

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

Genotyping Report

FMDV serotype: O
Country: Malaysia
Year: 2023
Batch: WRLMEG/2023/00009
No. of sequences: 2
Report date: 8th March 2023
Report generated by: Nick Knowles
Report checked by: Don King

This report has been prepared on behalf of the Malaysian National Foot-and-Mouth Disease Laboratory (MNFMDL) and covers VP1 sequences submitted to the WRLFMD on 08/03/2023.



Copyright © 2023 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:	MAY/0070/2023(1)
Sender reference:	0070/23 (1)
Location of origin:	No 43 Blok A2, Felda Alng 4, Rompin, Jelebu, Negerei Sembilan
Country of origin:	Malaysia
Date of collection:	02/02/2023
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	08/03/2023
Last updated:	08/03/2023

VIBASys IDs: sample 52607, genome 52608, sequence viba_52609, sequencing info 52610

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52613	MAY/0070/2023(2)	cattle	100.0	0	O	ME-SA	PanAsia	
viba_37707	LAO/1/2018	cattle	96.8	0	O	ME-SA	PanAsia	
viba_37668	TAI/12/2017	cattle	96.7	0	O	ME-SA	PanAsia	
viba_40576	VIT/3/2018	cattle	96.5	0	O	ME-SA	PanAsia	
viba_36493	VIT/32/2017	bovine	96.4	0	O	ME-SA	PanAsia	
viba_37680	TAI/16/2017	cattle	96.4	0	O	ME-SA	PanAsia	
viba_36497	VIT/1/2018	bovine	96.4	0	O	ME-SA	PanAsia	
viba_36481	VIT/29/2017	bovine	96.4	0	O	ME-SA	PanAsia	
viba_36461	VIT/18/2017	bovine	96.4	0	O	ME-SA	PanAsia	
viba_35454	BaTri/VIT/17-19372	cattle	96.4	0	O	ME-SA	PanAsia	

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_285	UKG/35/2001	porcine	91.0	0	O	ME-SA	PanAsia	
viba_705	KUW/3/97	bovine	90.9	0	O	ME-SA	Ind-2001	a
viba_541	OMN/7/2001	bovine	90.7	0	O	ME-SA	Ind-2001	b
viba_9021	LAO/2/2006	cattle	90.5	0	O	ME-SA	PanAsia	
viba_27877	SRL/2/97	bovine	90.4	0	O	ME-SA	Srl-97	
viba_293	BHU/3/2009	cattle	89.9	0	O	ME-SA	Ind-2001	d
viba_30238	MUR/19/2016	cattle	89.6	0	O	ME-SA	Ind-2001	e
viba_650	IRN/8/2005	ovine	89.4	0	O	ME-SA	PanAsia-2	
viba_359	Manisa/TUR/69		89.1	0	O	ME-SA		
viba_850	NEP/1/2015	cattle	89.0	1	O	ME-SA	PanAsia-2	KAT-15

Virus sample name:	MAY/0070/2023(2)
Sender reference:	0070/23 (2)
Location of origin:	No 43 Blok A2, Felda Alng 4, Rompin, Jelebu, Negerei Sembilan
Country of origin:	Malaysia
Date of collection:	02/02/2023
Host species:	cattle
Serotype:	O
Topotype:	ME-SA
Lineage:	PanAsia
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	n/a
Harvest date of material:	n/a
Primers:	n/a
Received for sequencing:	n/a
Created:	08/03/2023
Last updated:	08/03/2023

VIBASys IDs: sample 52611, genome 52612, sequence viba_52613, sequencing info 52614

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52609	MAY/0070/2023(1)	cattle	100.0	0	O	ME-SA	PanAsia	
viba_37707	LAO/1/2018	cattle	96.8	0	O	ME-SA	PanAsia	
viba_37668	TAI/12/2017	cattle	96.7	0	O	ME-SA	PanAsia	
viba_40576	VIT/3/2018	cattle	96.5	0	O	ME-SA	PanAsia	
viba_36493	VIT/32/2017	bovine	96.4	0	O	ME-SA	PanAsia	
viba_37680	TAI/16/2017	cattle	96.4	0	O	ME-SA	PanAsia	
viba_36497	VIT/1/2018	bovine	96.4	0	O	ME-SA	PanAsia	
viba_36481	VIT/29/2017	bovine	96.4	0	O	ME-SA	PanAsia	
viba_36461	VIT/18/2017	bovine	96.4	0	O	ME-SA	PanAsia	
viba_35454	BaTri/VIT/17-19372	cattle	96.4	0	O	ME-SA	PanAsia	

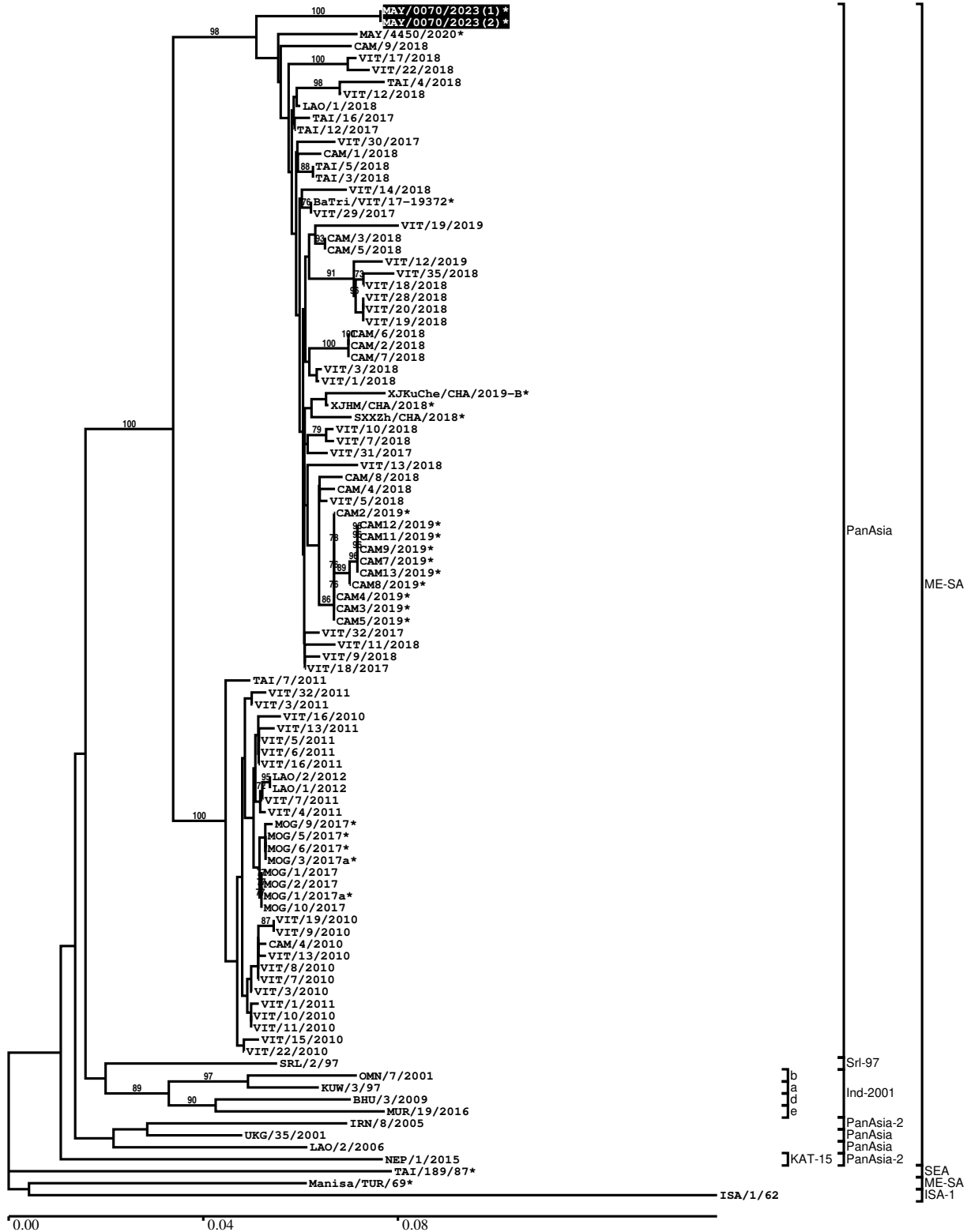
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_285	UKG/35/2001	porcine	91.0	0	O	ME-SA	PanAsia	
viba_705	KUW/3/97	bovine	90.9	0	O	ME-SA	Ind-2001	a
viba_541	OMN/7/2001	bovine	90.7	0	O	ME-SA	Ind-2001	b
viba_9021	LAO/2/2006	cattle	90.5	0	O	ME-SA	PanAsia	
viba_27877	SRL/2/97	bovine	90.4	0	O	ME-SA	Srl-97	
viba_293	BHU/3/2009	cattle	89.9	0	O	ME-SA	Ind-2001	d
viba_30238	MUR/19/2016	cattle	89.6	0	O	ME-SA	Ind-2001	e
viba_650	IRN/8/2005	ovine	89.4	0	O	ME-SA	PanAsia-2	
viba_359	Manisa/TUR/69		89.1	0	O	ME-SA		
viba_850	NEP/1/2015	cattle	89.0	1	O	ME-SA	PanAsia-2	KAT-15

Report on FMDV O in Malaysia in 2023

Batch: WRLMEG/2023/00009



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLMEG/2023/00009-Malaysia-O (2 sequences)
Sequence database set:	allseqs_O (5861 sequences)
Prototype sequence set:	!prototypes_O (58 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:	10
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
MAY/0070/2023(1)*	n/a	cattle	MNFMDL	Malaysia	ME-SA/PanAsia
MAY/0070/2023(2)*	n/a	cattle	MNFMDL	Malaysia	ME-SA/PanAsia
MAY/4450/2020*	n/a	cattle	MNFMDL	Malaysia	ME-SA/PanAsia
CAM/9/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
VIT/17/2018	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/22/2018	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/PanAsia
TAI/4/2018	n/a	cattle	WRLFMD	Thailand	ME-SA/PanAsia
VIT/12/2018	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
LAO/1/2018	n/a	cattle	WRLFMD	Laos	ME-SA/PanAsia
TAI/16/2017	n/a	cattle	WRLFMD	Thailand	ME-SA/PanAsia
TAI/12/2017	n/a	cattle	WRLFMD	Thailand	ME-SA/PanAsia
VIT/30/2017	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
CAM/1/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
TAI/5/2018	n/a	cattle	WRLFMD	Thailand	ME-SA/PanAsia
TAI/3/2018	n/a	cattle	WRLFMD	Thailand	ME-SA/PanAsia
VIT/14/2018	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
BaTri/VIT/17-19372*	n/a	cattle	RAHO6	Vietnam	ME-SA/PanAsia
VIT/29/2017	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/19/2019	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/PanAsia
CAM/3/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
CAM/5/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
VIT/12/2019	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/35/2018	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/18/2018	n/a	n/a	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/28/2018	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/20/2018	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/19/2018	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
CAM/6/2018	n/a	water buffalo	WRLFMD	Cambodia	ME-SA/PanAsia
CAM/2/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
CAM/7/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
VIT/3/2018	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/1/2018	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
XJKuChe/CHA/2019-B*	n/a	cattle	LVRI	China	ME-SA/PanAsia
XJHM/CHA/2018*	MH807443	cattle	LVRI	China	ME-SA/PanAsia
SXXZh/CHA/2018*	MH791317	cattle	LVRI	China	ME-SA/PanAsia
VIT/10/2018	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia

continued on next page

label	accession	host(s)	lab	country	taxonomic information
VIT/7/2018	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/31/2017	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/13/2018	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/PanAsia
CAM/8/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
CAM/4/2018	n/a	cattle	WRLFMD	Cambodia	ME-SA/PanAsia
VIT/5/2018	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
CAM2/2019*	OK107516	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM12/2019*	OK107524	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM11/2019*	OK107523	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM9/2019*	OK107522	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM7/2019*	OK107520	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM13/2019*	OK107525	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM8/2019*	OK107521	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM4/2019*	OK107518	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM3/2019*	OK107517	cattle	APQA	Cambodia	ME-SA/PanAsia
CAM5/2019*	OK107519	cattle	APQA	Cambodia	ME-SA/PanAsia
VIT/32/2017	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/11/2018	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/9/2018	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/18/2017	n/a	bovine	WRLFMD	Vietnam	ME-SA/PanAsia
TAI/7/2011	n/a	cattle	WRLFMD	Thailand	ME-SA/PanAsia
VIT/32/2011	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/3/2011	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/16/2010	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/13/2011	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/5/2011	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/6/2011	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/16/2011	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/PanAsia
LAO/2/2012	n/a	cattle	WRLFMD	Laos	ME-SA/PanAsia
LAO/1/2012	n/a	cattle	WRLFMD	Laos	ME-SA/PanAsia
VIT/7/2011	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/4/2011	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
MOG/9/2017*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/5/2017*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/6/2017*	n/a	gazelle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/3/2017a*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/1/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia
MOG/2/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia
MOG/1/2017a*	n/a	cattle	ARRIAH	Mongolia	ME-SA/PanAsia
MOG/10/2017	n/a	cattle	WRLFMD	Mongolia	ME-SA/PanAsia
VIT/19/2010	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/9/2010	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
CAM/4/2010	n/a	n/a	WRLFMD	Cambodia	ME-SA/PanAsia
VIT/13/2010	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/8/2010	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/7/2010	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/3/2010	n/a	porcine	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/1/2011	n/a	water buffalo	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/10/2010	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/11/2010	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/15/2010	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
VIT/22/2010	n/a	cattle	WRLFMD	Vietnam	ME-SA/PanAsia
SRL/2/97	AJ303531	bovine	WRLFMD	Sri Lanka	ME-SA/Srl-97
OMN/7/2001	DQ164941	bovine	WRLFMD	Oman	ME-SA/Ind-2001/b
KUW/3/97	DQ164904	bovine	WRLFMD	Kuwait	ME-SA/Ind-2001/a
BHU/3/2009	KM921814	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
MUR/19/2016	MG972510	cattle	WRLFMD	Mauritius	ME-SA/Ind-2001/e
IRN/8/2005	KY091281	ovine	WRLFMD	Iran	ME-SA/PanAsia-2
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
LAO/2/2006	EU667451	cattle	WRLFMD	Laos	ME-SA/PanAsia
NEP/1/2015	MN276045	cattle	WRLFMD	Nepal	ME-SA/PanAsia-2/KAT-15
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	ME-SA
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

*, not a WRLFMD Reference Number

n/a, not available