



FMD Genotyping Report

Lab Reference WRL batch Number: WRLFMD/2023/000108

Sender Details:

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Date Received: 11/12/2023

Country of Origin*: Namibia

Work has now been completed in respect of the sequences recently submitted and the details are as attached. Please note that all our phylogenetic trees can be accessed via the internet at:
<http://www.wrlfmd.org/>

Results Approved By:

[REDACTED]

13/1/24

Official Stamp:

[REDACTED]

[REDACTED]
[REDACTED]

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).

* Data supplied by the customer

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

Genotyping Report

FMDV serotype: SAT2
Country: Namibia
Year: 2022
Batch: WRLFMD/2023/000108
No. of sequences: 2
Report date: 25th January 2024
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



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

email: reporting@pirbright.ac.uk

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Virus sample name:	NMB/1/2022
Sender reference:	6
Location of origin:	Zibungo
Country of origin:	Namibia
Date of collection:	13/10/2022
Host species:	cattle
Serotype:	SAT2
Topotype:	III
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/01/2024
Primers:	SAT2-1C445F & SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	22/01/2024
Created:	25/01/2024
Last updated:	25/01/2024
VIBASys IDs: sample 54878, genome 54879, sequence viba_54880, sequencing info 54881	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_54884	NMB/2/2022	cattle	99.8	0	SAT2	III		
viba_23684	NMB01/14	cattle	93.8	2	SAT2	III		
viba_23688	NMB02/14	cattle	93.6	3	SAT2	III		
viba_10434	ZAM/3/2007		91.3	0	SAT2	III		
viba_10405	NMB/1/2007	cattle	91.3	0	SAT2	III		
viba_10426	ZAM/1/2007		91.3	0	SAT2	III		
viba_10409	NMB/4/2007	cattle	91.3	0	SAT2	III		
viba_10430	ZAM/2/2007		91.1	0	SAT2	III		
viba_11298	NMB/4/2008	cattle	91.1	0	SAT2	III		
viba_11294	NMB/3/2008	cattle	91.1	0	SAT2	III		

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_451	BOT/P3/98 VUM-29	African buffalo	85.5	1	SAT2	III		
viba_380	RHO/1/48		83.8	0	SAT2	III		
viba_248	KEN/1/84	bovine	81.0	0	SAT2	IV		
viba_111	MAL/1/2003	bovine	79.7	0	SAT2	I		
viba_273	ETH/1/90	bovine	79.2	0	SAT2	IV		
viba_183	ZIM/14/2002	bovine	78.9	0	SAT2	I		
viba_752	SA/106/59		77.2	0	SAT2	I		
viba_728	GHA/2/90	bovine	76.5	0	SAT2	V		
viba_567	ZIM/7/83	bovine	76.3	0	SAT2	II		
viba_546	ZIM/5/81	bovine	76.1	0	SAT2	II		

Virus sample name:	NMB/2/2022
Sender reference:	8
Location of origin:	Zibungo
Country of origin:	Namibia
Date of collection:	13/10/2022
Host species:	cattle
Serotype:	SAT2
Topotype:	III
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/01/2024
Primers:	SAT2-1C445F & SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	22/01/2024
Created:	25/01/2024
Last updated:	25/01/2024
VIBASys IDs: sample 54882, genome 54883, sequence viba_54884, sequencing info 54885	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_54880	NMB/1/2022	cattle	99.8	0	SAT2	III		
viba_23684	NMB01/14	cattle	93.9	2	SAT2	III		
viba_23688	NMB02/14	cattle	93.8	3	SAT2	III		
viba_10434	ZAM/3/2007		91.4	0	SAT2	III		
viba_10405	NMB/1/2007	cattle	91.4	0	SAT2	III		
viba_10426	ZAM/1/2007		91.4	0	SAT2	III		
viba_10409	NMB/4/2007	cattle	91.4	0	SAT2	III		
viba_10430	ZAM/2/2007		91.3	0	SAT2	III		
viba_11298	NMB/4/2008	cattle	91.3	0	SAT2	III		
viba_11294	NMB/3/2008	cattle	91.3	0	SAT2	III		

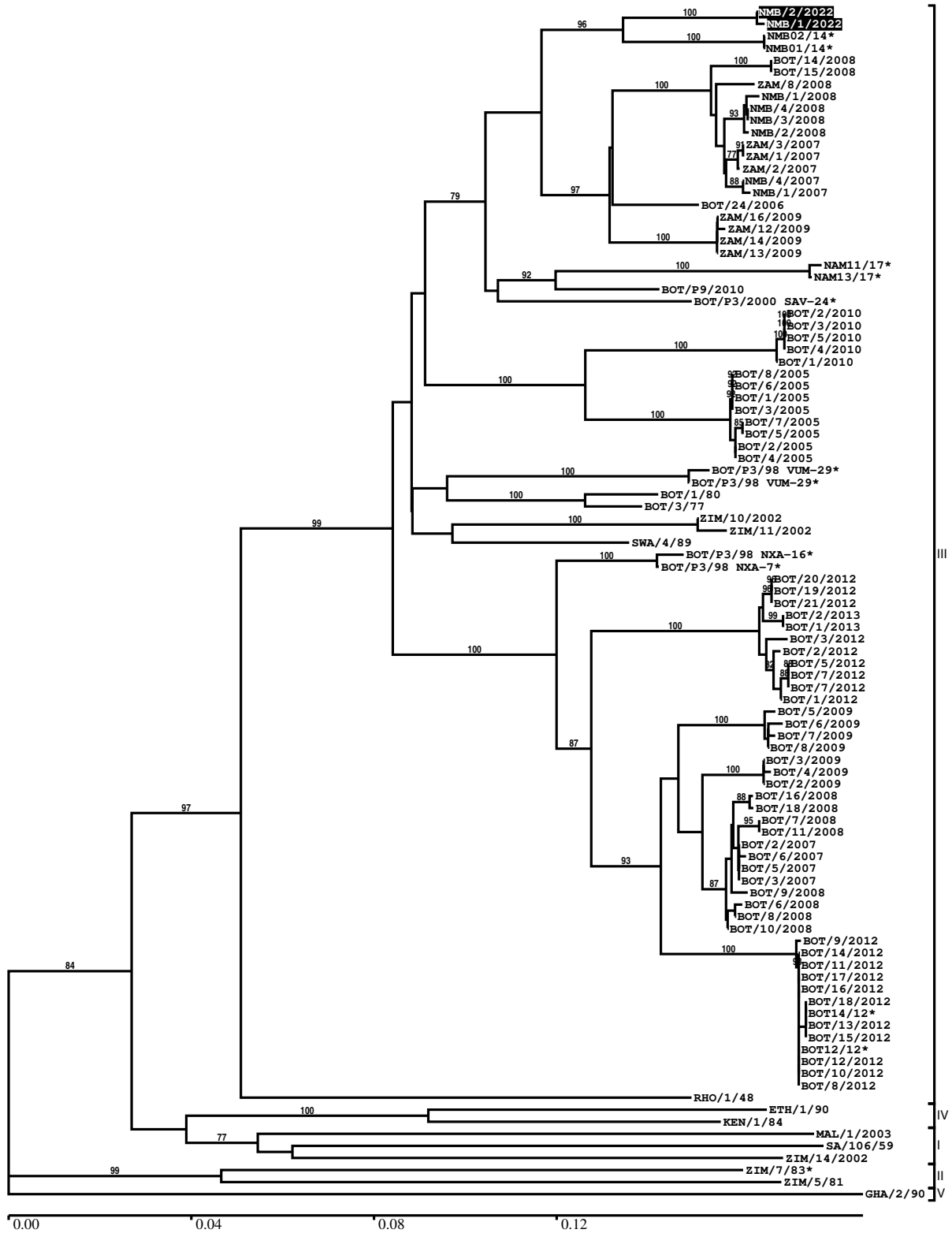
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_451	BOT/P3/98 VUM-29	African buffalo	85.7	1	SAT2	III		
viba_380	RHO/1/48		84.0	0	SAT2	III		
viba_248	KEN/1/84	bovine	81.2	0	SAT2	IV		
viba_111	MAL/1/2003	bovine	79.8	0	SAT2	I		
viba_273	ETH/1/90	bovine	79.4	0	SAT2	IV		
viba_183	ZIM/14/2002	bovine	79.1	0	SAT2	I		
viba_752	SA/106/59		77.4	0	SAT2	I		
viba_728	GHA/2/90	bovine	76.6	0	SAT2	V		
viba_567	ZIM/7/83	bovine	76.5	0	SAT2	II		
viba_546	ZIM/5/81	bovine	76.3	0	SAT2	II		

Report on FMDV SAT2 in Namibia in 2022

Batch: WRLFMD/2023/000108



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_SAT2
Query sequence set:	WRLFMD/2023/000108-Namibia-SAT2 (2 sequences)
Sequence database set:	allseqs_SAT2 (1191 sequences)
Prototype sequence set:	!prototypes_SAT2 (25 sequences)
Number of related sequences reported:	10
Minimal VP1 subsequence match length	600
Sequence alignment method:	muscle (default parameters)
Sequence alignment length:	642
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/SAT2

label	accession	host(s)	lab	country	taxonomic information
NMB/2/2022	n/a	cattle	WRLFMD	Namibia	III
NMB/1/2022	n/a	cattle	WRLFMD	Namibia	III
NMB02/14*	n/a	cattle	BVI	Namibia	III
NMB01/14*	n/a	cattle	BVI	Namibia	III
BOT/14/2008	n/a	cattle	WRLFMD	Botswana	III
BOT/15/2008	n/a	cattle	WRLFMD	Botswana	III
ZAM/8/2008	n/a	cattle	WRLFMD	Zambia	III
NMB/1/2008	n/a	cattle	WRLFMD	Namibia	III
NMB/4/2008	n/a	cattle	WRLFMD	Namibia	III
NMB/3/2008	n/a	cattle	WRLFMD	Namibia	III
NMB/2/2008	n/a	cattle	WRLFMD	Namibia	III
ZAM/3/2007	n/a	n/a	WRLFMD	Zambia	III
ZAM/1/2007	n/a	n/a	WRLFMD	Zambia	III
ZAM/2/2007	n/a	n/a	WRLFMD	Zambia	III
NMB/4/2007	n/a	cattle	WRLFMD	Namibia	III
NMB/1/2007	n/a	cattle	WRLFMD	Namibia	III
BOT/24/2006	n/a	African buffalo	WRLFMD	Botswana	III
ZAM/16/2009	n/a	cattle	WRLFMD	Zambia	III
ZAM/12/2009	n/a	cattle	WRLFMD	Zambia	III
ZAM/14/2009	n/a	cattle	WRLFMD	Zambia	III
ZAM/13/2009	n/a	cattle	WRLFMD	Zambia	III
NAM11/17*	n/a	bovine	BVI	Namibia	III
NAM13/17*	n/a	bovine	BVI	Namibia	III
BOT/P9/2010	n/a	African buffalo	WRLFMD	Botswana	III
BOT/P3/2000 SAV-24*	n/a	African buffalo	WRLFMD	Botswana	III
BOT/2/2010	n/a	cattle	WRLFMD	Botswana	III
BOT/3/2010	n/a	cattle	WRLFMD	Botswana	III
BOT/5/2010	n/a	cattle	WRLFMD	Botswana	III
BOT/4/2010	n/a	cattle	WRLFMD	Botswana	III
BOT/1/2010	n/a	cattle	WRLFMD	Botswana	III
BOT/8/2005	n/a	cattle	WRLFMD	Botswana	III
BOT/6/2005	n/a	cattle	WRLFMD	Botswana	III
BOT/1/2005	n/a	cattle	WRLFMD	Botswana	III
BOT/3/2005	n/a	cattle	WRLFMD	Botswana	III
BOT/7/2005	n/a	cattle	WRLFMD	Botswana	III
BOT/5/2005	n/a	cattle	WRLFMD	Botswana	III

continued on next page

label	accession	host(s)	lab	country	taxonomic information
BOT/2/2005	n/a	cattle	WRLFMD	Botswana	III
BOT/4/2005	n/a	cattle	WRLFMD	Botswana	III
BOT/P3/98 VUM-29*	AF367124	African buffalo	OVI	Botswana	III
BOT/P3/98 VUM-29*	KY091305	African buffalo	WRLFMD	Botswana	III
BOT/1/80	KF112929	cattle	WRLFMD	Botswana	III
BOT/3/77	KF112928	cattle	OVI	Botswana	III
ZIM/10/2002	n/a	bovine	WRLFMD	Zimbabwe	III
ZIM/11/2002	n/a	bovine	WRLFMD	Zimbabwe	III
SWA/4/89	KF112969	cattle	WRLFMD	South West Africa	III
BOT/P3/98 NXA-16*	n/a	African buffalo	WRLFMD	Botswana	III
BOT/P3/98 NXA-7*	n/a	African buffalo	WRLFMD	Botswana	III
BOT/20/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/19/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/21/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/2/2013	n/a	bovine	WRLFMD	Botswana	III
BOT/1/2013	n/a	bovine	WRLFMD	Botswana	III
BOT/3/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/2/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/5/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/7/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/7/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/1/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/5/2009	n/a	n/a	WRLFMD	Botswana	III
BOT/6/2009	n/a	n/a	WRLFMD	Botswana	III
BOT/7/2009	n/a	n/a	WRLFMD	Botswana	III
BOT/8/2009	n/a	n/a	WRLFMD	Botswana	III
BOT/3/2009	n/a	cattle	WRLFMD	Botswana	III
BOT/4/2009	n/a	cattle	WRLFMD	Botswana	III
BOT/2/2009	n/a	cattle	WRLFMD	Botswana	III
BOT/16/2008	n/a	cattle	WRLFMD	Botswana	III
BOT/18/2008	n/a	cattle	WRLFMD	Botswana	III
BOT/7/2008	n/a	cattle	WRLFMD	Botswana	III
BOT/11/2008	n/a	cattle	WRLFMD	Botswana	III
BOT/2/2007	n/a	cattle	WRLFMD	Botswana	III
BOT/6/2007	n/a	cattle	WRLFMD	Botswana	III
BOT/5/2007	n/a	cattle	WRLFMD	Botswana	III
BOT/3/2007	n/a	cattle	WRLFMD	Botswana	III
BOT/9/2008	n/a	cattle	WRLFMD	Botswana	III
BOT/6/2008	n/a	cattle	WRLFMD	Botswana	III
BOT/8/2008	n/a	cattle	WRLFMD	Botswana	III
BOT/10/2008	n/a	cattle	WRLFMD	Botswana	III
BOT/9/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/14/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/11/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/17/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/16/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/18/2012	n/a	bovine	WRLFMD	Botswana	III
BOT14/12*	n/a	n/a	BVI	Botswana	III
BOT/13/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/15/2012	n/a	bovine	WRLFMD	Botswana	III
BOT12/12*	n/a	n/a	BVI	Botswana	III
BOT/12/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/10/2012	n/a	bovine	WRLFMD	Botswana	III
BOT/8/2012	n/a	bovine	WRLFMD	Botswana	III
RHO/1/48	AY593847	n/a	PIADC	Rhodesia	III
ETH/1/90	AY343935	bovine	OVI	Ethiopia	IV
KEN/1/84	AY344505	bovine	OVI	Kenya	IV
MAL/1/2003	n/a	bovine	WRLFMD	Malawi	I
SA/106/59	AY593848	n/a	PIADC	South Africa (SA)	I
ZIM/14/2002	KF219689	bovine	WRLFMD	Zimbabwe	I
ZIM/7/83*	AF136607	bovine	OVI	Zimbabwe	II
ZIM/5/81	EF134951	bovine	WRLFMD	Zimbabwe	II
GHA/2/90	AF479415	bovine	OVI	Ghana	V

*, not a WRLFMD Reference Number

n/a, not available