOG/21/2018	cattle	99.7	0	O	ME-SA	Ind-2001	e
viba_37372	MOG/18/2018	cattle	99.4	0	O	ME-SA	Ind-2001	e
viba_37328	MOG/2/2018	Bactrian camel	99.4	0	O	ME-SA	Ind-2001	e
viba_37324	MOG/15/2017	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_35832	MOG/14/2017	cattle	99.2	0	O	ME-SA	Ind-2001	e
viba_37348	MOG/11/2018	sheep	99.1	0	O	ME-SA	Ind-2001	e
viba_37360	MOG/15/2018	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_37356	MOG/13/2018	cattle	99.1	0	O	ME-SA	Ind-2001	e
viba_37340	MOG/9/2018	sheep	99.1	0	O	ME-SA	Ind-2001	e

Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

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	92.4	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	90.2	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.0	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	87.9	0	O	ME-SA	PanAsia	
viba_359	Manisa/TUR/69		87.2	0	O	ME-SA		
viba_650	IRN/8/2005	ovine	87.1	0	O	ME-SA	PanAsia-2	
viba_766	IRN/31/2009	cattle	87.1	0	O	ME-SA	PanAsia-2	FAR-09
viba_666	IRN/18/2010	cattle	86.9	0	O	ME-SA	PanAsia-2	BAL-09

Virus sample name:	MOG/25/2018
Sender reference:	O/MOG/SB/1/2018
Location of origin:	Sukhbaatar
Country of origin:	Mongolia
Date of collection:	26/02/2018
Host species:	cattle
Serotype:	O
Topotype:	SEA
Lineage:	Mya-98
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	BTy1
Harvest date of material:	07/02/2019
Primers:	O-1C244F/EUR-2B52R; O-1C272F/EUR-2B52R
Received for sequencing:	14/02/2019
Created:	15/02/2019
Last updated:	15/02/2019
VIBASys IDs: sample 40156, genome 40157, sequence viba_40158, sequencing info 40159	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_37332	MOG/7/2018	cattle	99.7	0	O	SEA	Mya-98	
viba_37123	NXYCh/CHA/2018-B	cattle	98.4	0	O	SEA	Mya-98	
viba_26288	TAI/22/2015	water buffalo	97.3	0	O	SEA	Mya-98	
viba_26312	TAI/30/2015	cattle	97.2	0	O	SEA	Mya-98	
viba_25518	MYA/1/2015	bovine	97.2	0	O	SEA	Mya-98	
viba_36424	VIT/24/2016	bovine	97.0	0	O	SEA	Mya-98	
viba_30494	TAI/21/2016	cattle	97.0	0	O	SEA	Mya-98	
viba_30518	TAI/34/2016	cattle	97.0	0	O	SEA	Mya-98	
viba_30498	TAI/26/2016	cattle	96.8	0	O	SEA	Mya-98	
viba_33993	TAI/59/2016	cattle	96.7	0	O	SEA	Mya-98	

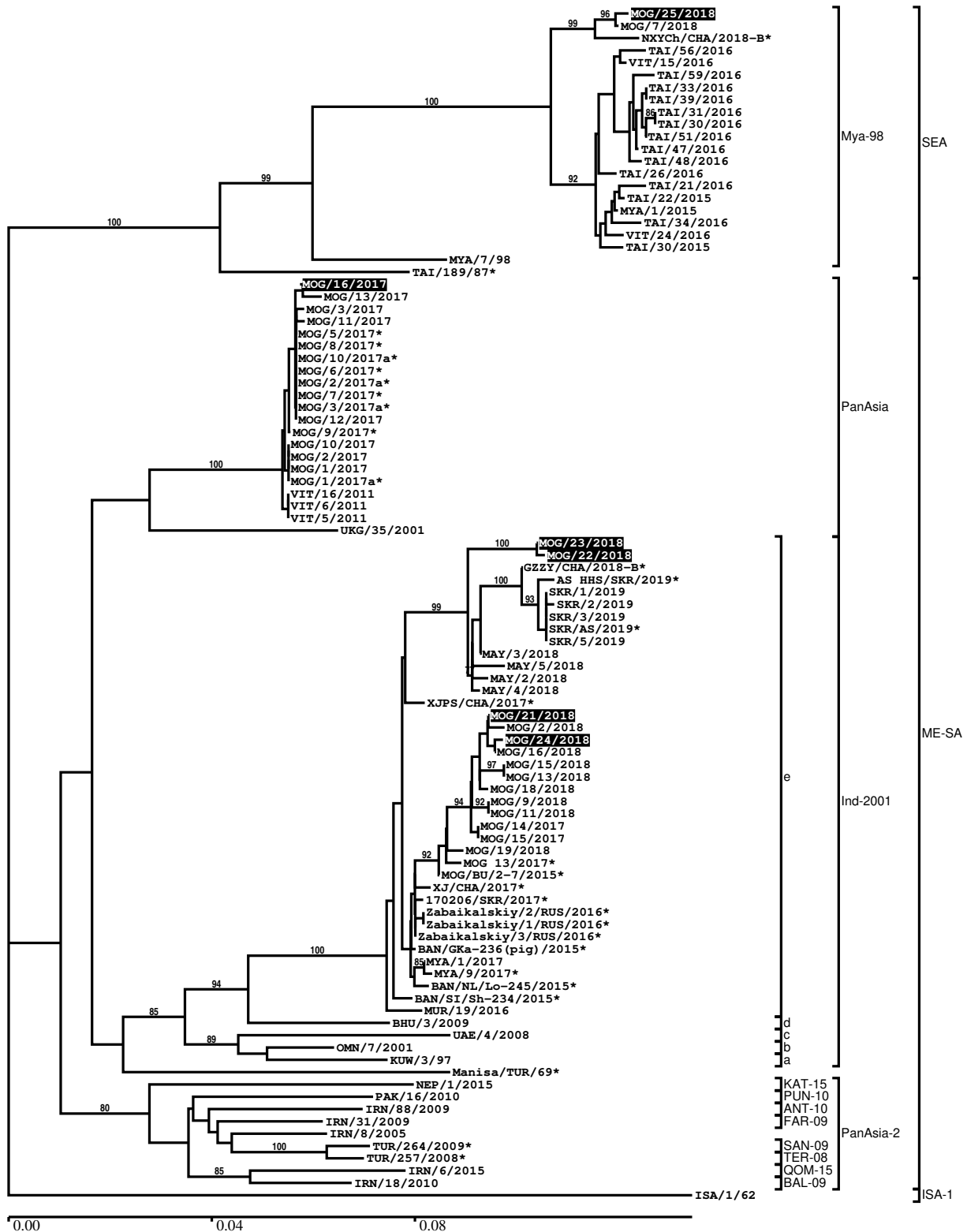
Most Closely Related Prototype Sequences

see http://www.wrlfmd.org/fmd_genotyping/prototypes.htm

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_199	MYA/7/98	bovine	91.3	0	O	SEA	Mya-98	
viba_68	TAI/189/87	bovine	89.1	0	O	SEA		
viba_491	TUR/257/2008		85.0	0	O	ME-SA	PanAsia-2	TER-08
viba_505	TUR/264/2009		84.7	0	O	ME-SA	PanAsia-2	SAN-09
viba_766	IRN/31/2009	cattle	84.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_860	IRN/6/2015	cattle	84.6	0	O	ME-SA	PanAsia-2	QOM-15
viba_666	IRN/18/2010	cattle	84.5	0	O	ME-SA	PanAsia-2	BAL-09
viba_719	IRN/88/2009		84.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_850	NEP/1/2015	cattle	84.0	1	O	ME-SA	PanAsia-2	KAT-15
viba_354	PAK/16/2010	cattle	83.8	0	O	ME-SA	PanAsia-2	PUN-10

Report on FMDV O in Mongolia in 2017, 2018

Batch: WRLFMD/2019/00003



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLFMD/2019/00003-Mongolia-O (6 sequences)
Sequence database set:	allseqs_O (4293 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
MOG/25/2018	n/a	cattle	WRLFMD	Mongolia	SEA/Mya-98
MOG/7/2018	n/a	cattle	WRLFMD	Mongolia	SEA/Mya-98
NXYCh/CHA/2018-B*	n/a	cattle	LVRI	China	SEA/Mya-98
TAI/56/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
VIT/15/2016	n/a	water buffalo	WRLFMD	Vietnam	SEA/Mya-98
TAI/59/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/33/2016	n/a	porcine	WRLFMD	Thailand	SEA/Mya-98
TAI/39/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/31/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/30/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/51/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/47/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/48/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/26/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/21/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/22/2015	n/a	water buffalo	WRLFMD	Thailand	SEA/Mya-98
MYA/1/2015	n/a	bovine	WRLFMD	Myanmar	SEA/Mya-98
TAI/34/2016	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
VIT/24/2016	n/a	bovine	WRLFMD	Vietnam	SEA/Mya-98
TAI/30/2015	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
MYA/7/98	DQ164925	bovine	WRLFMD	Myanmar	SEA/Mya-98
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
MOG/16/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia
MOG/13/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia
MOG/3/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia
MOG/11/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia
MOG/5/2017*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/8/2017*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/10/2017a*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/6/2017*	n/a	gazelle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/2/2017a*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/7/2017*	n/a	gazelle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/3/2017a*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/12/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia
MOG/9/2017*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/10/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia

continued on next page

label	accession	host(s)	lab	country	taxonomic information
MOG/2/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia
MOG/1/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia
MOG/1/2017a*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
VIT/16/2011	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/6/2011	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/5/2011	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
MOG/23/2018	n/a	cattle	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/22/2018	n/a	cattle	WRLFMD	Mongolia	ME-SA/Ind-2001/e
GZZY/CHA/2018-B*	n/a	cattle	LVRI	China	ME-SA/Ind-2001/e
AS HHS/SKR/2019*	n/a	cattle	APQA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
SKR/1/2019	n/a	cattle	WRLFMD	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
SKR/2/2019	n/a	cattle	WRLFMD	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
SKR/3/2019	n/a	cattle	WRLFMD	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
SKR/AS/2019*	n/a	cattle	APQA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
SKR/5/2019	n/a	cattle	WRLFMD	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
MAY/3/2018	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/5/2018	n/a	water buffalo	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/2/2018	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
MAY/4/2018	n/a	cattle	WRLFMD	Malaysia	ME-SA/Ind-2001/e
XJPS/CHA/2017*	KY696707	n/a	LVRI	China	ME-SA/Ind-2001/e
MOG/21/2018	n/a	cattle	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/2/2018	n/a	Bactrian camel	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/24/2018	n/a	porcine	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/16/2018	n/a	cattle	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/15/2018	n/a	cattle	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/13/2018	n/a	cattle	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/18/2018	n/a	cattle	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/9/2018	n/a	sheep	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/11/2018	n/a	sheep	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/14/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/15/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG/19/2018	n/a	sheep	WRLFMD	Mongolia	ME-SA/Ind-2001/e
MOG 13/2017*	n/a	cattle	ARRIAH	Mongolia	ME-SA/Ind-2001/e
MOG/BU/2-7/2015*	LC320038	cattle	NIAH-Japan	Mongolia	ME-SA/Ind-2001/e
XJ/CHA/2017*	MF461724	cattle	LVRI	China	ME-SA/Ind-2001/e
170206/SKR/2017*	n/a	cattle	QIA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
Zabaikalskiy/2/RUS/2016*	MG972583	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
Zabaikalskiy/1/RUS/2016*	MG983720	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
Zabaikalskiy/3/RUS/2016*	MG972584	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
BAN/GKa-236(pig)/2015*	KX712091	porcine	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
MYA/1/2017	MG972517	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e
MYA/9/2017*	MG972523	cattle	TRRL	Myanmar	ME-SA/Ind-2001/e
BAN/NL/Lo-245/2015*	KY077611	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
BAN/SI/Sh-234/2015*	KY077610	cattle	Univ Dhaka	Bangladesh	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
OMN/7/2001	DQ164941	bovine	WRLFMD	Oman	ME-SA/Ind-2001/b
KUW/3/97	DQ164904	bovine	WRLFMD	Kuwait	ME-SA/Ind-2001/a
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	ME-SA

continued on next page

label	accession	host(s)	lab	country	taxonomic information
NEP/1/2015	n/a	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/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	n/a	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/QOM-15
IRN/18/2010	KY091283	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/BAL-09
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

*, not a WRLFMD Reference Number

n/a, not available