

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

Genotyping Report

FMDV serotype: SAT1
Country: Malawi
Year: 2021
Batch: WRLMEG/2021/00011
No. of sequences: 1
Report date: 2nd August 2021
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth

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 29th July 2021.



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Virus sample name:	MAL3/21
Sender reference:	SAT1/MAL03/2021
Location of origin:	n/a
Country of origin:	Malawi
Date of collection:	2021
Host species:	bovine
Serotype:	SAT1
Topotype:	I
Lineage:	
Sublineage:	
Sequence length:	657
Ambiguities:	0
Material submitted for sequencing:	epithelial tissue RNA extract
Harvest date of material:	n/a
Primers:	SAT1:1C559F/SAT:2B208R
Received for sequencing:	n/a
Created:	02/08/2021
Last updated:	02/08/2021
VIBASys IDs: sample 48376, genome 48377, sequence viba_48378, sequencing info 48379	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_35246	MAL/1/2016	cattle	90.3	0	SAT1	I		
viba_26350	MAL 01/15	cattle	90.3	0	SAT1	I		
viba_16630	MAL/P6/2010	African buffalo	86.9	0	SAT1	I		
viba_16626	MAL/P5/2010	African buffalo	86.8	0	SAT1	I		
viba_3170	ZIM/P27/90 DSA-17	African buffalo	86.2	0	SAT1	I		
viba_42072	KEN/PRB64/2016 pro	African buffalo	86.2	0	SAT1	I		
viba_16655	TAN/P12/2010 BUF B7	African buffalo	86.2	0	SAT1	I		
viba_16651	TAN/P12/2010 BUF B3	African buffalo	86.1	0	SAT1	I		
viba_16659	TAN/P12/2010 BUF B15	African buffalo	85.9	0	SAT1	I		
viba_3159	ZIM/P27/90 DSA-3	African buffalo	85.9	0	SAT1	I		

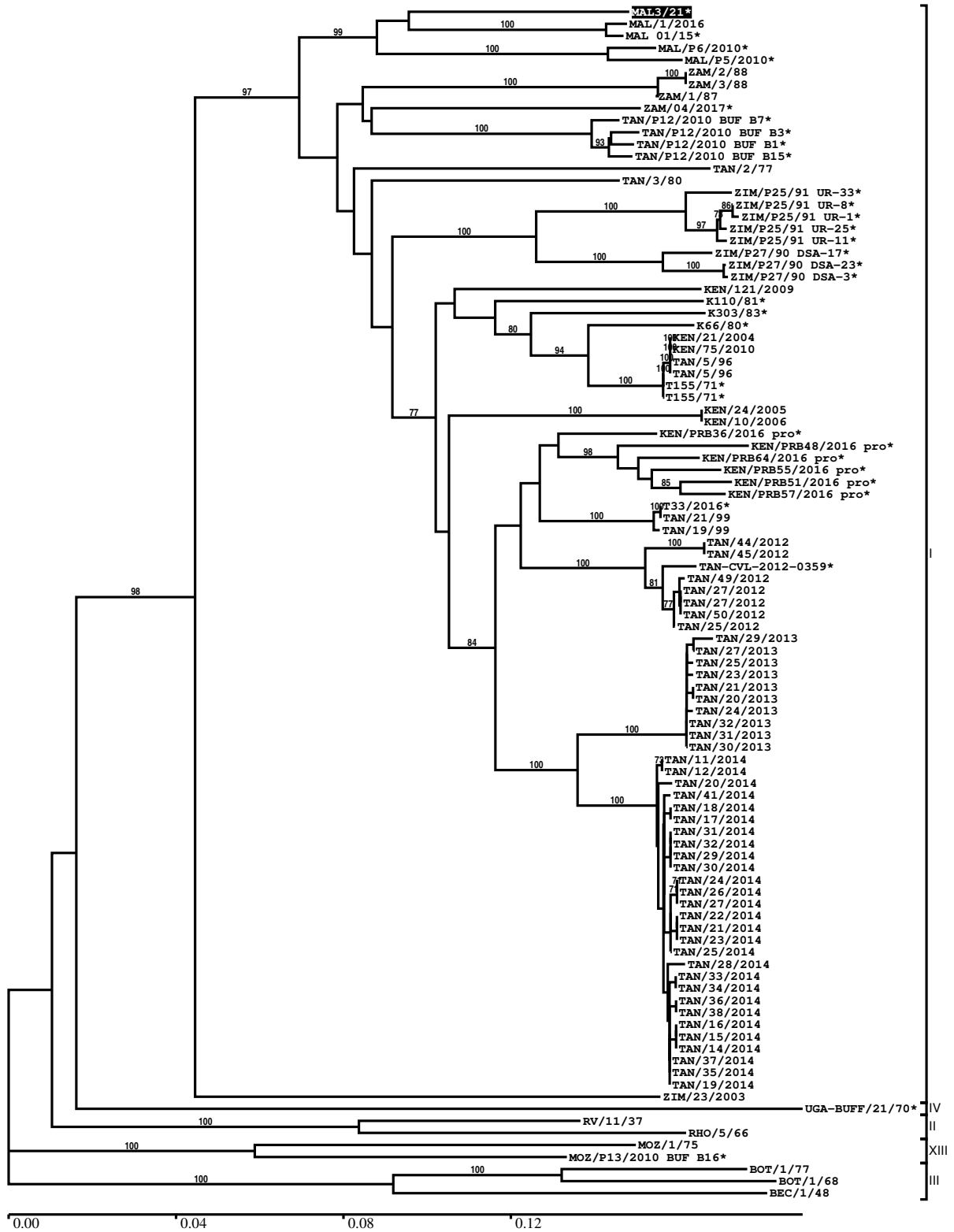
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_466	T155/71	cattle	85.6	0	SAT1	I		
viba_243	ZIM/23/2003		81.4	0	SAT1	I		
viba_462	RV/11/37	greater kudu	77.7	0	SAT1	II		
viba_16635	MOZ/P13/2010 BUF B16	African buffalo	76.5	0	SAT1	XIII		
viba_30769	MOZ/1/75	cattle	75.4	0	SAT1	XIII		
viba_514	UGA-BUFF/21/70	African buffalo	75.0	0	SAT1	IV		
viba_509	BOT/1/77	bovine	74.6	0	SAT1	III		
viba_495	BOT/1/68	bovine	73.8	0	SAT1	III		
viba_709	RHO/5/66	bovine	73.7	0	SAT1	II		
viba_212	BEC/1/48		73.5	0	SAT1	III		

Report on FMDV SAT1 in Malawi in 2021

Batch: WRLMEG/2021/00011



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_SAT1
Query sequence set:	WRLMEG/2021/00011-Malawi-SAT1 (1 sequences)
Sequence database set:	allseqs_SAT1 (792 sequences)
Prototype sequence set:	!prototypes_SAT1 (19 sequences)
Number of related sequences reported:	10
Minimal VP1 subsequence match length	600
Sequence alignment method:	muscle (default parameters)
Sequence alignment length:	657
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/SAT1

label	accession	host(s)	lab	country	taxonomic information
MAL3/21*	n/a	bovine	BVI	Malawi	I
MAL/1/2016	n/a	cattle	WRLFMD	Malawi	I
MAL_01/15*	n/a	cattle	BVI	Malawi	I
MAL/P6/2010*	n/a	African buffalo	WRLFMD	Malawi	I
MAL/P5/2010*	n/a	African buffalo	WRLFMD	Malawi	I
ZAM/2/88	n/a	n/a	WRLFMD	Zambia	I
ZAM/3/88	n/a	n/a	WRLFMD	Zambia	I
ZAM/1/87	n/a	cattle	WRLFMD	Zambia	I
ZAM/04/2017*	n/a	bovine	BVI	Zambia	I
TAN/P12/2010 BUF B7*	MF592595	African buffalo	WRLFMD	Tanzania	I
TAN/P12/2010 BUF B3*	MF592594	African buffalo	WRLFMD	Tanzania	I
TAN/P12/2010 BUF B1*	MF592593	African buffalo	WRLFMD	Tanzania	I
TAN/P12/2010 BUF B15*	MF592596	African buffalo	WRLFMD	Tanzania	I
TAN/2/77	KF561708	cattle	WRLFMD	Tanzania	I
TAN/3/80	KF561709	cattle	WRLFMD	Tanzania	I
ZIM/P25/91 UR-33*	n/a	African buffalo	WRLFMD	Zimbabwe	I
ZIM/P25/91 UR-8*	n/a	African buffalo	WRLFMD	Zimbabwe	I
ZIM/P25/91 UR-1*	n/a	African buffalo	WRLFMD	Zimbabwe	I
ZIM/P25/91 UR-25*	n/a	African buffalo	WRLFMD	Zimbabwe	I
ZIM/P25/91 UR-11*	n/a	African buffalo	WRLFMD	Zimbabwe	I
ZIM/P27/90 DSA-17*	n/a	African buffalo	WRLFMD	Zimbabwe	I
ZIM/P27/90 DSA-23*	n/a	African buffalo	WRLFMD	Zimbabwe	I
ZIM/P27/90 DSA-3*	n/a	African buffalo	WRLFMD	Zimbabwe	I
KEN/121/2009	n/a	cattle	WRLFMD	Kenya	I
K110/81*	HQ267521	n/a	n/a	Kenya	I
K303/83*	n/a	n/a	TPI	Kenya	I
K66/80*	HQ267520	n/a	n/a	Kenya	I
KEN/21/2004	KR188451	cattle	WRLFMD	Kenya	I
KEN/75/2010	KR188468	cattle	WRLFMD	Kenya	I
TAN/5/96	KF561711	cattle	WRLFMD	Tanzania	I
TAN/5/96	AY442007	cattle	OVI	Tanzania	I
T155/71*	HQ267519	cattle	n/a	Tanzania	I
T155/71*	KF561706	cattle	WRLFMD	Tanzania	I
KEN/24/2005	n/a	cattle	WRLFMD	Kenya	I
KEN/10/2006	KR188454	cattle	WRLFMD	Kenya	I
KEN/PRB36/2016 pro*	MH882593	African buffalo	PIADC	Kenya	I

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label	accession	host(s)	lab	country	taxonomic information
KEN/PRB48/2016 pro*	MH882597	African buffalo	PIADC	Kenya	I
KEN/PRB64/2016 pro*	MH882605	African buffalo	PIADC	Kenya	I
KEN/PRB55/2016 pro*	MH882600	African buffalo	PIADC	Kenya	I
KEN/PRB51/2016 pro*	MH882599	African buffalo	PIADC	Kenya	I
KEN/PRB57/2016 pro*	MH882601	African buffalo	PIADC	Kenya	I
T33/2016*	MH931418	cattle	PAU	Tanzania	I
TAN/21/99	KF561715	cattle	WRLFMD	Tanzania	I
TAN/19/99	KF561714	cattle	WRLFMD	Tanzania	I
TAN/44/2012	MF592627	cattle	WRLFMD	Tanzania	I
TAN/45/2012	MF592628	cattle	WRLFMD	Tanzania	I
TAN-CVL-2012-0359*	n/a	bovine	CVL	Tanzania	I
TAN/49/2012	MF592629	cattle	WRLFMD	Tanzania	I
TAN/27/2012	n/a	cattle	WRLFMD	Tanzania	I
TAN/27/2012	MF592644	cattle	WRLFMD	Tanzania	I
TAN/50/2012	MF592630	cattle	WRLFMD	Tanzania	I
TAN/25/2012	MF592618	cattle	n/a	Tanzania	I
TAN/29/2013	MF592662	cattle	WRLFMD	Tanzania	I
TAN/27/2013	MF592661	cattle	WRLFMD	Tanzania	I
TAN/25/2013	MF592659	cattle	WRLFMD	Tanzania	I
TAN/23/2013	MF592657	cattle	WRLFMD	Tanzania	I
TAN/21/2013	n/a	cattle	WRLFMD	Tanzania	I
TAN/20/2013	MF592655	cattle	WRLFMD	Tanzania	I
TAN/24/2013	MF592658	cattle	WRLFMD	Tanzania	I
TAN/32/2013	n/a	cattle	WRLFMD	Tanzania	I
TAN/31/2013	MF592664	cattle	WRLFMD	Tanzania	I
TAN/30/2013	MF592663	cattle	WRLFMD	Tanzania	I
TAN/11/2014	MF592672	bovine	WRLFMD	Tanzania	I
TAN/12/2014	MF592673	bovine	WRLFMD	Tanzania	I
TAN/20/2014	MF592680	bovine	WRLFMD	Tanzania	I
TAN/41/2014	MF592696	bovine	WRLFMD	Tanzania	I
TAN/18/2014	MF592678	bovine	WRLFMD	Tanzania	I
TAN/17/2014	MF592677	bovine	WRLFMD	Tanzania	I
TAN/31/2014	n/a	bovine	WRLFMD	Tanzania	I
TAN/32/2014	MF592689	bovine	WRLFMD	Tanzania	I
TAN/29/2014	MF592687	bovine	WRLFMD	Tanzania	I
TAN/30/2014	MF592688	bovine	WRLFMD	Tanzania	I
TAN/24/2014	MF592683	bovine	WRLFMD	Tanzania	I
TAN/26/2014	MF592685	bovine	WRLFMD	Tanzania	I
TAN/27/2014	n/a	bovine	WRLFMD	Tanzania	I
TAN/22/2014	MF592682	bovine	WRLFMD	Tanzania	I
TAN/21/2014	MF592681	bovine	WRLFMD	Tanzania	I
TAN/23/2014	n/a	bovine	WRLFMD	Tanzania	I
TAN/25/2014	MF592684	bovine	WRLFMD	Tanzania	I
TAN/28/2014	MF592686	bovine	WRLFMD	Tanzania	I
TAN/33/2014	MF592690	bovine	WRLFMD	Tanzania	I
TAN/34/2014	MF592691	bovine	WRLFMD	Tanzania	I
TAN/36/2014	MF592693	bovine	WRLFMD	Tanzania	I
TAN/38/2014	MF592695	bovine	WRLFMD	Tanzania	I
TAN/16/2014	MF592676	bovine	WRLFMD	Tanzania	I
TAN/15/2014	n/a	bovine	WRLFMD	Tanzania	I
TAN/14/2014	MF592675	bovine	WRLFMD	Tanzania	I
TAN/37/2014	MF592694	bovine	WRLFMD	Tanzania	I
TAN/35/2014	MF592692	bovine	WRLFMD	Tanzania	I
TAN/19/2014	MF592679	bovine	WRLFMD	Tanzania	I
ZIM/23/2003	KF219690	n/a	WRLFMD	Zimbabwe	I
UGA-BUFF/21/70*	KF219682	African buffalo	WRLFMD	Uganda	IV
RV/11/37	AY593839	greater kudu	PIADC	Rhodesia (RV)	II
RHO/5/66	AY593846	bovine	PIADC	Rhodesia	II
MOZ/1/75	MG972461	cattle	WRLFMD	Mozambique	XIII
MOZ/P13/2010 BUF B16*	KF219691	African buffalo	WRLFMD	Mozambique	XIII
BOT/1/77	KF219686	bovine	WRLFMD	Botswana	III
BOT/1/68	AY593845	bovine	PIADC	Botswana	III
BEC/1/48	AY593838	n/a	PIADC	Bechuanaland	III

*, not a WRLFMD Reference Number
n/a, not available