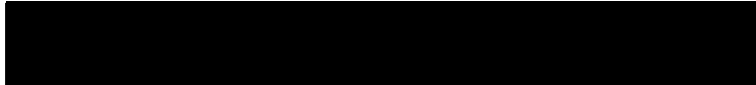




## FMD Genotyping Report

Lab Reference WRL batch Number: WRLMEG/2022/00012

Sender Details:



Date Received: 13/4/2022

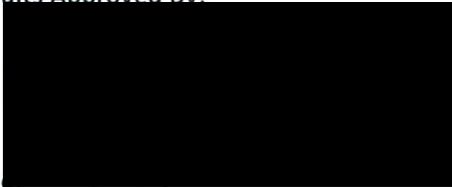
Country of Origin\*: MALAWI

This report is prepared on behalf of the OIE Sub-Saharan Africa Regional Reference Laboratory (SSARRL) for FMD (Botswana Vaccine Institute, Gaborone, Botswana) and covers a VP1 sequence submitted to the WRLFMD on 13th April 2022.

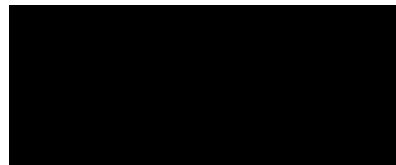
Please note that all of our phylogenetic trees can be accessed via the internet at:

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

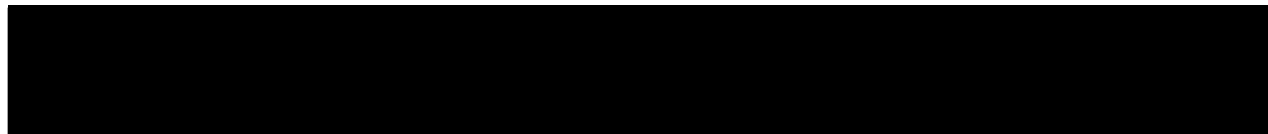
Results Approved By:



Official Stamp:



Date: 14/04/2022



To help us improve the quality of our service, please send any suggestions or requests to the Reference Laboratory by email ([reflabsfeedback@pirbright.ac.uk](mailto:reflabsfeedback@pirbright.ac.uk)).

\* Data supplied by the customer

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

## Genotyping Report

FMDV serotype: O  
Country: Malawi  
Year: 2022  
Batch: WRLMEG/2022/00012  
No. of sequences: 1  
Report date: 13th April 2022  
Report generated by: Nick Knowles  
Report checked by: Don King

This report is prepared on behalf of the OIE Sub-Saharan Africa Regional Reference Laboratory (SSARRL) for FMD (Botswana Vaccine Institute, Gaborone, Botswana) and covers a VP1 sequence submitted to the WRLFMD on 13th April 2022.



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

email: [reporting@pirbright.ac.uk](mailto:reporting@pirbright.ac.uk)

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Virus sample name:	MAL03/2022
Sender reference:	O/MAL03/2022
Location of origin:	Mchinji, Central region
Country of origin:	Malawi
Date of collection:	04/02/2022
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	Epithelial tissue RNA extract
Harvest date of material:	n/a
Primers:	O-1C244F/EUR-2B52R
Received for sequencing:	n/a
Created:	13/04/2022
Last updated:	13/04/2022
VIBASys IDs: sample 50494, genome 50495, sequence viba_50496, sequencing info 50497	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_50433	ZAM/12/2018	cattle	99.5	0	O	EA-2		
viba_50437	ZAM/13/2018	cattle	98.9	0	O	EA-2		
viba_48327	ZAM/7/2021	cattle	98.9	0	O	EA-2		
viba_48331	ZAM/9/2021	cattle	96.8	0	O	EA-2		
viba_48335	ZAM/11/2021	cattle	96.8	0	O	EA-2		
viba_50472	NMB/1/2021	cattle	96.8	0	O	EA-2		
viba_48485	NAM13/2021	bovine	96.4	1	O	EA-2		
viba_48267	ZAM/62/2019	cattle	95.9	0	O	EA-2		
viba_48211	ZAM/16/2019	cattle	95.9	0	O	EA-2		
viba_48207	ZAM/15/2019	cattle	95.9	0	O	EA-2		

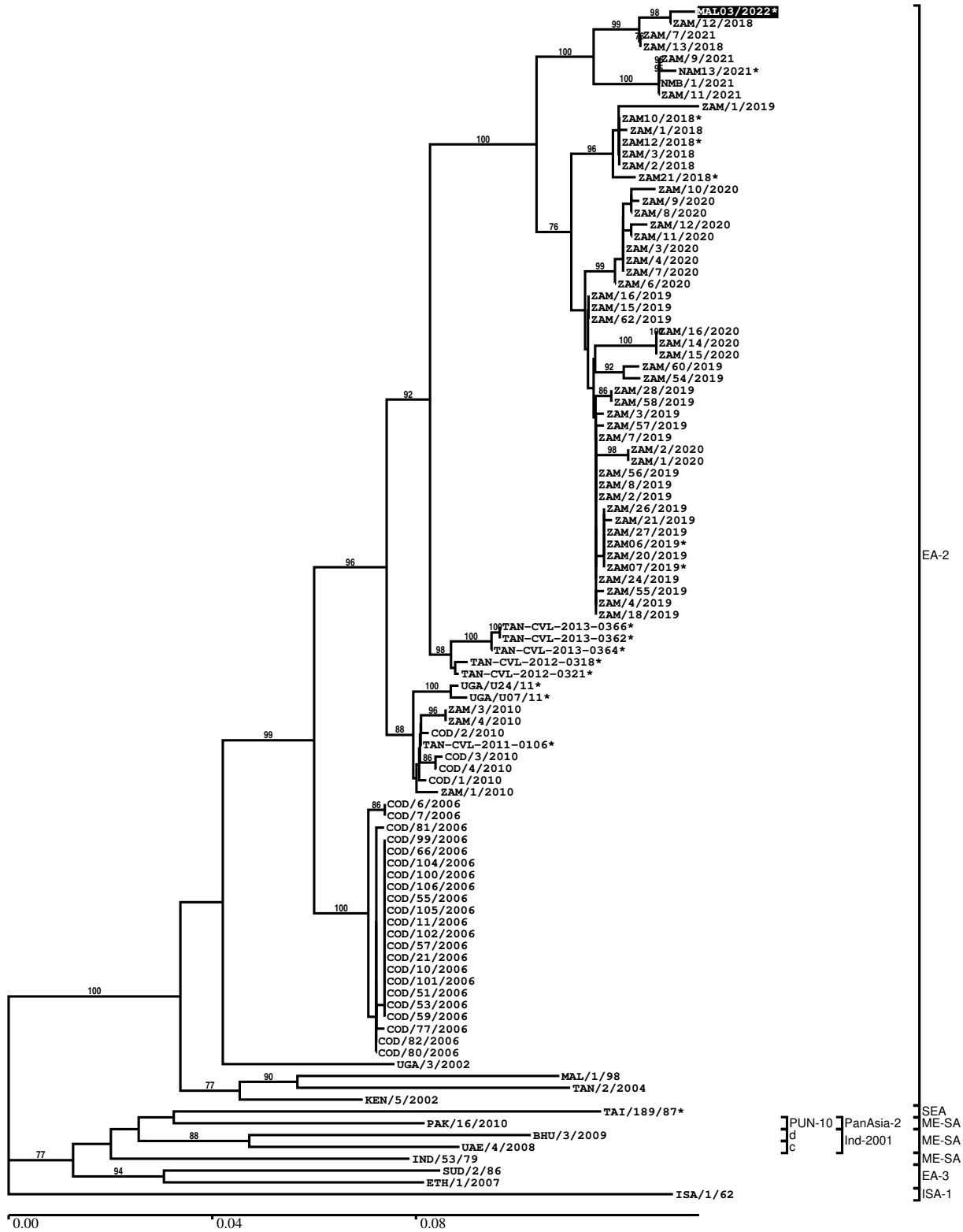
### Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_85	UGA/3/2002		89.4	0	O	EA-2		
viba_74	KEN/5/2002	bovine	87.8	0	O	EA-2		
viba_221	MAL/1/98		85.3	0	O	EA-2		
viba_263	TAN/2/2004	bovine	84.7	0	O	EA-2		
viba_854	ETH/1/2007	cattle	84.0	0	O	EA-3		
viba_116	SUD/2/86	bovine	83.8	0	O	EA-3		
viba_293	BHU/3/2009	cattle	83.1	0	O	ME-SA	Ind-2001	d
viba_617	IND/53/79	bovine	82.9	0	O	ME-SA		
viba_354	PAK/16/2010	cattle	82.9	0	O	ME-SA	PanAsia-2	PUN-10
viba_397	UAE/4/2008	gazelle	82.9	0	O	ME-SA	Ind-2001	c

Report on FMDV O in Malawi in 2022

Batch: WRLMEG/2022/00012



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLMEG/2022/00012-Malawi-O (1 sequences)
Sequence database set:	allseqs_O (5566 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:	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
MAL03/2022*	n/a	cattle	BVI	Malawi	EA-2
ZAM/12/2018	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/7/2021	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/13/2018	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/9/2021	n/a	cattle	WRLFMD	Zambia	EA-2
NAM13/2021*	OM260015	bovine	BVI	Namibia	EA-2
NMB/1/2021	n/a	cattle	WRLFMD	Namibia	EA-2
ZAM/11/2021	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/1/2019	n/a	bovine	WRLFMD	Zambia	EA-2
ZAM10/2018*	n/a	bovine	BVI	Zambia	EA-2
ZAM/1/2018	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM12/2018*	n/a	bovine	BVI	Zambia	EA-2
ZAM/3/2018	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/2/2018	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM21/2018*	n/a	bovine	BVI	Zambia	EA-2
ZAM/10/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/9/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/8/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/12/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/11/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/3/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/4/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/7/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/6/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/16/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/15/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/62/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/16/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/14/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/15/2020	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/60/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/54/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/28/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/58/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/3/2019	n/a	bovine	WRLFMD	Zambia	EA-2
ZAM/57/2019	n/a	cattle	WRLFMD	Zambia	EA-2

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
ZAM/7/2019	n/a	bovine	WRLFMD	Zambia	EA-2
ZAM/2/2020	n/a	porcine	WRLFMD	Zambia	EA-2
ZAM/1/2020	n/a	porcine	WRLFMD	Zambia	EA-2
ZAM/56/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/8/2019	n/a	bovine	WRLFMD	Zambia	EA-2
ZAM/2/2019	n/a	bovine	WRLFMD	Zambia	EA-2
ZAM/26/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/21/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/27/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM06/2019*	n/a	bovine	BVI	Zambia	EA-2
ZAM/20/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM07/2019*	n/a	bovine	BVI	Zambia	EA-2
ZAM/24/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/55/2019	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/4/2019	n/a	bovine	WRLFMD	Zambia	EA-2
ZAM/18/2019	n/a	porcine	WRLFMD	Zambia	EA-2
TAN-CVL-2013-0366*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
TAN-CVL-2013-0362*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
TAN-CVL-2013-0364*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
TAN-CVL-2012-0318*	n/a	bovine	CVL	Tanzania	EA-2
TAN-CVL-2012-0321*	n/a	bovine	CVL	Tanzania	EA-2
UGA/U24/11*	KF478941	cattle	Makerere University	Uganda	EA-2
UGA/U07/11*	KF478939	cattle	Makerere University	Uganda	EA-2
ZAM/3/2010	n/a	cattle	WRLFMD	Zambia	EA-2
ZAM/4/2010	n/a	cattle	WRLFMD	Zambia	EA-2
COD/2/2010	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
TAN-CVL-2011-0106*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
COD/3/2010	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/4/2010	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/1/2010	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
ZAM/1/2010	n/a	cattle	WRLFMD	Zambia	EA-2
COD/6/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/7/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/81/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/99/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/66/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/104/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/100/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/106/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/55/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
COD/105/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/11/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/102/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/57/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/21/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/10/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/101/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/51/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/53/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/59/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/77/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/82/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/80/2006	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
UGA/3/2002	DQ165077	n/a	WRLFMD	Uganda	EA-2
MAL/1/98	DQ165074	n/a	WRLFMD	Malawi	EA-2
TAN/2/2004	KF561679	bovine	WRLFMD	Tanzania	EA-2
KEN/5/2002	DQ165073	bovine	WRLFMD	Kenya	EA-2
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
PAK/16/2010	KY091285	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/PUN-10
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
IND/53/79	AF292107	bovine	PD-FMD	India	ME-SA
SUD/2/86	DQ165075	bovine	WRLFMD	Sudan	EA-3
ETH/1/2007	FJ798137	cattle	WRLFMD	Ethiopia	EA-3
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

\*, not a WRLFMD Reference Number

n/a, not available