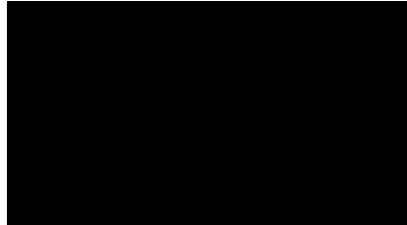




FMD Genotyping Report

Lab Reference WRL batch Number: WRLFMD/2024/000001

Sender Details:



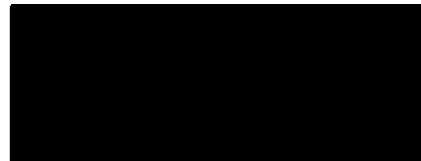
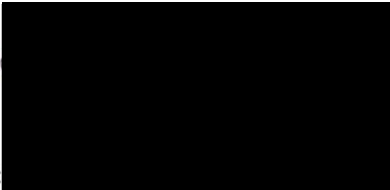
Date Received: 01/02/2024

Country of Origin*: Kenya

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:

Official Stamp:



Date:

20/2/24

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: O
Country: Kenya
Year: 2022, 2023
Batch: WRLFMD/2024/000001
No. of sequences: 8
Report date: 15th February 2024
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



Copyright © 2024 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:	KEN/2/2022
Sender reference:	K7/22
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	29/03/2022
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	18/01/2024
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 54953, genome 54954, sequence viba_54955, sequencing info 54956	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48628	KEN/8/2021	cattle	99.4	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	99.4	0	O	EA-2		
viba_54975	KEN/4/2023	cattle	98.1	0	O	EA-2		
viba_54967	KEN/2/2023	cattle	97.6	0	O	EA-2		
viba_54963	KEN/1/2023	cattle	97.5	0	O	EA-2		
viba_54983	KEN/7/2023	cattle	97.2	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	97.2	0	O	EA-2		
viba_54971	KEN/3/2023	cattle	97.2	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	96.8	0	O	EA-2		
viba_41338	COM/19Z005557/19	cattle	96.5	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_263	TAN/2/2004	bovine	94.2	0	O	EA-2		
viba_74	KEN/5/2002	bovine	89.9	0	O	EA-2		
viba_85	UGA/3/2002		89.1	0	O	EA-2		
viba_221	MAL/1/98		88.3	0	O	EA-2		
viba_1893	K40/84	bovine	84.5	0	O	EA-1		
viba_35331	SRL/1/78		84.4	0	O	WCSEA-1	Srl-77	
viba_523	K83/79		84.2	0	O	EA-1		
viba_27877	SRL/2/97	bovine	83.7	0	O	ME-SA	Srl-97	
viba_116	SUD/2/86	bovine	83.6	0	O	EA-3		
viba_854	ETH/1/2007	cattle	83.6	0	O	EA-3		

Virus sample name:	KEN/4/2022
Sender reference:	K41/22
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	25/07/2022
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	23/01/2024
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024

VIBASys IDs: sample 54957, genome 54958, sequence viba_54959, sequencing info 54960

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_53305	MBG/TZ/23/2021	zebu cattle	97.5	1	O	EA-2		
viba_49035	UGA/25/2020	cattle	97.5	0	O	EA-2		
viba_48608	KEN/2/2021	cattle	97.2	0	O	EA-2		
viba_48675	COD/28/2021	cattle	97.2	0	O	EA-2		
viba_49027	UGA/22/2020	cattle	97.2	0	O	EA-2		
viba_48663	COD/6/2021	cattle	97.2	0	O	EA-2		
viba_49031	UGA/24/2020	cattle	97.2	0	O	EA-2		
viba_48667	COD/12/2021	cattle	97.2	0	O	EA-2		
viba_48671	COD/19/2021	cattle	97.2	0	O	EA-2		
viba_52853	K131/2020	bovine	97.2	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_263	TAN/2/2004	bovine	91.0	0	O	EA-2		
viba_85	UGA/3/2002		87.8	0	O	EA-2		
viba_74	KEN/5/2002	bovine	87.2	0	O	EA-2		
viba_221	MAL/1/98		86.7	0	O	EA-2		
viba_35331	SRL/1/78		84.7	0	O	WCSA-1	Srl-77	
viba_27877	SRL/2/97	bovine	83.1	0	O	ME-SA	Srl-97	
viba_705	KUW/3/97	bovine	83.0	0	O	ME-SA	Ind-2001	a
viba_38646	SYR/18/62		82.9	0	O	WCSA-1	Syr-62	
viba_523	K83/79		82.8	0	O	EA-1		
viba_47579	SRL/1/2019	cattle	82.8	0	O	ME-SA	SA-2018	

Virus sample name:	KEN/1/2023
Sender reference:	K1/23
Location of origin:	Nyaguta. Kisii County
Country of origin:	Kenya
Date of collection:	10/01/2023
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	24/01/2024
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 54961, genome 54962, sequence viba_54963, sequencing info 54964	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48628	KEN/8/2021	cattle	98.1	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	98.1	0	O	EA-2		
viba_54955	KEN/2/2022	cattle	97.5	0	O	EA-2		
viba_54975	KEN/4/2023	cattle	96.5	0	O	EA-2		
viba_54967	KEN/2/2023	cattle	96.4	0	O	EA-2		
viba_54983	KEN/7/2023	cattle	96.2	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	96.2	0	O	EA-2		
viba_54971	KEN/3/2023	cattle	96.2	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	95.9	0	O	EA-2		
viba_41338	COM/19Z005557/19	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_263	TAN/2/2004	bovine	93.5	0	O	EA-2		
viba_74	KEN/5/2002	bovine	88.6	0	O	EA-2		
viba_85	UGA/3/2002		88.5	0	O	EA-2		
viba_221	MAL/1/98		87.5	0	O	EA-2		
viba_523	K83/79		84.2	0	O	EA-1		
viba_1893	K40/84	bovine	84.2	0	O	EA-1		
viba_35331	SRL/1/78		84.0	0	O	WCSA-1	Srl-77	
viba_38646	SYR/18/62		83.8	0	O	WCSA-1	Syr-62	
viba_47579	SRL/1/2019	cattle	83.8	0	O	ME-SA	SA-2018	
viba_116	SUD/2/86	bovine	83.4	0	O	EA-3		

Virus sample name:	KEN/2/2023
Sender reference:	K7/23
Location of origin:	Baringo County
Country of origin:	Kenya
Date of collection:	01/02/2023
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/01/2024
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024

VIBASys IDs: sample 54965, genome 54966, sequence viba_54967, sequencing info 54968

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_54975	KEN/4/2023	cattle	98.6	0	O	EA-2		
viba_48628	KEN/8/2021	cattle	98.3	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	98.3	0	O	EA-2		
viba_54955	KEN/2/2022	cattle	97.6	0	O	EA-2		
viba_54963	KEN/1/2023	cattle	96.4	0	O	EA-2		
viba_54983	KEN/7/2023	cattle	96.1	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	96.1	0	O	EA-2		
viba_54971	KEN/3/2023	cattle	96.1	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	95.4	0	O	EA-2		
viba_53297	MBG/TZ/11/2021	zebu cattle	95.1	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_263	TAN/2/2004	bovine	93.4	0	O	EA-2		
viba_74	KEN/5/2002	bovine	89.1	0	O	EA-2		
viba_85	UGA/3/2002		88.3	0	O	EA-2		
viba_221	MAL/1/98		87.8	0	O	EA-2		
viba_1893	K40/84	bovine	83.7	0	O	EA-1		
viba_116	SUD/2/86	bovine	83.7	0	O	EA-3		
viba_38646	SYR/18/62		83.5	0	O	WCSEA-1	Syr-62	
viba_35331	SRL/1/78		83.4	0	O	WCSEA-1	Srl-77	
viba_293	BHU/3/2009	cattle	83.4	0	O	ME-SA	Ind-2001	d
viba_523	K83/79		83.3	0	O	EA-1		

Virus sample name:	KEN/3/2023
Sender reference:	K21/23
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	06/02/2023
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	20/01/2024
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 54969, genome 54970, sequence viba_54971, sequencing info 54972	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_54983	KEN/7/2023	cattle	99.7	0	O	EA-2		
viba_48628	KEN/8/2021	cattle	97.8	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	97.8	0	O	EA-2		
viba_54955	KEN/2/2022	cattle	97.2	0	O	EA-2		
viba_54963	KEN/1/2023	cattle	96.2	0	O	EA-2		
viba_54975	KEN/4/2023	cattle	96.2	0	O	EA-2		
viba_54967	KEN/2/2023	cattle	96.1	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	95.6	0	O	EA-2		
viba_48608	KEN/2/2021	cattle	95.3	0	O	EA-2		
viba_48711	COD/76/2021	cattle	95.3	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_263	TAN/2/2004	bovine	93.2	0	O	EA-2		
viba_74	KEN/5/2002	bovine	89.1	0	O	EA-2		
viba_85	UGA/3/2002		88.8	0	O	EA-2		
viba_221	MAL/1/98		87.5	0	O	EA-2		
viba_35331	SRL/1/78		84.5	0	O	WCSA-1	Srl-77	
viba_38646	SYR/18/62		83.8	0	O	WCSA-1	Syr-62	
viba_1893	K40/84	bovine	83.6	0	O	EA-1		
viba_116	SUD/2/86	bovine	83.4	0	O	EA-3		
viba_47579	SRL/1/2019	cattle	83.4	0	O	ME-SA	SA-2018	
viba_27877	SRL/2/97	bovine	83.4	0	O	ME-SA	Srl-97	

Virus sample name:	KEN/4/2023
Sender reference:	K12/23B
Location of origin:	Poror, Baringo County
Country of origin:	Kenya
Date of collection:	07/02/2023
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	19/01/2024
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024

VIBASys IDs: sample 54973, genome 54974, sequence viba_54975, sequencing info 54976

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_54967	KEN/2/2023	cattle	98.6	0	O	EA-2		
viba_48628	KEN/8/2021	cattle	98.4	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	98.4	0	O	EA-2		
viba_54955	KEN/2/2022	cattle	98.1	0	O	EA-2		
viba_54963	KEN/1/2023	cattle	96.5	0	O	EA-2		
viba_54983	KEN/7/2023	cattle	96.2	0	O	EA-2		
viba_54971	KEN/3/2023	cattle	96.2	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	95.9	0	O	EA-2		
viba_41354	TAN-SUA-2017-0747	cattle	95.6	0	O	EA-2		
viba_53297	MBG/TZ/11/2021	zebu cattle	95.3	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_263	TAN/2/2004	bovine	93.2	0	O	EA-2		
viba_74	KEN/5/2002	bovine	88.9	0	O	EA-2		
viba_85	UGA/3/2002		88.2	0	O	EA-2		
viba_221	MAL/1/98		87.7	0	O	EA-2		
viba_293	BHU/3/2009	cattle	83.7	0	O	ME-SA	Ind-2001	d
viba_1893	K40/84	bovine	83.6	0	O	EA-1		
viba_116	SUD/2/86	bovine	83.6	0	O	EA-3		
viba_27877	SRL/2/97	bovine	83.6	0	O	ME-SA	Srl-97	
viba_397	UAE/4/2008	gazelle	83.6	0	O	ME-SA	Ind-2001	c
viba_38646	SYR/18/62		83.5	0	O	WCSA-1	Syr-62	

Virus sample name:	KEN/5/2023
Sender reference:	K15/23
Location of origin:	Uasin Gishu County
Country of origin:	Kenya
Date of collection:	30/06/2023
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK2
Harvest date of material:	25/01/2024
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 54977, genome 54978, sequence viba_54979, sequencing info 54980	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48620	KEN/5/2021	cattle	96.4	0	O	EA-2		
viba_52853	K131/2020	bovine	96.1	0	O	EA-2		
viba_49035	UGA/25/2020	cattle	95.7	0	O	EA-2		
viba_52841	K114/2020	bovine	95.7	0	O	EA-2		
viba_48608	KEN/2/2021	cattle	95.4	0	O	EA-2		
viba_53305	MBG/TZ/23/2021	zebu cattle	95.4	1	O	EA-2		
viba_48679	COD/34/2021	cattle	95.3	0	O	EA-2		
viba_48683	COD/37/2021	cattle	95.3	0	O	EA-2		
viba_48699	COD/49/2021	cattle	95.3	0	O	EA-2		
viba_48695	COD/46/2021	cattle	95.3	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_263	TAN/2/2004	bovine	90.0	0	O	EA-2		
viba_74	KEN/5/2002	bovine	87.7	0	O	EA-2		
viba_85	UGA/3/2002		87.4	0	O	EA-2		
viba_221	MAL/1/98		86.7	0	O	EA-2		
viba_35331	SRL/1/78		84.2	0	O	WCSA-1	Srl-77	
viba_9021	LAO/2/2006	cattle	83.1	0	O	ME-SA	PanAsia	
viba_27877	SRL/2/97	bovine	83.1	0	O	ME-SA	Srl-97	
viba_705	KUW/3/97	bovine	83.0	0	O	ME-SA	Ind-2001	a
viba_1893	K40/84	bovine	82.9	0	O	EA-1		
viba_523	K83/79		82.6	0	O	EA-1		

Virus sample name:	KEN/7/2023
Sender reference:	K23/23
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	28/07/2023
Host species:	cattle
Serotype:	O
Topotype:	EA-2
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	20/01/2024
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 54981, genome 54982, sequence viba_54983, sequencing info 54984	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_54971	KEN/3/2023	cattle	99.7	0	O	EA-2		
viba_48628	KEN/8/2021	cattle	97.8	0	O	EA-2		
viba_48624	KEN/6/2021	cattle	97.8	0	O	EA-2		
viba_54955	KEN/2/2022	cattle	97.2	0	O	EA-2		
viba_54963	KEN/1/2023	cattle	96.2	0	O	EA-2		
viba_54975	KEN/4/2023	cattle	96.2	0	O	EA-2		
viba_54967	KEN/2/2023	cattle	96.1	0	O	EA-2		
viba_41350	TAN-SUA-2017-0735	cattle	95.6	0	O	EA-2		
viba_48608	KEN/2/2021	cattle	95.3	0	O	EA-2		
viba_48711	COD/76/2021	cattle	95.3	0	O	EA-2		

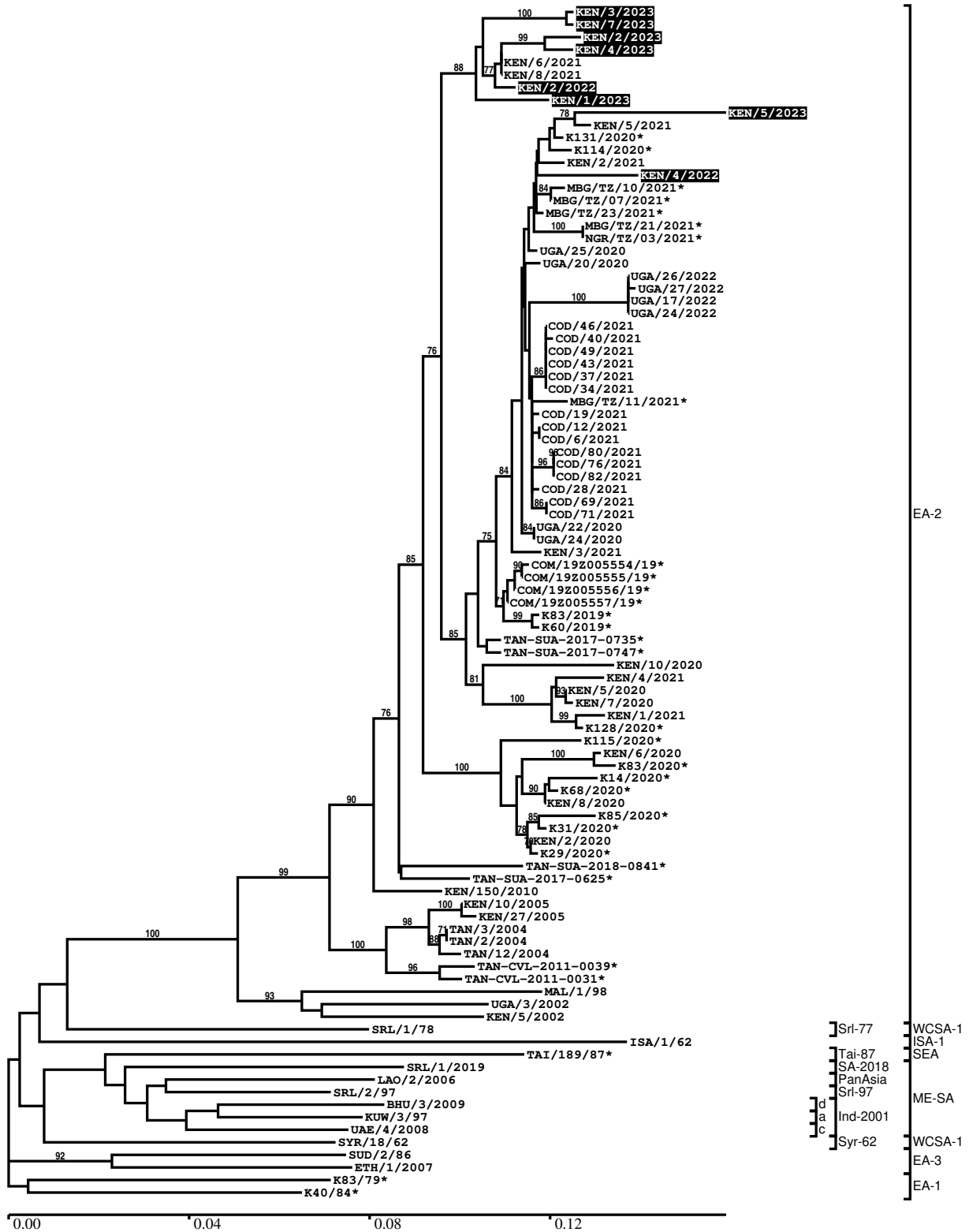
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_263	TAN/2/2004	bovine	93.2	0	O	EA-2		
viba_85	UGA/3/2002		89.1	0	O	EA-2		
viba_74	KEN/5/2002	bovine	89.1	0	O	EA-2		
viba_221	MAL/1/98		87.8	0	O	EA-2		
viba_35331	SRL/1/78		84.3	0	O	WCSA-1	Srl-77	
viba_38646	SYR/18/62		84.0	0	O	WCSA-1	Syr-62	
viba_1893	K40/84	bovine	83.7	0	O	EA-1		
viba_116	SUD/2/86	bovine	83.6	0	O	EA-3		
viba_47579	SRL/1/2019	cattle	83.6	0	O	ME-SA	SA-2018	
viba_523	K83/79		83.4	0	O	EA-1		

Report on FMDV O in Kenya in 2022, 2023

Batch: WRLFMD/2024/000001



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor: vp1_O
 Query sequence set: WRLFMD/2024/000001-Kenya-O (8 sequences)
 Sequence database set: allseqs_O (6186 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: 16
 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
KEN/3/2023	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/7/2023	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/2/2023	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/4/2023	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/6/2021	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/8/2021	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/2/2022	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/1/2023	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/5/2023	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/5/2021	n/a	cattle	WRLFMD	Kenya	EA-2
K131/2020*	OP184912	bovine	EMBAKASI	Kenya	EA-2
K114/2020*	OP184913	bovine	EMBAKASI	Kenya	EA-2
KEN/2/2021	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/4/2022	n/a	cattle	WRLFMD	Kenya	EA-2
MBG/TZ/10/2021*	OQ615921	zebu cattle	SUA	Tanzania	EA-2
MBG/TZ/07/2021*	OQ615920	zebu cattle	SUA	Tanzania	EA-2
MBG/TZ/23/2021*	OQ615919	zebu cattle	SUA	Tanzania	EA-2
MBG/TZ/21/2021*	OQ615918	zebu cattle	SUA	Tanzania	EA-2
NGR/TZ/03/2021*	OQ615917	zebu cattle	SUA	Tanzania	EA-2
UGA/25/2020	n/a	cattle	WRLFMD	Uganda	EA-2
UGA/20/2020	n/a	cattle	WRLFMD	Uganda	EA-2
UGA/26/2022	n/a	cattle	WRLFMD	Uganda	EA-2
UGA/27/2022	n/a	cattle	WRLFMD	Uganda	EA-2
UGA/17/2022	n/a	cattle	WRLFMD	Uganda	EA-2
UGA/24/2022	n/a	cattle	WRLFMD	Uganda	EA-2
COD/46/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/40/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/49/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/43/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2

continued on next page

label	accession	host(s)	lab	country	taxonomic information
COD/37/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/34/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
MBG/TZ/11/2021*	OQ615922	zebu cattle	SUA	Tanzania	EA-2
COD/19/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/12/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/6/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/80/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/76/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/82/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/28/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/69/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
COD/71/2021	n/a	cattle	WRLFMD	Democratic Republic of the Congo	EA-2
UGA/22/2020	n/a	cattle	WRLFMD	Uganda	EA-2
UGA/24/2020	n/a	cattle	WRLFMD	Uganda	EA-2
KEN/3/2021	n/a	cattle	WRLFMD	Kenya	EA-2
COM/19Z005554/19*	n/a	cattle	ANSES	Comoros	EA-2
COM/19Z005555/19*	n/a	cattle	ANSES	Comoros	EA-2
COM/19Z005556/19*	n/a	cattle	ANSES	Comoros	EA-2
COM/19Z005557/19*	n/a	cattle	ANSES	Comoros	EA-2
K83/2019*	OP184915	bovine	EMBAKASI	Kenya	EA-2
K60/2019*	OP184914	bovine	EMBAKASI	Kenya	EA-2
TAN-SUA-2017-0735*	n/a	cattle	SUA	Tanzania	EA-2
TAN-SUA-2017-0747*	n/a	cattle	SUA	Tanzania	EA-2
KEN/10/2020	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/4/2021	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/5/2020	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/7/2020	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/1/2021	n/a	cattle	WRLFMD	Kenya	EA-2
K128/2020*	OP184910	bovine	EMBAKASI	Kenya	EA-2
K115/2020*	OP184902	bovine	EMBAKASI	Kenya	EA-2
KEN/6/2020	n/a	cattle	WRLFMD	Kenya	EA-2
K83/2020*	OP184904	bovine	EMBAKASI	Kenya	EA-2
K14/2020*	OP184908	bovine	EMBAKASI	Kenya	EA-2
K68/2020*	OP184909	bovine	EMBAKASI	Kenya	EA-2
KEN/8/2020	n/a	cattle	WRLFMD	Kenya	EA-2
K85/2020*	OP184907	bovine	EMBAKASI	Kenya	EA-2
K31/2020*	OP184906	bovine	EMBAKASI	Kenya	EA-2
KEN/2/2020	n/a	cattle	WRLFMD	Kenya	EA-2
K29/2020*	OP184903	bovine	EMBAKASI	Kenya	EA-2
TAN-SUA-2018-0841*	n/a	porcine	SUA	Tanzania	EA-2
TAN-SUA-2017-0625*	n/a	cattle	SUA	Tanzania	EA-2
KEN/150/2010	KF135286	cattle	WRLFMD	Kenya	EA-2
KEN/10/2005	n/a	cattle	WRLFMD	Kenya	EA-2
KEN/27/2005	KF135274	cattle	WRLFMD	Kenya	EA-2
TAN/3/2004	KF561680	bovine	WRLFMD	Tanzania	EA-2

continued on next page

label	accession	host(s)	lab	country	taxonomic information
TAN/2/2004	KF561679	bovine	WRLFMD	Tanzania	EA-2
TAN/12/2004	KF561681	bovine	WRLFMD	Tanzania	EA-2
TAN-CVL-2011-0039*	n/a	bovine	CVL	Tanzania	EA-2
TAN-CVL-2011-0031*	n/a	cattle	CVL, Tanzania	Tanzania	EA-2
MAL/1/98	DQ165074	n/a	WRLFMD	Malawi	EA-2
UGA/3/2002	DQ165077	n/a	WRLFMD	Uganda	EA-2
KEN/5/2002	DQ165073	bovine	WRLFMD	Kenya	EA-2
SRL/1/78	MK390916	n/a	WRLFMD	Sri Lanka	WCSEA-1/Sri-77
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA/Tai-87
SRL/1/2019	n/a	cattle	WRLFMD	Sri Lanka	ME-SA/SA-2018
LAO/2/2006	EU667451	cattle	WRLFMD	Laos	ME-SA/PanAsia
SRL/2/97	AJ303531	bovine	WRLFMD	Sri Lanka	ME-SA/Sri-97
BHU/3/2009	KM921814	cattle	WRLFMD	Bhutan	ME-SA/Ind-2001/d
KUW/3/97	DQ164904	bovine	WRLFMD	Kuwait	ME-SA/Ind-2001/a
UAE/4/2008	KM921876	gazelle	WRLFMD	United Arab Emirates	ME-SA/Ind-2001/c
SYR/18/62	MK390935	n/a	WRLFMD	Syria	WCSEA-1/Syr-62
SUD/2/86	DQ165075	bovine	WRLFMD	Sudan	EA-3
ETH/1/2007	FJ798137	cattle	WRLFMD	Ethiopia	EA-3
K83/79*	AJ303511	n/a	WRLFMD	Kenya	EA-1
K40/84*	KY091280	bovine	WRLFMD	Kenya	EA-1

*, not a WRLFMD Reference Number

n/a, not available

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

Genotyping Report

FMDV serotype: A
Country: Kenya
Year: 2021, 2023
Batch: WRLFMD/2024/000001
No. of sequences: 2
Report date: 15th February 2024
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



Copyright © 2024 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:	KEN/15/2021
Sender reference:	K96/21
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	10/11/2021
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-I
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	23/01/2024
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024

VIBASys IDs: sample 54945, genome 54946, sequence viba_54947, sequencing info 54948

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_41924	KEN/K103/2015	cattle	93.7	0	A	AFRICA	G-I	
viba_41920	KEN/K91/2015	cattle	93.7	0	A	AFRICA	G-I	
viba_37389	KEN/14/2017	bovine	93.5	0	A	AFRICA	G-I	
viba_51305	BUN/2/2016a	bovine	93.2	0	A	AFRICA	G-I	
viba_51301	BUN/1/2016a	bovine	93.2	0	A	AFRICA	G-I	
viba_43041	MOR2-110-P/UGA/2016	cattle	93.0	0	A	AFRICA	G-I	
viba_43049	AMD-130-P/UGA/2016	cattle	93.0	0	A	AFRICA	G-I	
viba_51309	BUN/3/2016a	bovine	93.0	0	A	AFRICA	G-I	
viba_43045	AMD-090-P/UGA/2016	cattle	92.9	0	A	AFRICA	G-I	
viba_41928	KEN/K74/2016	cattle	92.9	0	A	AFRICA	G-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_347	KEN/42/66		86.9	0	A	AFRICA	G-I	
viba_785	KEN/3/64		84.0	0	A	AFRICA	G-III	
viba_688	EGY/1/72	bovine	83.3	0	A	AFRICA	G-II	
viba_609	GHA/16/73	bovine	82.1	0	A	AFRICA	G-VI	
viba_173	UGA/13/66	bovine	81.7	0	A	AFRICA	G-VII	
viba_178	SUD/3/77		81.3	0	A	AFRICA	G-IV	
viba_625	TAI/2/97		80.1	0	A	ASIA	Sea-97	
viba_535	NGR/2/73	bovine	79.8	0	A	AFRICA	G-V	
viba_435	Allier/FRA/60		79.6	0	A	EURO-SA		
viba_699	UKG/119/32		79.4	0	A	EURO-SA		

Virus sample name:	KEN/6/2023
Sender reference:	K24/23
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	26/07/2023
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-I
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	24/01/2024
Primers:	A-1C562F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 54949, genome 54950, sequence viba_54951, sequencing info 54952	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_53309	KIB/TZ/05/2020	zebu cattle	94.6	0	A	AFRICA	G-I	
viba_21282	TAN/18/2013	cattle	94.2	0	A	AFRICA	G-I	
viba_21278	TAN/16/2013	cattle	94.2	0	A	AFRICA	G-I	
viba_37385	KEN/9/2017	bovine	94.0	0	A	AFRICA	G-I	
viba_51687	OMN/22Z2004/2018_25	cattle	93.2	0	A	AFRICA	G-I	
viba_51691	OMN/22Z2005/2018_26	cattle	93.2	0	A	AFRICA	G-I	
viba_51683	OMN/22Z2001/2018_22	cattle	93.2	0	A	AFRICA	G-I	
viba_37393	KEN/17/2017	bovine	92.9	0	A	AFRICA	G-I	
viba_11314	K73/08	cattle	92.7	0	A	AFRICA	G-I	
viba_12074	TAN/47/2009	cattle	92.7	0	A	AFRICA	G-I	

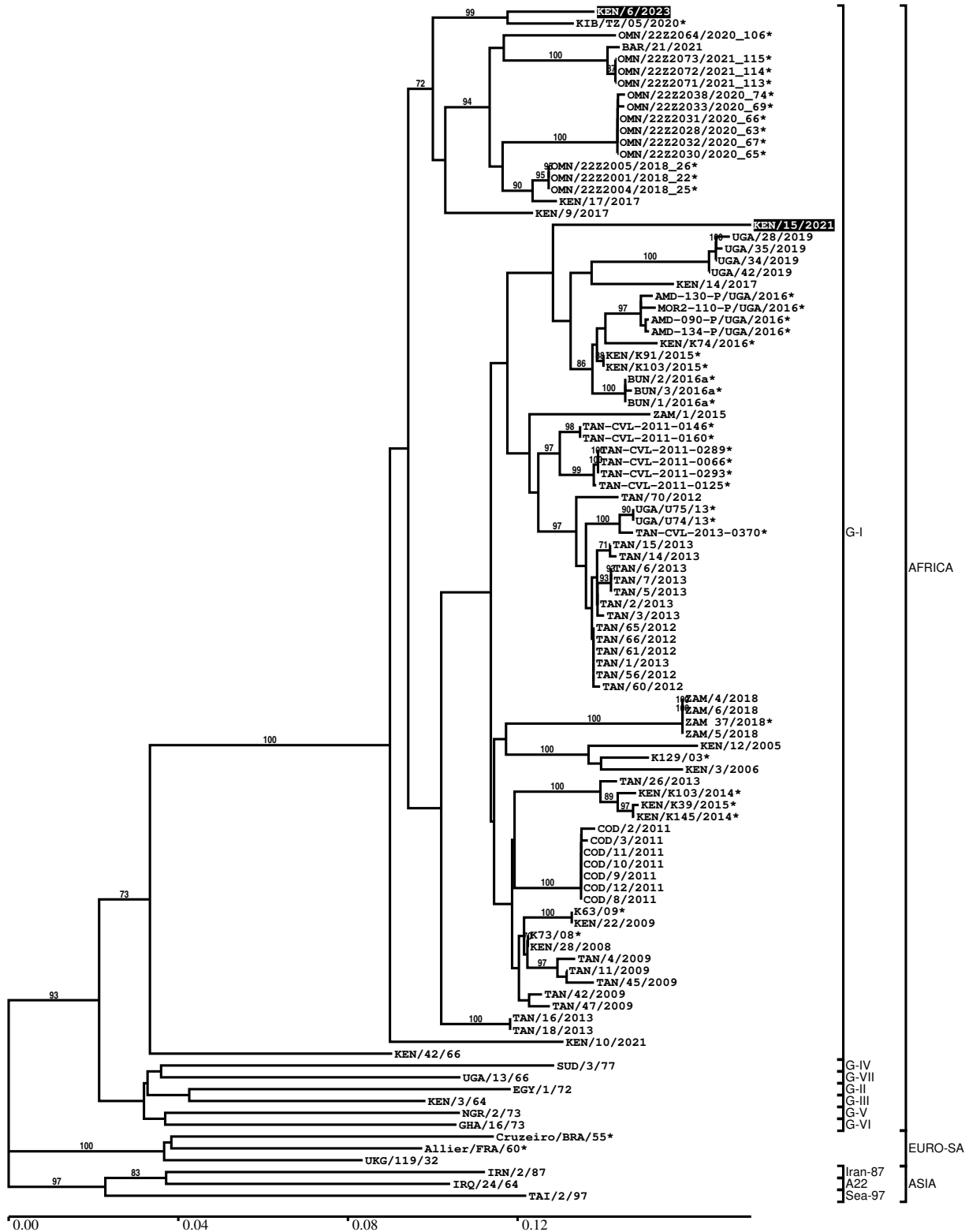
Most Closely Related Prototype Sequences

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

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_347	KEN/42/66		85.4	0	A	AFRICA	G-I	
viba_785	KEN/3/64		83.8	0	A	AFRICA	G-III	
viba_688	EGY/1/72	bovine	82.3	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	82.2	0	A	AFRICA	G-VII	
viba_609	GHA/16/73	bovine	82.1	0	A	AFRICA	G-VI	
viba_699	UKG/119/32		81.3	0	A	EURO-SA		
viba_178	SUD/3/77		80.9	0	A	AFRICA	G-IV	
viba_535	NGR/2/73	bovine	80.8	0	A	AFRICA	G-V	
viba_435	Allier/FRA/60		79.6	0	A	EURO-SA		
viba_682	IRN/2/87	bovine	79.5	0	A	ASIA	Iran-87	

Report on FMDV A in Kenya in 2021, 2023

Batch: WRLFMD/2024/000001



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_A
Query sequence set:	WRLFMD/2024/000001-Kenya-A (2 sequences)
Sequence database set:	allseqs_A (2414 sequences)
Prototype sequence set:	!prototypes_A (40 sequences)
Number of related sequences reported:	10
Minimal VP1 subsequence match length	600
Sequence alignment method:	muscle (default parameters)
Sequence alignment length:	630
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:	11
VIBASys version:	reflabs-1.1.2

Sequences in the Phylogenetic Tree

All sequences in the tree are in taxonomic group FMDV/A

label	accession	host(s)	lab	country	taxonomic information
KEN/6/2023	n/a	cattle	WRLFMD	Kenya	AFRICA/G-I
KIB/TZ/05/2020*	OQ615923	zebu cattle	SUA	Tanzania	AFRICA/G-I
OMN/22Z2064/2020_106*	n/a	cattle	ANSES	Oman	AFRICA/G-I
BAR/21/2021	n/a	cattle	WRLFMD	Bahrain	AFRICA/G-I
OMN/22Z2073/2021_115*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2072/2021_114*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2071/2021_113*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2038/2020_74*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2033/2020_69*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2031/2020_66*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2028/2020_63*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2032/2020_67*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2030/2020_65*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2005/2018_26*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2001/2018_22*	n/a	cattle	ANSES	Oman	AFRICA/G-I
OMN/22Z2004/2018_25*	n/a	cattle	ANSES	Oman	AFRICA/G-I
KEN/17/2017	n/a	bovine	WRLFMD	Kenya	AFRICA/G-I
KEN/9/2017	n/a	bovine	WRLFMD	Kenya	AFRICA/G-I
KEN/15/2021	n/a	cattle	WRLFMD	Kenya	AFRICA/G-I
UGA/28/2019	n/a	bovine	WRLFMD	Uganda	AFRICA/G-I
UGA/35/2019	n/a	bovine	WRLFMD	Uganda	AFRICA/G-I
UGA/34/2019	n/a	bovine	WRLFMD	Uganda	AFRICA/G-I
UGA/42/2019	n/a	bovine	WRLFMD	Uganda	AFRICA/G-I
KEN/14/2017	n/a	bovine	WRLFMD	Kenya	AFRICA/G-I
AMD-130-P/UGA/2016*	MH367470	cattle	PIADC	Uganda	AFRICA/G-I
MOR2-110-P/UGA/2016*	MH367468	cattle	PIADC	Uganda	AFRICA/G-I
AMD-090-P/UGA/2016*	MH367469	cattle	PIADC	Uganda	AFRICA/G-I
AMD-134-P/UGA/2016*	MH367471	cattle	PIADC	Uganda	AFRICA/G-I
KEN/K74/2016*	MH882567	cattle	PIADC	Kenya	AFRICA/G-I
KEN/K91/2015*	MH882568	cattle	PIADC	Kenya	AFRICA/G-I
KEN/K103/2015*	MH882572	cattle	PIADC	Kenya	AFRICA/G-I
BUN/2/2016a*	OM817502	bovine	SCIENSANO	Burundi	AFRICA/G-I
BUN/3/2016a*	OM817503	bovine	SCIENSANO	Burundi	AFRICA/G-I
BUN/1/2016a*	OM817501	bovine	SCIENSANO	Burundi	AFRICA/G-I
ZAM/1/2015	n/a	bovine	WRLFMD	Zambia	AFRICA/G-I
TAN-CVL-2011-0146*	n/a	cattle	CVL-Tanzania	Tanzania	AFRICA/G-I

continued on next page

label	accession	host(s)	lab	country	taxonomic information
TAN-CVL-2011-0160*	n/a	bovine	CVL	Tanzania	AFRICA/G-I
TAN-CVL-2011-0289*	n/a	bovine	CVL	Tanzania	AFRICA/G-I
TAN-CVL-2011-0066*	n/a	bovine	CVL	Tanzania	AFRICA/G-I
TAN-CVL-2011-0293*	n/a	bovine	CVL	Tanzania	AFRICA/G-I
TAN-CVL-2011-0125*	n/a	bovine	CVL	Tanzania	AFRICA/G-I
TAN/70/2012	MF592640	cattle	WRLFMD	Tanzania	AFRICA/G-I
UGA/U75/13*	KP089985	bovine	Makerere University	Uganda	AFRICA/G-I
UGA/U74/13*	KP089984	bovine	Makerere University	Uganda	AFRICA/G-I
TAN-CVL-2013-0370*	n/a	cattle	CVL-Tanzania	Tanzania	AFRICA/G-I
TAN/15/2013	MF592652	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/14/2013	MF592651	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/6/2013	n/a	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/7/2013	MF592649	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/5/2013	MF592648	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/2/2013	MF592646	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/3/2013	MF592647	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/65/2012	MF592635	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/66/2012	MF592636	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/61/2012	MF592633	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/1/2013	MF592645	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/56/2012	MF592631	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/60/2012	MF592632	cattle	WRLFMD	Tanzania	AFRICA/G-I
ZAM/4/2018	n/a	cattle	WRLFMD	Zambia	AFRICA/G-I
ZAM/6/2018	n/a	cattle	WRLFMD	Zambia	AFRICA/G-I
ZAM 37/2018*	n/a	bovine	BVI	Zambia	AFRICA/G-I
ZAM/5/2018	n/a	cattle	WRLFMD	Zambia	AFRICA/G-I
KEN/12/2005	n/a	cattle	WRLFMD	Kenya	AFRICA/G-I
K129/03*	KJ440868	cattle	Embakasi/Lindholm	Kenya	AFRICA/G-I
KEN/3/2006	n/a	cattle	WRLFMD	Kenya	AFRICA/G-I
TAN/26/2013	MF592660	cattle	WRLFMD	Tanzania	AFRICA/G-I
KEN/K103/2014*	MH882571	cattle	PIADC	Kenya	AFRICA/G-I
KEN/K39/2015*	MH882570	cattle	PIADC	Kenya	AFRICA/G-I
KEN/K145/2014*	MH882569	cattle	PIADC	Kenya	AFRICA/G-I
COD/2/2011	n/a	cattle	WRLFMD	Democratic Republic of the Congo	AFRICA/G-I
COD/3/2011	n/a	cattle	WRLFMD	Democratic Republic of the Congo	AFRICA/G-I
COD/11/2011	n/a	cattle	WRLFMD	Democratic Republic of the Congo	AFRICA/G-I
COD/10/2011	n/a	cattle	WRLFMD	Democratic Republic of the Congo	AFRICA/G-I
COD/9/2011	n/a	cattle	WRLFMD	Democratic Republic of the Congo	AFRICA/G-I
COD/12/2011	n/a	cattle	WRLFMD	Democratic Republic of the Congo	AFRICA/G-I
COD/8/2011	n/a	cattle	WRLFMD	Democratic Republic of the Congo	AFRICA/G-I
K63/09*	KJ440871	cattle	Embakasi/Lindholm	Kenya	AFRICA/G-I
KEN/22/2009	KF561703	cattle	WRLFMD	Kenya	AFRICA/G-I
K73/08*	KJ440870	cattle	Embakasi/Lindholm	Kenya	AFRICA/G-I
KEN/28/2008	KF561702	cattle	WRLFMD	Kenya	AFRICA/G-I
TAN/4/2009	KF561692	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/11/2009	KF561694	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/45/2009	KF561696	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/42/2009	KF561695	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/47/2009	KF561697	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/16/2013	MF592653	cattle	WRLFMD	Tanzania	AFRICA/G-I
TAN/18/2013	MF592654	cattle	WRLFMD	Tanzania	AFRICA/G-I

continued on next page

label	accession	host(s)	lab	country	taxonomic information
KEN/10/2021	n/a	cattle	WRLFMD	Kenya	AFRICA/G-I
KEN/42/66	KF561699	n/a	WRLFMD	Kenya	AFRICA/G-I
SUD/3/77	GU566064	n/a	WRLFMD	Sudan	AFRICA/G-IV
UGA/13/66	KF561705	bovine	WRLFMD	Uganda	AFRICA/G-VII
EGY/1/72	EF208756	bovine	WRLFMD	Egypt	AFRICA/G-II
KEN/3/64	AY593761	n/a	PIADC	Kenya	AFRICA/G-III
NGR/2/73	KF561704	bovine	WRLFMD	Niger	AFRICA/G-V
GHA/16/73	KF561698	bovine	WRLFMD	Ghana	AFRICA/G-VI
Cruzeiro/BRA/55*	AY593768	bovine	PIADC	Brazil	EURO-SA
Allier/FRA/60*	AY593780	n/a	PIADC	France	EURO-SA
UKG/119/32	M10975	n/a	PIADC	United Kingdom	EURO-SA
IRN/2/87	EF208770	bovine	WRLFMD	Iran	ASIA/Iran-87
IRQ/24/64	AY593763	bovine	PIADC	Iraq	ASIA/A22
TAI/2/97	EF208778	n/a	WRLFMD	Thailand	ASIA/Sea-97

*, not a WRLFMD Reference Number

n/a, not available

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

Genotyping Report

FMDV serotype: SAT1
Country: Kenya
Year: 2022, 2023
Batch: WRLFMD/2024/000001
No. of sequences: 3
Report date: 15th February 2024
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



Copyright © 2024 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:	KEN/3/2022
Sender reference:	K20/22
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	20/06/2022
Host species:	cattle
Serotype:	SAT1
Topotype:	I
Lineage:	
Sublineage:	
Sequence length:	657
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	18/01/2024
Primers:	SAT1-1C559F & SAT1U-OS/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 55014, genome 55016, sequence viba_55017, sequencing info 55018	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_55023	KEN/3/2023	cattle	99.4	0	SAT1	I		
viba_55020	KEN/7/2022		98.2	0	SAT1	I		
viba_52785	COM/1577/2023		97.4	0	SAT1	I		
viba_23486	TAN/12/2014	bovine	93.3	0	SAT1	I		
viba_23570	TAN/33/2014	bovine	93.3	0	SAT1	I		
viba_23582	TAN/36/2014	bovine	93.3	0	SAT1	I		
viba_23574	TAN/34/2014	bovine	93.3	0	SAT1	I		
viba_23482	TAN/11/2014	bovine	93.3	0	SAT1	I		
viba_23590	TAN/38/2014	bovine	93.3	0	SAT1	I		
viba_23586	TAN/37/2014	bovine	93.2	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	88.1	0	SAT1	I		
viba_243	ZIM/23/2003		79.8	0	SAT1	I		
viba_462	RV/11/37	greater kudu	78.6	0	SAT1	II		
viba_709	RHO/5/66	bovine	76.1	0	SAT1	II		
viba_514	UGA-BUFF/21/70	African buffalo	75.4	0	SAT1	IV		
viba_212	BEC/1/48		75.0	0	SAT1	III		
viba_16635	MOZ/P13/2010 BUF B16	African buffalo	75.0	0	SAT1	XIII		
viba_30769	MOZ/1/75	cattle	75.0	0	SAT1	XIII		
viba_495	BOT/1/68	bovine	74.6	0	SAT1	III		
viba_30834	TCH/1/72	bovine	73.8	0	SAT1	XI		

Virus sample name:	KEN/7/2022
Sender reference:	K52/22
Location of origin:	Landless stage, Makongeni, Thika West, Kiambu?County
Country of origin:	Kenya
Date of collection:	11/10/2022
Host species:	
Serotype:	SAT1
Topotype:	I
Lineage:	
Sublineage:	
Sequence length:	657
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK2
Harvest date of material:	25/01/2024
Primers:	SAT1-1C559F & SAT1U-OS/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 55007, genome 55019, sequence viba_55020, sequencing info 55021	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_55017	KEN/3/2022	cattle	98.2	0	SAT1	I		
viba_52785	COM/1577/2023		97.9	0	SAT1	I		
viba_55023	KEN/3/2023	cattle	97.6	0	SAT1	I		
viba_23486	TAN/12/2014	bovine	92.8	0	SAT1	I		
viba_23570	TAN/33/2014	bovine	92.8	0	SAT1	I		
viba_23582	TAN/36/2014	bovine	92.8	0	SAT1	I		
viba_23574	TAN/34/2014	bovine	92.8	0	SAT1	I		
viba_23482	TAN/11/2014	bovine	92.8	0	SAT1	I		
viba_23590	TAN/38/2014	bovine	92.8	0	SAT1	I		
viba_23586	TAN/37/2014	bovine	92.7	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	87.8	0	SAT1	I		
viba_243	ZIM/23/2003		79.4	0	SAT1	I		
viba_462	RV/11/37	greater kudu	78.6	0	SAT1	II		
viba_30769	MOZ/1/75	cattle	75.7	0	SAT1	XIII		
viba_212	BEC/1/48		75.6	0	SAT1	III		
viba_16635	MOZ/P13/2010 BUF B16	African buffalo	75.6	0	SAT1	XIII		
viba_709	RHO/5/66	bovine	75.5	0	SAT1	II		
viba_495	BOT/1/68	bovine	75.0	0	SAT1	III		
viba_514	UGA-BUFF/21/70	African buffalo	74.8	0	SAT1	IV		
viba_509	BOT/1/77	bovine	74.0	0	SAT1	III		

Virus sample name:	KEN/3/2023
Sender reference:	K21/23
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	06/02/2023
Host species:	cattle
Serotype:	SAT1
Topotype:	I
Lineage:	
Sublineage:	
Sequence length:	657
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	20/01/2024
Primers:	SAT1-1C559F & SAT1U-OS/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 54969, genome 55022, sequence viba_55023, sequencing info 55024	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_55017	KEN/3/2022	cattle	99.4	0	SAT1	I		
viba_55020	KEN/7/2022		97.6	0	SAT1	I		
viba_52785	COM/1577/2023		97.0	0	SAT1	I		
viba_23486	TAN/12/2014	bovine	93.0	0	SAT1	I		
viba_23570	TAN/33/2014	bovine	93.0	0	SAT1	I		
viba_23582	TAN/36/2014	bovine	93.0	0	SAT1	I		
viba_23574	TAN/34/2014	bovine	93.0	0	SAT1	I		
viba_23482	TAN/11/2014	bovine	93.0	0	SAT1	I		
viba_23590	TAN/38/2014	bovine	93.0	0	SAT1	I		
viba_23586	TAN/37/2014	bovine	92.8	0	SAT1	I		

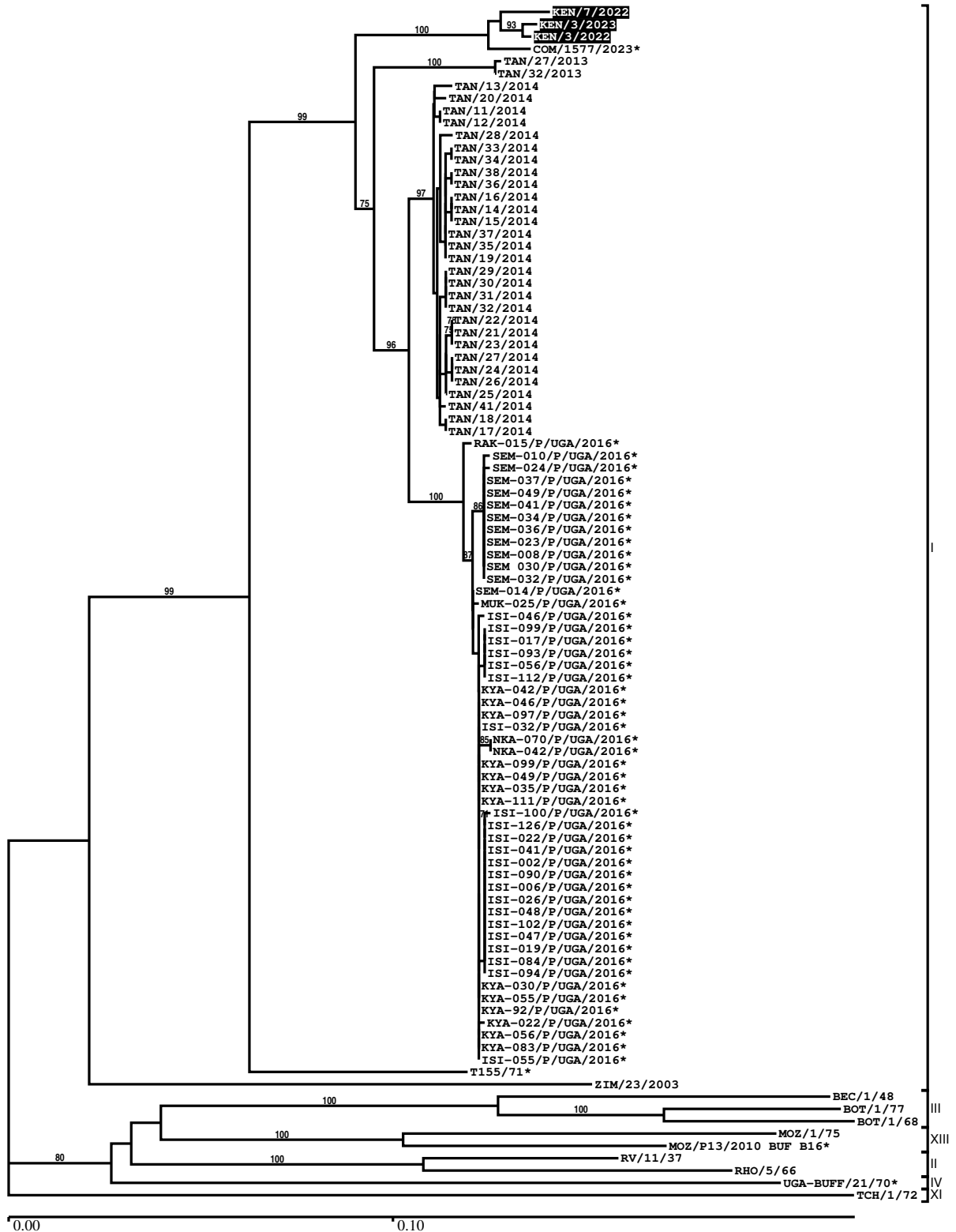
Most Closely Related Prototype Sequences

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	87.5	0	SAT1	I		
viba_243	ZIM/23/2003		79.2	0	SAT1	I		
viba_462	RV/11/37	greater kudu	78.2	0	SAT1	II		
viba_709	RHO/5/66	bovine	75.6	0	SAT1	II		
viba_514	UGA-BUFF/21/70	African buffalo	75.1	0	SAT1	IV		
viba_212	BEC/1/48		74.9	0	SAT1	III		
viba_16635	MOZ/P13/2010 BUF B16	African buffalo	74.9	0	SAT1	XIII		
viba_30769	MOZ/1/75	cattle	74.6	0	SAT1	XIII		
viba_495	BOT/1/68	bovine	74.4	0	SAT1	III		
viba_30834	TCH/1/72	bovine	73.8	0	SAT1	XI		

Report on FMDV SAT1 in Kenya in 2022, 2023

Batch: WRLFMD/2024/000001



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_SAT1
Query sequence set:	WRLFMD/2024/000001-Kenya-SAT1 (3 sequences)
Sequence database set:	allseqs_SAT1 (811 sequences)
Prototype sequence set:	!prototypes_SAT1 (20 sequences)
Number of related sequences reported:	10
Minimal VP1 subsequence match length	600
Sequence alignment method:	muscle (default parameters)
Sequence alignment length:	654
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:	11
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
KEN/7/2022	n/a	n/a	WRLFMD	Kenya	I
KEN/3/2023	n/a	cattle	WRLFMD	Kenya	I
KEN/3/2022	n/a	cattle	WRLFMD	Kenya	I
COM/1577/2023*	n/a	n/a	ANSES	Comoros	I
TAN/27/2013	MF592661	cattle	WRLFMD	Tanzania	I
TAN/32/2013	n/a	cattle	WRLFMD	Tanzania	I
TAN/13/2014	MF592674	bovine	WRLFMD	Tanzania	I
TAN/20/2014	MF592680	bovine	WRLFMD	Tanzania	I
TAN/11/2014	MF592672	bovine	WRLFMD	Tanzania	I
TAN/12/2014	MF592673	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/38/2014	MF592695	bovine	WRLFMD	Tanzania	I
TAN/36/2014	MF592693	bovine	WRLFMD	Tanzania	I
TAN/16/2014	MF592676	bovine	WRLFMD	Tanzania	I
TAN/14/2014	MF592675	bovine	WRLFMD	Tanzania	I
TAN/15/2014	n/a	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
TAN/29/2014	MF592687	bovine	WRLFMD	Tanzania	I
TAN/30/2014	MF592688	bovine	WRLFMD	Tanzania	I
TAN/31/2014	n/a	bovine	WRLFMD	Tanzania	I
TAN/32/2014	MF592689	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/27/2014	n/a	bovine	WRLFMD	Tanzania	I
TAN/24/2014	MF592683	bovine	WRLFMD	Tanzania	I
TAN/26/2014	MF592685	bovine	WRLFMD	Tanzania	I
TAN/25/2014	MF592684	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
RAK-015/P/UGA/2016*	MH367434	cattle	PIADC	Uganda	I

continued on next page

label	accession	host(s)	lab	country	taxonomic information
SEM-010/P/UGA/2016*	MH367403	cattle	PIADC	Uganda	I
SEM-024/P/UGA/2016*	MH367410	cattle	PIADC	Uganda	I
SEM-037/P/UGA/2016*	MH367405	cattle	PIADC	Uganda	I
SEM-049/P/UGA/2016*	MH367408	cattle	PIADC	Uganda	I
SEM-041/P/UGA/2016*	MH367406	cattle	PIADC	Uganda	I
SEM-034/P/UGA/2016*	MH367401	cattle	PIADC	Uganda	I
SEM-036/P/UGA/2016*	MH367407	cattle	PIADC	Uganda	I
SEM-023/P/UGA/2016*	MH367404	cattle	PIADC	Uganda	I
SEM-008/P/UGA/2016*	MH367400	cattle	PIADC	Uganda	I
SEM 030/P/UGA/2016*	MH367402	cattle	PIADC	Uganda	I
SEM-032/P/UGA/2016*	MH367399	cattle	PIADC	Uganda	I
SEM-014/P/UGA/2016*	MH367409	cattle	PIADC	Uganda	I
MUK-025/P/UGA/2016*	MH367428	cattle	PIADC	Uganda	I
ISI-046/P/UGA/2016*	MH367431	cattle	PIADC	Uganda	I
ISI-099/P/UGA/2016*	MH367429	cattle	PIADC	Uganda	I
ISI-017/P/UGA/2016*	MH367383	cattle	PIADC	Uganda	I
ISI-093/P/UGA/2016*	MH367430	cattle	PIADC	Uganda	I
ISI-056/P/UGA/2016*	MH367433	cattle	PIADC	Uganda	I
ISI-112/P/UGA/2016*	MH367396	cattle	PIADC	Uganda	I
KYA-042/P/UGA/2016*	MH367421	cattle	PIADC	Uganda	I
KYA-046/P/UGA/2016*	MH367411	cattle	PIADC	Uganda	I
KYA-097/P/UGA/2016*	MH367417	cattle	PIADC	Uganda	I
ISI-032/P/UGA/2016*	MH367387	cattle	PIADC	Uganda	I
NKA-070/P/UGA/2016*	MH367426	cattle	PIADC	Uganda	I
NKA-042/P/UGA/2016*	MH367427	cattle	PIADC	Uganda	I
KYA-099/P/UGA/2016*	MH367412	cattle	PIADC	Uganda	I
KYA-049/P/UGA/2016*	MH367420	cattle	PIADC	Uganda	I
KYA-035/P/UGA/2016*	MH367422	cattle	PIADC	Uganda	I
KYA-111/P/UGA/2016*	MH367416	cattle	PIADC	Uganda	I
ISI-100/P/UGA/2016*	MH367394	cattle	PIADC	Uganda	I
ISI-126/P/UGA/2016*	MH367397	cattle	PIADC	Uganda	I
ISI-022/P/UGA/2016*	MH367385	cattle	PIADC	Uganda	I
ISI-041/P/UGA/2016*	MH367388	cattle	PIADC	Uganda	I
ISI-002/P/UGA/2016*	MH367381	cattle	PIADC	Uganda	I
ISI-090/P/UGA/2016*	MH367392	cattle	PIADC	Uganda	I
ISI-006/P/UGA/2016*	MH367382	cattle	PIADC	Uganda	I
ISI-026/P/UGA/2016*	MH367386	cattle	PIADC	Uganda	I
ISI-048/P/UGA/2016*	MH367390	cattle	PIADC	Uganda	I
ISI-102/P/UGA/2016*	MH367395	cattle	PIADC	Uganda	I
ISI-047/P/UGA/2016*	MH367389	cattle	PIADC	Uganda	I
ISI-019/P/UGA/2016*	MH367384	cattle	PIADC	Uganda	I
ISI-084/P/UGA/2016*	MH367391	cattle	PIADC	Uganda	I
ISI-094/P/UGA/2016*	MH367393	cattle	PIADC	Uganda	I
KYA-030/P/UGA/2016*	MH367419	cattle	PIADC	Uganda	I
KYA-055/P/UGA/2016*	MH367413	cattle	PIADC	Uganda	I
KYA-92/P/UGA/2016*	MH367418	cattle	PIADC	Uganda	I
KYA-022/P/UGA/2016*	MH367423	cattle	PIADC	Uganda	I
KYA-056/P/UGA/2016*	MH367414	cattle	PIADC	Uganda	I
KYA-083/P/UGA/2016*	MH367415	cattle	PIADC	Uganda	I
ISI-055/P/UGA/2016*	MH367432	cattle	PIADC	Uganda	I
T155/71*	KF561706	cattle	WRLFMD	Tanzania	I
ZIM/23/2003	KF219690	n/a	WRLFMD	Zimbabwe	I
BEC/1/48	AY593838	n/a	PIADC	Bechuanaland	III
BOT/1/77	KF219686	bovine	WRLFMD	Botswana	III
BOT/1/68	AY593845	bovine	PIADC	Botswana	III
MOZ/1/75	MG972461	cattle	WRLFMD	Mozambique	XIII
MOZ/P13/2010 BUF B16*	KF219691	African buffalo	WRLFMD	Mozambique	XIII
RV/11/37	AY593839	greater kudu	PIADC	Rhodesia (RV)	II
RHO/5/66	AY593846	bovine	PIADC	Rhodesia	II
UGA-BUFF/21/70*	KF219682	African buffalo	WRLFMD	Uganda	IV
TCH/1/72	MG972459	bovine	WRLFMD	Tchad	XI

*, not a WRLFMD Reference Number

n/a, not available

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

Genotyping Report

FMDV serotype: SAT2
Country: Kenya
Year: 2021, 2022
Batch: WRLFMD/2024/000001
No. of sequences: 5
Report date: 15th February 2024
Report generated by: Nick Knowles
Report checked by: Jemma Wadsworth



Copyright © 2024 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:	KEN/11/2021
Sender reference:	K79/21
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	01/07/2021
Host species:	cattle
Serotype:	SAT2
Topotype:	IV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	21/01/2024
Primers:	SAT2-1C445F & SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 54991, genome 54992, sequence viba_54993, sequencing info 54994	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_48349	ZAM/2/2021	cattle	98.0	0	SAT2	IV		
viba_48369	ZAM/8/2021	cattle	98.0	0	SAT2	IV		
viba_3526	BUN/1/91		90.8	0	SAT2	IV		
viba_27750	ZAM/2/2015	bovine	87.4	0	SAT2	IV		
viba_16764	TAN/P7/2010	cattle	87.2	0	SAT2	IV		
viba_16768	TAN/P8/2010	cattle	87.2	0	SAT2	IV		
viba_11235	KEN/19/2008	cattle	86.0	0	SAT2	IV		
viba_28823	K65/82		85.9	0	SAT2	IV		
viba_1645	KEN/2/76	cattle	85.9	0	SAT2	IV		
viba_28875	KEN/1/87		85.9	0	SAT2	IV		

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_248	KEN/1/84	bovine	85.9	0	SAT2	IV		
viba_273	ETH/1/90	bovine	81.9	0	SAT2	IV		
viba_451	BOT/P3/98 VUM-29	African buffalo	81.6	1	SAT2	III		
viba_111	MAL/1/2003	bovine	80.5	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	80.4	0	SAT2	I		
viba_752	SA/106/59		79.8	0	SAT2	I		
viba_380	RHO/1/48		79.3	0	SAT2	III		
viba_567	ZIM/7/83	bovine	76.9	0	SAT2	II		
viba_546	ZIM/5/81	bovine	74.5	0	SAT2	II		
viba_424	SAU/6/2000	bovine	74.0	1	SAT2	VII		

Virus sample name:	KEN/13/2021
Sender reference:	K88/21
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	12/08/2021
Host species:	cattle
Serotype:	SAT2
Topotype:	IV
Lineage:	
Sublineage:	
Sequence length:	639
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	23/01/2024
Primers:	SAT2-1C445F & SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 54995, genome 54996, sequence viba_54997, sequencing info 54998	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_55001	KEN/14/2021	cattle	99.1	0	SAT2	IV		
viba_37413	KEN/19/2017	bovine	95.9	0	SAT2	IV		
viba_35017	Ken/MMB37/2012	African buffalo	93.6	1	SAT2	IV		
viba_6484	KEN/6/2004	cattle	89.4	0	SAT2	IV		
viba_6507	KEN/17/2004	cattle	89.1	0	SAT2	IV		
viba_42282	KEN/PRB87/2016 pro	African buffalo	88.9	0	SAT2	IV		
viba_42262	KEN/PRB80/2016 pro	African buffalo	88.8	0	SAT2	IV		
viba_28871	K37/86		88.8	0	SAT2	IV		
viba_42266	KEN/PRB81/2016 pro	African buffalo	88.8	0	SAT2	IV		
viba_42188	KEN/PRB52/2016 pro	African buffalo	88.8	0	SAT2	IV		

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_248	KEN/1/84	bovine	87.9	0	SAT2	IV		
viba_273	ETH/1/90	bovine	85.7	0	SAT2	IV		
viba_752	SA/106/59		80.8	0	SAT2	I		
viba_380	RHO/1/48		80.4	0	SAT2	III		
viba_183	ZIM/14/2002	bovine	80.0	0	SAT2	I		
viba_111	MAL/1/2003	bovine	78.5	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	77.2	1	SAT2	III		
viba_567	ZIM/7/83	bovine	76.9	0	SAT2	II		
viba_546	ZIM/5/81	bovine	76.7	0	SAT2	II		
viba_724	ETH/2/91	cattle	73.8	0	SAT2	XIV		

Virus sample name:	KEN/14/2021
Sender reference:	K90/21
Location of origin:	n/a
Country of origin:	Kenya
Date of collection:	30/08/2021
Host species:	cattle
Serotype:	SAT2
Topotype:	IV
Lineage:	
Sublineage:	
Sequence length:	639
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	23/01/2024
Primers:	SAT2-1C445F & SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 54999, genome 55000, sequence viba_55001, sequencing info 55002	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_54997	KEN/13/2021	cattle	99.1	0	SAT2	IV		
viba_37413	KEN/19/2017	bovine	96.2	0	SAT2	IV		
viba_35017	Ken/MMB37/2012	African buffalo	93.8	1	SAT2	IV		
viba_6484	KEN/6/2004	cattle	89.6	0	SAT2	IV		
viba_6507	KEN/17/2004	cattle	89.3	0	SAT2	IV		
viba_42282	KEN/PRB87/2016 pro	African buffalo	89.1	0	SAT2	IV		
viba_28871	K37/86		89.0	0	SAT2	IV		
viba_42266	KEN/PRB81/2016 pro	African buffalo	89.0	0	SAT2	IV		
viba_6480	KEN/5/2004	cattle	89.0	0	SAT2	IV		
viba_11235	KEN/19/2008	cattle	89.0	0	SAT2	IV		

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_248	KEN/1/84	bovine	87.6	0	SAT2	IV		
viba_273	ETH/1/90	bovine	85.7	0	SAT2	IV		
viba_752	SA/106/59		80.5	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	80.2	0	SAT2	I		
viba_380	RHO/1/48		79.8	0	SAT2	III		
viba_111	MAL/1/2003	bovine	78.4	0	SAT2	I		
viba_567	ZIM/7/83	bovine	77.0	0	SAT2	II		
viba_546	ZIM/5/81	bovine	76.7	0	SAT2	II		
viba_451	BOT/P3/98 VUM-29	African buffalo	76.7	1	SAT2	III		
viba_724	ETH/2/91	cattle	73.9	0	SAT2	XIV		

Virus sample name:	KEN/6/2022
Sender reference:	K48/22
Location of origin:	Kwanza Constituency, Trans-Nzoia County
Country of origin:	Kenya
Date of collection:	15/09/2022
Host species:	cattle
Serotype:	SAT2
Topotype:	IV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	24/01/2024
Primers:	SAT2-1C445F & SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 55003, genome 55004, sequence viba_55005, sequencing info 55006	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_55009	KEN/7/2022		100.0	0	SAT2	IV		
viba_18944	KEN/20/2011	cattle	94.2	0	SAT2	IV		
viba_18940	KEN/19/2011	cattle	93.9	0	SAT2	IV		
viba_18928	KEN/12/2011	cattle	93.9	0	SAT2	IV		
viba_19004	TAN/6/2011	cattle	93.9	0	SAT2	IV		
viba_19000	TAN/4/2011	cattle	93.8	0	SAT2	IV		
viba_18948	KEN/21/2011	cattle	93.8	0	SAT2	IV		
viba_18996	TAN/3/2011	cattle	93.8	0	SAT2	IV		
viba_20584	KEN/4/2012	bovine	93.6	0	SAT2	IV		
viba_20681	TAN/19/2012	cattle	93.6	0	SAT2	IV		

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_248	KEN/1/84	bovine	86.0	0	SAT2	IV		
viba_273	ETH/1/90	bovine	85.5	0	SAT2	IV		
viba_451	BOT/P3/98 VUM-29	African buffalo	81.6	1	SAT2	III		
viba_380	RHO/1/48		81.4	0	SAT2	III		
viba_111	MAL/1/2003	bovine	80.6	0	SAT2	I		
viba_752	SA/106/59		80.3	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	79.4	0	SAT2	I		
viba_546	ZIM/5/81	bovine	76.7	0	SAT2	II		
viba_567	ZIM/7/83	bovine	76.0	0	SAT2	II		
viba_470	KEN/2/84	bovine	75.9	0	SAT2	IX		

Virus sample name:	KEN/7/2022
Sender reference:	K52/22
Location of origin:	Landless stage, Makongeni, Thika West, Kiambu?County
Country of origin:	Kenya
Date of collection:	11/10/2022
Host species:	
Serotype:	SAT2
Topotype:	IV
Lineage:	
Sublineage:	
Sequence length:	642
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK2
Harvest date of material:	25/01/2024
Primers:	SAT2-1C445F & SAT2-P1-1223F/SAT-2B208R; FMD-3161F/FMD-4303R
Received for sequencing:	01/02/2024
Created:	14/02/2024
Last updated:	14/02/2024
VIBASys IDs: sample 55007, genome 55008, sequence viba_55009, sequencing info 55010	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_55005	KEN/6/2022	cattle	100.0	0	SAT2	IV		
viba_18944	KEN/20/2011	cattle	94.2	0	SAT2	IV		
viba_18940	KEN/19/2011	cattle	93.9	0	SAT2	IV		
viba_18928	KEN/12/2011	cattle	93.9	0	SAT2	IV		
viba_19004	TAN/6/2011	cattle	93.9	0	SAT2	IV		
viba_19000	TAN/4/2011	cattle	93.8	0	SAT2	IV		
viba_18948	KEN/21/2011	cattle	93.8	0	SAT2	IV		
viba_18996	TAN/3/2011	cattle	93.8	0	SAT2	IV		
viba_20584	KEN/4/2012	bovine	93.6	0	SAT2	IV		
viba_20681	TAN/19/2012	cattle	93.6	0	SAT2	IV		

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_248	KEN/1/84	bovine	86.0	0	SAT2	IV		
viba_273	ETH/1/90	bovine	85.5	0	SAT2	IV		
viba_451	BOT/P3/98 VUM-29	African buffalo	81.6	1	SAT2	III		
viba_380	RHO/1/48		81.4	0	SAT2	III		
viba_111	MAL/1/2003	bovine	80.6	0	SAT2	I		
viba_752	SA/106/59		80.3	0	SAT2	I		
viba_183	ZIM/14/2002	bovine	79.4	0	SAT2	I		
viba_546	ZIM/5/81	bovine	76.7	0	SAT2	II		
viba_567	ZIM/7/83	bovine	76.0	0	SAT2	II		
viba_470	KEN/2/84	bovine	75.9	0	SAT2	IX		

Report on FMDV SAT2 in Kenya in 2021, 2022

Batch: WRLFMD/2024/000001



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_SAT2
Query sequence set:	WRLFMD/2024/000001-Kenya-SAT2 (5 sequences)
Sequence database set:	allseqs_SAT2 (1202 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:	12
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
KEN/11/2021	n/a	cattle	WRLFMD	Kenya	IV
ZAM/2/2021	n/a	cattle	WRLFMD	Zambia	IV
ZAM/8/2021	n/a	cattle	WRLFMD	Zambia	IV
TAN/P8/2010*	n/a	cattle	WRLFMD	Tanzania	IV
TAN/P7/2010*	n/a	cattle	WRLFMD	Tanzania	IV
BUN/1/91	AF367111	n/a	OVI	Burundi	IV
ZAM/2/2015	n/a	bovine	WRLFMD	Zambia	IV
KEN/14/2021	n/a	cattle	WRLFMD	Kenya	IV
KEN/13/2021	n/a	cattle	WRLFMD	Kenya	IV
KEN/19/2017	n/a	bovine	WRLFMD	Kenya	IV
Ken/MMB37/2012*	KP263447	African buffalo	EMBAKASI	Kenya	IV
K13/02*	HM623699	n/a	n/a	Kenya	IV
KEN/9/99	AF367133	n/a	OVI	Kenya	IV
KEN/PRB56/2016 pro*	MH882640	African buffalo	PIADC	Kenya	IV
KEN/PRB52/2016 pro*	MH882638	African buffalo	PIADC	Kenya	IV
KEN/PRB61/2016 pro*	MH882644	African buffalo	PIADC	Kenya	IV
K120/04*	HM623700	n/a	n/a	Kenya	IV
TAN/18/2004	KF561725	cattle	WRLFMD	Tanzania	IV
TAN/21/2004	KF561726	cattle	WRLFMD	Tanzania	IV
K37/86*	HM623686	n/a	Makerere University	Kenya	IV
K13/87*	HM623687	n/a	Makerere University	Kenya	IV
KEN/5/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/6/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/17/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/8/2005	n/a	cattle	WRLFMD	Kenya	IV
KEN/18/2008	n/a	cattle	WRLFMD	Kenya	IV
KEN/19/2008	n/a	cattle	WRLFMD	Kenya	IV
K59/07*	HM623708	n/a	n/a	Kenya	IV
KEN/13/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/22/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/14/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/10/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/5/2007	n/a	cattle	WRLFMD	Kenya	IV
KEN/PRB80/2016 pro*	MH882657	African buffalo	PIADC	Kenya	IV

continued on next page

label	accession	host(s)	lab	country	taxonomic information
KEN/PRB87/2016 pro*	MH882662	African buffalo	PIADC	Kenya	IV
KEN/PRB81/2016 pro*	MH882658	African buffalo	PIADC	Kenya	IV
KEN/PRB86/2016 pro*	MH882661	African buffalo	PIADC	Kenya	IV
KEN/7/2022	n/a	n/a	WRLFMD	Kenya	IV
KEN/6/2022	n/a	cattle	WRLFMD	Kenya	IV
KEN/4/2012	n/a	bovine	WRLFMD	Kenya	IV
TAN/19/2012	MF592615	cattle	WRLFMD	Tanzania	IV
TAN/18/2012	MF592614	cattle	WRLFMD	Tanzania	IV
TAN/16/2012	MF592613	cattle	WRLFMD	Tanzania	IV
TAN/9/2012	MF592606	cattle	WRLFMD	Tanzania	IV
TAN/32/2012	MF592619	cattle	WRLFMD	Tanzania	IV
TAN/10/2012	MF592607	cattle	WRLFMD	Tanzania	IV
TAN/5/2012	MF592604	cattle	WRLFMD	Tanzania	IV
TAN/14/2012	MF592611	cattle	WRLFMD	Tanzania	IV
TAN/3/2012	MF592603	cattle	WRLFMD	Tanzania	IV
TAN/1/2012	MF592602	cattle	WRLFMD	Tanzania	IV
TAN/37/2012	MF592622	cattle	WRLFMD	Tanzania	IV
TAN/34/2012	MF592620	cattle	WRLFMD	Tanzania	IV
KEN/20/2011	n/a	cattle	WRLFMD	Kenya	IV
KEN/18/2011	n/a	cattle	WRLFMD	Kenya	IV
TAN/8/2011	MF592601	cattle	WRLFMD	Tanzania	IV
TAN/7/2011	MF592600	cattle	WRLFMD	Tanzania	IV
KEN/17/2011	n/a	cattle	WRLFMD	Kenya	IV
KEN/21/2011	n/a	cattle	WRLFMD	Kenya	IV
TAN/3/2011	MF592597	cattle	WRLFMD	Tanzania	IV
TAN/4/2011	MF592598	cattle	WRLFMD	Tanzania	IV
TAN/6/2011	MF592599	cattle	WRLFMD	Tanzania	IV
K128/2011*	KP263456	cattle	EMBAKASI	Kenya	IV
K30/2012*	KP263457	cattle	EMBAKASI	Kenya	IV
KEN/19/2011	n/a	cattle	WRLFMD	Kenya	IV
KEN/12/2011	n/a	cattle	WRLFMD	Kenya	IV
ETH/1/90	AY343935	bovine	OVI	Ethiopia	IV
KEN/PRB75/2016 pro*	MH882655	African buffalo	PIADC	Kenya	IV
KEN/2/76	AY343940	cattle	OVI	Kenya	IV
K183/74*	n/a	cattle	WRLFMD	Kenya	IV
K70/83*	HM623681	n/a	Makerere University	Kenya	IV
U267/83*	HM623682	n/a	Makerere University, Uganda	Uganda	IV
K151/83*	HM623683	n/a	Makerere University	Kenya	IV
K52/84*	n/a	n/a	WRLFMD	Kenya	IV
K52/84*	n/a	n/a	WRLFMD	Kenya	IV
K65/82*	n/a	n/a	WRLFMD	Kenya	IV
KEN/9/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/11/2004	n/a	cattle	WRLFMD	Kenya	IV
KEN/1/86	AY343943	n/a	OVI	Kenya	IV
K70/05*	HM623701	n/a	n/a	Kenya	IV
K34/84*	HM623684	n/a	Makerere University	Kenya	IV
K37/94*	HM623694	n/a	Makerere University	Kenya	IV
K81/81*	HM623678	n/a	Makerere University	Kenya	IV
KEN/1/87	AY343944	n/a	OVI	Kenya	IV
KEN/1/84	AY344505	bovine	OVI	Kenya	IV
K235/83*	n/a	n/a	WRLFMD	Kenya	IV
BOT/P3/98 VUM-29*	AF367124	African buffalo	OVI	Botswana	III
RHO/1/48	AY593847	n/a	PIADC	Rhodesia	III
SA/106/59	AY593848	n/a	PIADC	South Africa (SA)	I
ZIM/14/2002	KF219689	bovine	WRLFMD	Zimbabwe	I
MAL/1/2003	n/a	bovine	WRLFMD	Malawi	I
ZIM/5/81	EF134951	bovine	WRLFMD	Zimbabwe	II
ZIM/7/83*	AF136607	bovine	OVI	Zimbabwe	II
ETH/2/91	AY343938	cattle	OVI	Ethiopia	XIV

continued on next page

label	accession	host(s)	lab	country	taxonomic information
KEN/2/84	AY343941	bovine	OVI	Kenya	IX
SAU/6/2000	AF367135	bovine	OVI	Saudi Arabia	VII

*, not a WRLFMD Reference Number

n/a, not available