

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

Genotyping Report

FMDV serotype: O
Country: Myanmar
Year: 2013, 2018
Batch: WRLFMD/2019/00024
No. of sequences: 2
Report date: 26th June 2019
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



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

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Virus sample name:	MYA/1/2013
Sender reference:	MYA-19/13 (13)
Location of origin:	Myanaung, Ayeyarwaddy
Country of origin:	Myanmar
Date of collection:	2013
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:	13/06/2019
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	24/06/2019
Created:	26/06/2019
Last updated:	26/06/2019
VIBASys IDs: sample 42409, genome 42410, sequence viba_42411, sequencing info 42412	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_32421	MYA/1/2017a	cattle	99.4	0	O	SEA	Mya-98	
viba_6643	MYA/4/2004	cattle	94.2	0	O	SEA	Mya-98	
viba_9071	MYA/2/2006	cattle	94.2	0	O	SEA	Mya-98	
viba_12881	MYA/3/2009	cattle	94.0	0	O	SEA	Mya-98	
viba_7762	VIT/6/2005	cattle	93.5	0	O	SEA	Mya-98	
viba_7483	MAY/1/2005	cattle	93.0	0	O	SEA	Mya-98	
viba_7487	MAY/2/2005	cattle	93.0	0	O	SEA	Mya-98	
viba_7694	TAI/1/2005	cattle	92.9	0	O	SEA	Mya-98	
viba_7706	TAI/8/2005	cattle	92.9	0	O	SEA	Mya-98	
viba_10129	TAI/10/2007	cattle	92.7	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	92.3	0	O	SEA	Mya-98	
viba_68	TAI/189/87	bovine	90.5	0	O	SEA		
viba_694	CAM/3/98	bovine	87.0	0	O	SEA	Cam-94	
viba_576	IND/R2/75		86.1	0	O	ME-SA		
viba_359	Manisa/TUR/69		86.0	0	O	ME-SA		
viba_285	UKG/35/2001	porcine	85.6	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	85.3	0	O	ME-SA	PanAsia-2	FAR-09
viba_505	TUR/264/2009		85.2	0	O	ME-SA	PanAsia-2	SAN-09
viba_354	PAK/16/2010	cattle	84.9	0	O	ME-SA	PanAsia-2	PUN-10
viba_116	SUD/2/86	bovine	84.9	0	O	EA-3		

Virus sample name:	MYA/2/2018
Sender reference:	MYA-19/04 (4)
Location of origin:	Ramree, Rakhine
Country of origin:	Myanmar
Date of collection:	05/2018
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	Ind-2001
Sublineage:	e
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	10% epi susp
Harvest date of material:	n/a
Primers:	FMD-3161F/FMD-4303R
Received for sequencing:	25/06/2019
Created:	26/06/2019
Last updated:	26/06/2019
VIBASys IDs: sample 42413, genome 42414, sequence viba_42415, sequencing info 42416	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_31595	Zabaikalskiy/3/RUS/2016	cattle	97.8	0	O	ME-SA	Ind-2001	e
viba_31082	BAN/GKa-236(pig)/2015	porcine	97.6	0	O	ME-SA	Ind-2001	e
viba_31573	170206/SKR/2017	cattle	97.6	0	O	ME-SA	Ind-2001	e
viba_30859	Zabaikalskiy/2/RUS/2016	cattle	97.6	0	O	ME-SA	Ind-2001	e
viba_32128	XJPS/CHA/2017		97.6	0	O	ME-SA	Ind-2001	e
viba_30855	Zabaikalskiy/1/RUS/2016	cattle	97.6	0	O	ME-SA	Ind-2001	e
viba_32124	XJBC/CHA/2017		97.5	0	O	ME-SA	Ind-2001	e
viba_33785	MYA/1/2017	cattle	97.5	0	O	ME-SA	Ind-2001	e
viba_31492	VIT/20/2016	cattle	97.5	0	O	ME-SA	Ind-2001	e
viba_26125	NEP/19/2015	cattle	97.5	0	O	ME-SA	Ind-2001	e

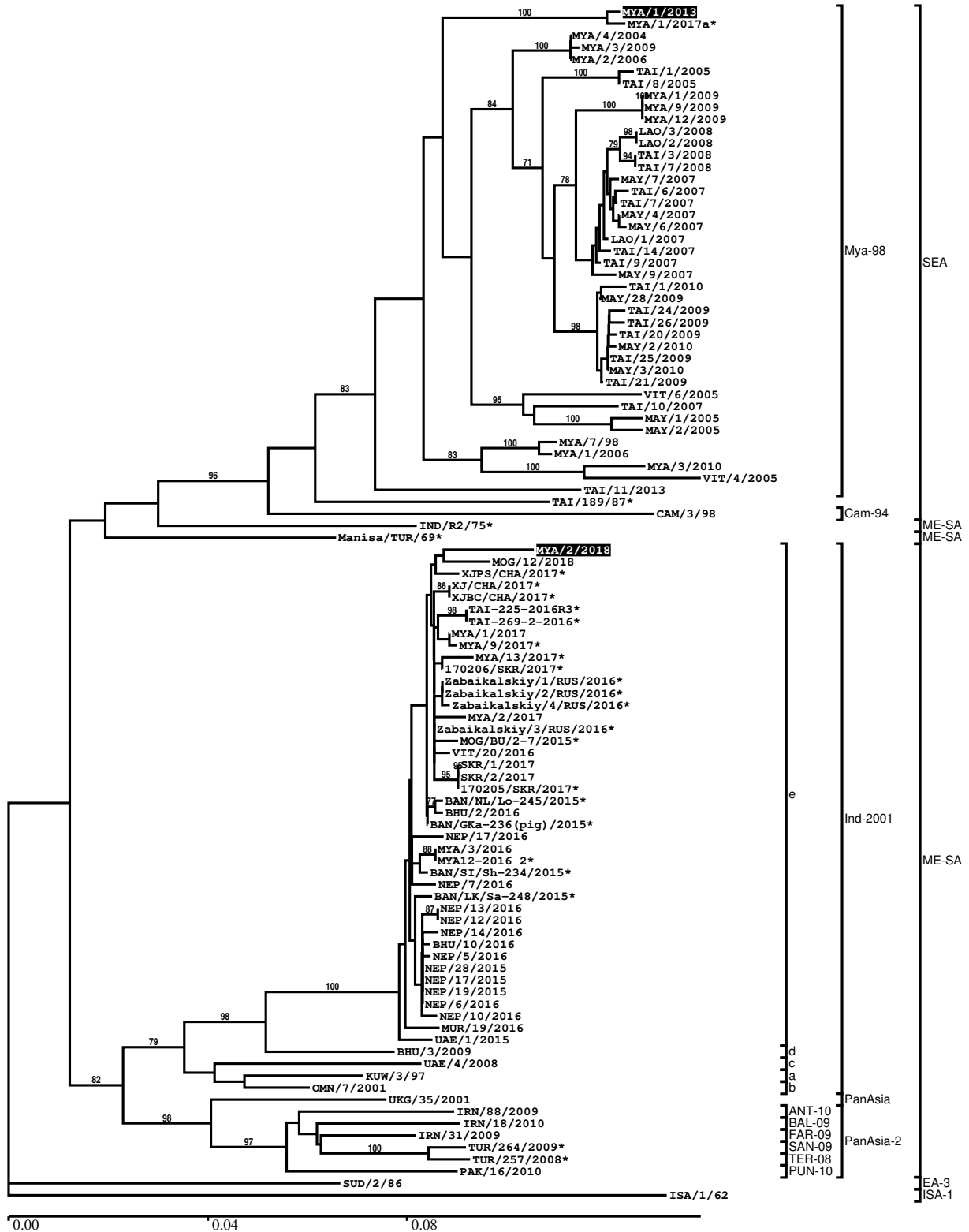
Most Closely Related Prototype Sequences

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	96.8	0	O	ME-SA	Ind-2001	e
viba_293	BHU/3/2009	cattle	92.9	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	91.0	0	O	ME-SA	Ind-2001	a
viba_397	UAE/4/2008	gazelle	89.6	0	O	ME-SA	Ind-2001	c
viba_285	UKG/35/2001	porcine	88.3	0	O	ME-SA	PanAsia	
viba_766	IRN/31/2009	cattle	87.7	0	O	ME-SA	PanAsia-2	FAR-09
viba_491	TUR/257/2008		87.4	0	O	ME-SA	PanAsia-2	TER-08
viba_719	IRN/88/2009		87.4	0	O	ME-SA	PanAsia-2	ANT-10
viba_666	IRN/18/2010	cattle	87.2	0	O	ME-SA	PanAsia-2	BAL-09

Report on FMDV O in Myanmar in 2013, 2018

Batch: WRLFMD/2019/00024



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLFMD/2019/00024-Myanmar-O (2 sequences)
Sequence database set:	allseqs_O (4580 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
MYA/1/2013	n/a	cattle	WRLFMD	Myanmar	SEA/Mya-98
MYA/1/2017a*	n/a	cattle	TRRL	Myanmar	SEA/Mya-98
MYA/4/2004	HQ116224	cattle	WRLFMD	Myanmar	SEA/Mya-98
MYA/3/2009	JQ070317	cattle	WRLFMD	Myanmar	SEA/Mya-98
MYA/2/2006	HQ116225	cattle	WRLFMD	Myanmar	SEA/Mya-98
TAI/1/2005	HQ116234	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/8/2005	HQ116237	cattle	WRLFMD	Thailand	SEA/Mya-98
MYA/1/2009	n/a	cattle	WRLFMD	Myanmar	SEA/Mya-98
MYA/9/2009	HQ116230	cattle	WRLFMD	Myanmar	SEA/Mya-98
MYA/12/2009	JQ070318	cattle	WRLFMD	Myanmar	SEA/Mya-98
LAO/3/2008	HQ116181	porcine	WRLFMD	Laos	SEA/Mya-98
LAO/2/2008	HQ116180	porcine	WRLFMD	Laos	SEA/Mya-98
TAI/3/2008	HQ116251	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/7/2008	HQ116254	water buffalo	WRLFMD	Thailand	SEA/Mya-98
MAY/7/2007	HQ116211	cattle	WRLFMD	Malaysia	SEA/Mya-98
TAI/6/2007	HQ116242	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/7/2007	HQ116243	cattle	WRLFMD	Thailand	SEA/Mya-98
MAY/4/2007	HQ116208	cattle	WRLFMD	Malaysia	SEA/Mya-98
MAY/6/2007	HQ116210	cattle	WRLFMD	Malaysia	SEA/Mya-98
LAO/1/2007	HQ116175	water buffalo	WRLFMD	Laos	SEA/Mya-98
TAI/14/2007	HQ116249	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/9/2007	HQ116245	cattle	WRLFMD	Thailand	SEA/Mya-98
MAY/9/2007	HQ116212	cattle	WRLFMD	Malaysia	SEA/Mya-98
TAI/1/2010	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
MAY/28/2009	n/a	cattle	WRLFMD	Malaysia	SEA/Mya-98
TAI/24/2009	HQ116271	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/26/2009	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/20/2009	HQ116267	cattle	WRLFMD	Thailand	SEA/Mya-98
MAY/2/2010	n/a	cattle	WRLFMD	Malaysia	SEA/Mya-98
TAI/25/2009	HQ116272	cattle	WRLFMD	Thailand	SEA/Mya-98
MAY/3/2010	n/a	cattle	WRLFMD	Malaysia	SEA/Mya-98
TAI/21/2009	HQ116268	cattle	WRLFMD	Thailand	SEA/Mya-98
VIT/6/2005	HQ116279	cattle	WRLFMD	Vietnam	SEA/Mya-98
TAI/10/2007	HQ116246	cattle	WRLFMD	Thailand	SEA/Mya-98
MAY/1/2005	HQ116196	cattle	WRLFMD	Malaysia	SEA/Mya-98
MAY/2/2005	HQ116197	cattle	WRLFMD	Malaysia	SEA/Mya-98

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label	accession	host(s)	lab	country	taxonomic information
MYA/7/98	DQ164925	bovine	WRLFMD	Myanmar	SEA/Mya-98
MYA/1/2006	JQ070316	porcine	WRLFMD	Myanmar	SEA/Mya-98
MYA/3/2010	JQ070319	cattle	WRLFMD	Myanmar	SEA/Mya-98
VIT/4/2005	HQ116278	cattle	WRLFMD	Vietnam	SEA/Mya-98
TAI/11/2013	n/a	cattle	WRLFMD	Thailand	SEA/Mya-98
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
CAM/3/98	AJ294910	bovine	WRLFMD	Cambodia	SEA/Cam-94
IND/R2/75*	AF204276	n/a	PD-FMD	India	ME-SA
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	ME-SA
MYA/2/2018	n/a	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e
MOG/12/2018	n/a	cattle	WRLFMD	Mongolia	ME-SA/Ind-2001/e
XJPS/CHA/2017*	KY696707	n/a	LVRI	China	ME-SA/Ind-2001/e
XJ/CHA/2017*	MF461724	cattle	LVRI	China	ME-SA/Ind-2001/e
XJBC/CHA/2017*	KY696708	n/a	LVRI	China	ME-SA/Ind-2001/e
TAI-225-2016R3*	MG972601	cattle	TRRL	Thailand	ME-SA/Ind-2001/e
TAI-269-2-2016*	MG972602	cattle	TRRL	Thailand	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
MYA/13/2017*	MG972527	cattle	TRRL	Myanmar	ME-SA/Ind-2001/e
170206/SKR/2017*	n/a	cattle	QIA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
Zabaikalskiy/1/RUS/2016*	MG983720	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
Zabaikalskiy/2/RUS/2016*	MG972583	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
Zabaikalskiy/4/RUS/2016*	MG972585	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
MYA/2/2017	MG972518	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e
Zabaikalskiy/3/RUS/2016*	MG972584	cattle	ARRIAH	Russia	ME-SA/Ind-2001/e
MOG/BU/2-7/2015*	LC320038	cattle	NIAH-Japan	Mongolia	ME-SA/Ind-2001/e
VIT/20/2016	MG972619	cattle	WRLFMD	Vietnam	ME-SA/Ind-2001/e
SKR/1/2017	MG972599	cattle	WRLFMD	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
SKR/2/2017	MG972600	cattle	WRLFMD	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
170205/SKR/2017*	n/a	cattle	QIA	Republic of Korea (South Korea)	ME-SA/Ind-2001/e
BAN/NL/Lo-245/2015*	KY077611	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
BHU/2/2016	MG972480	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/e
BAN/GKa-236(pig)/2015*	KX712091	porcine	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
NEP/17/2016	MG972563	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
MYA/3/2016	MG972516	cattle	WRLFMD	Myanmar	ME-SA/Ind-2001/e
MYA12-2016 2*	n/a	n/a	TRRL	Myanmar	ME-SA/Ind-2001/e
BAN/SI/Sh-234/2015*	KY077610	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
NEP/7/2016	KY449055	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
BAN/LK/Sa-248/2015*	KY077612	cattle	Univ Dhaka	Bangladesh	ME-SA/Ind-2001/e
NEP/13/2016	MG972561	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/12/2016	MG972560	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/14/2016	MG972562	water buffalo	WRLFMD	Nepal	ME-SA/Ind-2001/e
BHU/10/2016	MG972484	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/e
NEP/5/2016	KY449053	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/28/2015	KY449052	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/17/2015	KY449050	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/19/2015	KY449051	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/6/2016	KY449054	cattle	WRLFMD	Nepal	ME-SA/Ind-2001/e
NEP/10/2016	MG972558	goat	WRLFMD	Nepal	ME-SA/Ind-2001/e
MUR/19/2016	MG972510	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
UAE/1/2015	MG972605	gazelle	WRLFMD	United Arab Emirates	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
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia

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label	accession	host(s)	lab	country	taxonomic information
IRN/88/2009	KY091282	n/a	WRLFMD	Iran	ME-SA/PanAsia-2/ANT-10
IRN/18/2010	KY091283	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/BAL-09
IRN/31/2009	KY091284	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/FAR-09
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
PAK/16/2010	KY091285	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/PUN-10
SUD/2/86	DQ165075	bovine	WRLFMD	Sudan	EA-3
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

*, not a WRLFMD Reference Number

n/a, not available