

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

Genotyping Report

FMDV serotype: A
Country: Sudan
Year: 2019, 2021, 2022
Batch: WRLFMD/2022/000039
No. of sequences: 9
Report date: 25th October 2022
Report generated by: Nick Knowles
Report checked by: Hayley Hicks



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

email: reporting@pirbright.ac.uk

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Virus sample name:	SUD/1/2019
Sender reference:	1/019 Epi
Location of origin:	Airdwan, Khartoum State
Country of origin:	Sudan
Date of collection:	10/01/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	15/09/2022
Primers:	A-1C612F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022

VIBASys IDs: sample 51737, genome 51738, sequence viba_51739, sequencing info 51740

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51747	SUD/4/2019	cattle	99.4	0	A	AFRICA	G-IV	
viba_51743	SUD/3/2019	cattle	99.4	0	A	AFRICA	G-IV	
viba_36982	SUD/7/2018	cattle	98.1	0	A	AFRICA	G-IV	
viba_36978	SUD/6/2018	cattle	98.1	0	A	AFRICA	G-IV	
viba_36986	SUD/8/2018	cattle	98.1	0	A	AFRICA	G-IV	
viba_30354	Ismailia 3/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30350	Ismailia 2/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_29558	EGY/8/2015	cattle	95.7	0	A	AFRICA	G-IV	
viba_29562	EGY/3/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30358	Ismailia 4/Egy/2016	cattle	95.7	0	A	AFRICA	G-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_178	SUD/3/77		84.7	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		83.3	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	82.9	0	A	AFRICA	G-V	
viba_609	GHA/16/73	bovine	82.0	0	A	AFRICA	G-VI	
viba_785	KEN/3/64		81.7	0	A	AFRICA	G-III	
viba_688	EGY/1/72	bovine	81.0	0	A	AFRICA	G-II	
viba_475	IRN/22/99		80.1	0	A	ASIA	Iran-99	
viba_173	UGA/13/66	bovine	80.0	0	A	AFRICA	G-VII	
viba_435	Allier/FRA/60		79.3	0	A	EURO-SA	A5	
viba_98	Alem/ARG/81		79.2	0	A	EURO-SA	A81	

Virus sample name:	SUD/3/2019
Sender reference:	4/019Epi
Location of origin:	Airdwan, Khartoum State
Country of origin:	Sudan
Date of collection:	24/01/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	15/09/2022
Primers:	A-1C612F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022

VIBASys IDs: sample 51741, genome 51742, sequence viba_51743, sequencing info 51744

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51747	SUD/4/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_51739	SUD/1/2019	cattle	99.4	0	A	AFRICA	G-IV	
viba_36982	SUD/7/2018	cattle	97.5	0	A	AFRICA	G-IV	
viba_36978	SUD/6/2018	cattle	97.5	0	A	AFRICA	G-IV	
viba_36986	SUD/8/2018	cattle	97.5	0	A	AFRICA	G-IV	
viba_30354	Ismailia 3/Egy/2016	cattle	95.1	0	A	AFRICA	G-IV	
viba_30350	Ismailia 2/Egy/2016	cattle	95.1	0	A	AFRICA	G-IV	
viba_29558	EGY/8/2015	cattle	95.1	0	A	AFRICA	G-IV	
viba_29562	EGY/3/2016	cattle	95.1	0	A	AFRICA	G-IV	
viba_30358	Ismailia 4/Egy/2016	cattle	95.1	0	A	AFRICA	G-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_178	SUD/3/77		84.1	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		82.9	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	82.6	0	A	AFRICA	G-V	
viba_609	GHA/16/73	bovine	81.9	0	A	AFRICA	G-VI	
viba_785	KEN/3/64		81.3	0	A	AFRICA	G-III	
viba_688	EGY/1/72	bovine	80.7	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	80.0	0	A	AFRICA	G-VII	
viba_475	IRN/22/99		79.6	0	A	ASIA	Iran-99	
viba_98	Alem/ARG/81		79.2	0	A	EURO-SA	A81	
viba_435	Allier/FRA/60		79.2	0	A	EURO-SA	A5	

Virus sample name:	SUD/4/2019
Sender reference:	5/019Epi
Location of origin:	Airdwan, Khartoum State
Country of origin:	Sudan
Date of collection:	24/01/2019
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	15/09/2022
Primers:	A-1C612F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022

VIBASys IDs: sample 51745, genome 51746, sequence viba_51747, sequencing info 51748

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51743	SUD/3/2019	cattle	100.0	0	A	AFRICA	G-IV	
viba_51739	SUD/1/2019	cattle	99.4	0	A	AFRICA	G-IV	
viba_36982	SUD/7/2018	cattle	97.5	0	A	AFRICA	G-IV	
viba_36978	SUD/6/2018	cattle	97.5	0	A	AFRICA	G-IV	
viba_36986	SUD/8/2018	cattle	97.5	0	A	AFRICA	G-IV	
viba_30354	Ismailia 3/Egy/2016	cattle	95.1	0	A	AFRICA	G-IV	
viba_30350	Ismailia 2/Egy/2016	cattle	95.1	0	A	AFRICA	G-IV	
viba_29558	EGY/8/2015	cattle	95.1	0	A	AFRICA	G-IV	
viba_29562	EGY/3/2016	cattle	95.1	0	A	AFRICA	G-IV	
viba_30358	Ismailia 4/Egy/2016	cattle	95.1	0	A	AFRICA	G-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_178	SUD/3/77		84.1	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		82.9	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	82.6	0	A	AFRICA	G-V	
viba_609	GHA/16/73	bovine	81.9	0	A	AFRICA	G-VI	
viba_785	KEN/3/64		81.3	0	A	AFRICA	G-III	
viba_688	EGY/1/72	bovine	80.7	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	80.0	0	A	AFRICA	G-VII	
viba_475	IRN/22/99		79.6	0	A	ASIA	Iran-99	
viba_98	Alem/ARG/81		79.2	0	A	EURO-SA	A81	
viba_435	Allier/FRA/60		79.2	0	A	EURO-SA	A5	

Virus sample name:	SUD/1/2021
Sender reference:	1/021 EPI
Location of origin:	Al Greaf, Khartoum State
Country of origin:	Sudan
Date of collection:	25/02/2021
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/09/2022
Primers:	A-1C612F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022

VIBASys IDs: sample 51749, genome 51750, sequence viba_51751, sequencing info 51752

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51497	ETH/14/2020	bovine	98.6	0	A	AFRICA	G-IV	
viba_51493	ETH/13/2020	bovine	98.6	0	A	AFRICA	G-IV	
viba_51481	ETH/34/2019	bovine	97.9	0	A	AFRICA	G-IV	
viba_51473	ETH/25/2019	bovine	97.9	0	A	AFRICA	G-IV	
viba_30346	Ismailia 1/Egy/2016	cattle	94.9	0	A	AFRICA	G-IV	
viba_34155	EGY/19/2016	cattle	94.8	0	A	AFRICA	G-IV	
viba_39545	Egy/Faiyum/2016	cattle	94.8	0	A	AFRICA	G-IV	
viba_30354	Ismailia 3/Egy/2016	cattle	94.6	0	A	AFRICA	G-IV	
viba_30350	Ismailia 2/Egy/2016	cattle	94.6	0	A	AFRICA	G-IV	
viba_29558	EGY/8/2015	cattle	94.6	0	A	AFRICA	G-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_178	SUD/3/77		84.2	0	A	AFRICA	G-IV	
viba_535	NGR/2/73	bovine	83.7	0	A	AFRICA	G-V	
viba_347	KEN/42/66		83.5	0	A	AFRICA	G-I	
viba_173	UGA/13/66	bovine	81.8	0	A	AFRICA	G-VII	
viba_609	GHA/16/73	bovine	81.4	0	A	AFRICA	G-VI	
viba_688	EGY/1/72	bovine	81.3	0	A	AFRICA	G-II	
viba_785	KEN/3/64		80.9	0	A	AFRICA	G-III	
viba_475	IRN/22/99		80.4	0	A	ASIA	Iran-99	
viba_677	IRQ/24/64	bovine	80.0	0	A	ASIA	A22	
viba_98	Alem/ARG/81		79.8	0	A	EURO-SA	A81	

Virus sample name:	SUD/1/2022
Sender reference:	1/022 EPI
Location of origin:	Al Huda, Khartoum State
Country of origin:	Sudan
Date of collection:	23/02/2022
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/09/2022
Primers:	A-1C612F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51753, genome 51754, sequence viba_51755, sequencing info 51756	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51763	SUD/3/2022	cattle	100.0	0	A	AFRICA	G-IV	
viba_51759	SUD/2/2022	cattle	99.5	0	A	AFRICA	G-IV	
viba_51767	SUD/4/2022	cattle	99.4	0	A	AFRICA	G-IV	
viba_51771	SUD/5/2022	cattle	99.4	0	A	AFRICA	G-IV	
viba_30354	Ismailia 3/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30350	Ismailia 2/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_29558	EGY/8/2015	cattle	95.7	0	A	AFRICA	G-IV	
viba_29562	EGY/3/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30358	Ismailia 4/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30346	Ismailia 1/Egy/2016	cattle	95.7	0	A	AFRICA	G-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_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.4	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	83.6	0	A	AFRICA	G-V	
viba_609	GHA/16/73	bovine	82.8	0	A	AFRICA	G-VI	
viba_785	KEN/3/64		81.9	0	A	AFRICA	G-III	
viba_688	EGY/1/72	bovine	81.5	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	80.9	0	A	AFRICA	G-VII	
viba_699	UKG/119/32		80.3	0	A	EURO-SA	A12	
viba_677	IRQ/24/64	bovine	80.1	0	A	ASIA	A22	
viba_475	IRN/22/99		80.0	0	A	ASIA	Iran-99	

Virus sample name:	SUD/2/2022
Sender reference:	2/022 EPI
Location of origin:	Al Grea West, Khartoum State
Country of origin:	Sudan
Date of collection:	01/03/2022
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/09/2022
Primers:	A-1C612F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51757, genome 51758, sequence viba_51759, sequencing info 51760	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51755	SUD/1/2022	cattle	99.5	0	A	AFRICA	G-IV	
viba_51763	SUD/3/2022	cattle	99.5	0	A	AFRICA	G-IV	
viba_51767	SUD/4/2022	cattle	99.2	0	A	AFRICA	G-IV	
viba_51771	SUD/5/2022	cattle	99.2	0	A	AFRICA	G-IV	
viba_30354	Ismailia 3/Egy/2016	cattle	95.9	0	A	AFRICA	G-IV	
viba_30350	Ismailia 2/Egy/2016	cattle	95.9	0	A	AFRICA	G-IV	
viba_29558	EGY/8/2015	cattle	95.9	0	A	AFRICA	G-IV	
viba_29562	EGY/3/2016	cattle	95.9	0	A	AFRICA	G-IV	
viba_30358	Ismailia 4/Egy/2016	cattle	95.9	0	A	AFRICA	G-IV	
viba_30346	Ismailia 1/Egy/2016	cattle	95.9	0	A	AFRICA	G-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_178	SUD/3/77		84.6	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.2	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	83.7	0	A	AFRICA	G-V	
viba_609	GHA/16/73	bovine	82.8	0	A	AFRICA	G-VI	
viba_688	EGY/1/72	bovine	81.7	0	A	AFRICA	G-II	
viba_785	KEN/3/64		81.7	0	A	AFRICA	G-III	
viba_173	UGA/13/66	bovine	81.0	0	A	AFRICA	G-VII	
viba_699	UKG/119/32		80.3	0	A	EURO-SA	A12	
viba_682	IRN/2/87	bovine	79.9	0	A	ASIA	Iran-87	
viba_677	IRQ/24/64	bovine	79.9	0	A	ASIA	A22	

Virus sample name:	SUD/3/2022
Sender reference:	3/022 EPI
Location of origin:	Al Slait, Khartoum State
Country of origin:	Sudan
Date of collection:	01/03/2022
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1 & WRL-LFBK2
Harvest date of material:	28/09/2022
Primers:	A-1C612F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51761, genome 51762, sequence viba_51763, sequencing info 51764	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51755	SUD/1/2022	cattle	100.0	0	A	AFRICA	G-IV	
viba_51759	SUD/2/2022	cattle	99.5	0	A	AFRICA	G-IV	
viba_51767	SUD/4/2022	cattle	99.4	0	A	AFRICA	G-IV	
viba_51771	SUD/5/2022	cattle	99.4	0	A	AFRICA	G-IV	
viba_30354	Ismailia 3/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30350	Ismailia 2/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_29558	EGY/8/2015	cattle	95.7	0	A	AFRICA	G-IV	
viba_29562	EGY/3/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30358	Ismailia 4/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30346	Ismailia 1/Egy/2016	cattle	95.7	0	A	AFRICA	G-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_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.4	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	83.6	0	A	AFRICA	G-V	
viba_609	GHA/16/73	bovine	82.8	0	A	AFRICA	G-VI	
viba_785	KEN/3/64		81.9	0	A	AFRICA	G-III	
viba_688	EGY/1/72	bovine	81.5	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	80.9	0	A	AFRICA	G-VII	
viba_699	UKG/119/32		80.3	0	A	EURO-SA	A12	
viba_677	IRQ/24/64	bovine	80.1	0	A	ASIA	A22	
viba_475	IRN/22/99		80.0	0	A	ASIA	Iran-99	

Virus sample name:	SUD/4/2022
Sender reference:	5/022 EPI
Location of origin:	Al Slait, Khartoum State
Country of origin:	Sudan
Date of collection:	12/03/2022
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/09/2022
Primers:	A-1C612F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022

VIBASys IDs: sample 51765, genome 51766, sequence viba_51767, sequencing info 51768

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51771	SUD/5/2022	cattle	100.0	0	A	AFRICA	G-IV	
viba_51755	SUD/1/2022	cattle	99.4	0	A	AFRICA	G-IV	
viba_51763	SUD/3/2022	cattle	99.4	0	A	AFRICA	G-IV	
viba_51759	SUD/2/2022	cattle	99.2	0	A	AFRICA	G-IV	
viba_30354	Ismailia 3/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30350	Ismailia 2/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_29558	EGY/8/2015	cattle	95.7	0	A	AFRICA	G-IV	
viba_29562	EGY/3/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30358	Ismailia 4/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30346	Ismailia 1/Egy/2016	cattle	95.7	0	A	AFRICA	G-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_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.2	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	83.8	0	A	AFRICA	G-V	
viba_609	GHA/16/73	bovine	82.6	0	A	AFRICA	G-VI	
viba_785	KEN/3/64		81.6	0	A	AFRICA	G-III	
viba_688	EGY/1/72	bovine	81.5	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	80.9	0	A	AFRICA	G-VII	
viba_682	IRN/2/87	bovine	80.2	0	A	ASIA	Iran-87	
viba_699	UKG/119/32		80.1	0	A	EURO-SA	A12	
viba_677	IRQ/24/64	bovine	79.9	0	A	ASIA	A22	

Virus sample name:	SUD/5/2022
Sender reference:	7/022 EPI
Location of origin:	Soba (al Mahser), Khartoum State
Country of origin:	Sudan
Date of collection:	12/03/2022
Host species:	cattle
Serotype:	A
Topotype:	AFRICA
Lineage:	G-IV
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	27/09/2022
Primers:	A-1C612F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51769, genome 51770, sequence viba_51771, sequencing info 51772	

Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51767	SUD/4/2022	cattle	100.0	0	A	AFRICA	G-IV	
viba_51755	SUD/1/2022	cattle	99.4	0	A	AFRICA	G-IV	
viba_51763	SUD/3/2022	cattle	99.4	0	A	AFRICA	G-IV	
viba_51759	SUD/2/2022	cattle	99.2	0	A	AFRICA	G-IV	
viba_30354	Ismailia 3/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30350	Ismailia 2/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_29558	EGY/8/2015	cattle	95.7	0	A	AFRICA	G-IV	
viba_29562	EGY/3/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30358	Ismailia 4/Egy/2016	cattle	95.7	0	A	AFRICA	G-IV	
viba_30346	Ismailia 1/Egy/2016	cattle	95.7	0	A	AFRICA	G-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_178	SUD/3/77		84.5	0	A	AFRICA	G-IV	
viba_347	KEN/42/66		84.2	0	A	AFRICA	G-I	
viba_535	NGR/2/73	bovine	83.8	0	A	AFRICA	G-V	
viba_609	GHA/16/73	bovine	82.6	0	A	AFRICA	G-VI	
viba_785	KEN/3/64		81.6	0	A	AFRICA	G-III	
viba_688	EGY/1/72	bovine	81.5	0	A	AFRICA	G-II	
viba_173	UGA/13/66	bovine	80.9	0	A	AFRICA	G-VII	
viba_682	IRN/2/87	bovine	80.2	0	A	ASIA	Iran-87	
viba_699	UKG/119/32		80.1	0	A	EURO-SA	A12	
viba_677	IRQ/24/64	bovine	79.9	0	A	ASIA	A22	

Report on FMDV A in Sudan in 2019, 2021, 2022

Batch: WRLFMD/2022/000039



*, not a WRLFMD Reference Number

Analysis Parameters

VP1 subsequence extractor:	vp1_A
Query sequence set:	WRLFMD/2022/000039-Sudan-A (9 sequences)
Sequence database set:	allseqs_A (2361 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:	13
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
SUD/1/2021	n/a	cattle	WRLFMD	Sudan	AFRICA/G-IV
ETH/14/2020	n/a	bovine	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/13/2020	n/a	bovine	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/34/2019	n/a	bovine	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/25/2019	n/a	bovine	WRLFMD	Ethiopia	AFRICA/G-IV
SUD/3/2019	n/a	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/4/2019	n/a	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/1/2019	n/a	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/7/2018	MK422592	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/6/2018	MK422591	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/8/2018	MK422593	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/5/2022	n/a	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/4/2022	n/a	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/3/2022	n/a	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/1/2022	n/a	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/2/2022	n/a	cattle	WRLFMD	Sudan	AFRICA/G-IV
ETH/30/2019	n/a	bovine	WRLFMD	Ethiopia	AFRICA/G-IV
SUD/9/2018	MK422594	cattle	WRLFMD	Sudan	AFRICA/G-IV
EGY/2/2018	n/a	cattle	WRLFMD	Egypt	AFRICA/G-IV
Beni-suef 1/Egy/2017*	MF322693	n/a	MEVAC	Egypt	AFRICA/G-IV
EGY/19/2016	MK572799	cattle	WRLFMD	Egypt	AFRICA/G-IV
Egy/Faiyum/2016*	MG552843	cattle	AHRI	Egypt	AFRICA/G-IV
Ismailia 1/Egy/2016*	KX446996	cattle	Suez Canal Univ	Egypt	AFRICA/G-IV
EGY/8/2015	MK422573	cattle	WRLFMD	Egypt	AFRICA/G-IV
Ismailia 2/Egy/2016*	KX446997	cattle	Suez Canal Univ	Egypt	AFRICA/G-IV
Ismailia 3/Egy/2016*	KX446998	cattle	Suez Canal Univ	Egypt	AFRICA/G-IV
EGY/3/2016	MK422574	cattle	WRLFMD	Egypt	AFRICA/G-IV
Giza 1/Egy/2016*	KX447000	cattle	Suez Canal Univ	Egypt	AFRICA/G-IV
Ismailia 4/Egy/2016*	KX446999	cattle	Suez Canal Univ	Egypt	AFRICA/G-IV
ETH/9/2020	n/a	bovine	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/19/2015	MN987497	bovine	WRLFMD	Ethiopia	AFRICA/G-IV
ETH/9/2017	MN987499	cattle	WRLFMD	Ethiopia	AFRICA/G-IV

continued on next page

label	accession	host(s)	lab	country	taxonomic information
ETH/8/2017	MN987498	cattle	WRLFMD	Ethiopia	AFRICA/G-IV
SUD/1/2013	MK422580	cattle	WRLFMD	Sudan	AFRICA/G-IV
ERI/40/2009	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/5/2008	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/1/2006	KX258046	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/1/2008	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/4/2007	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/16/2009	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
ERI/5/2006	n/a	cattle	WRLFMD	Eritrea	AFRICA/G-IV
SUD/1/2006	GU566069	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/3/2006	GU566070	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/3/2018	MK422589	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/4/2018	MK422590	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/20/2014	MK422586	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/18/2014	MK422585	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/22/2014	MK422588	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/10/2013	MK422581	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/11/2013	MK422582	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/13/2013	MK422584	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/12/2013	MK422583	cattle	WRLFMD	Sudan	AFRICA/G-IV
EGY/20/2012	n/a	cattle	WRLFMD	Egypt	AFRICA/G-IV
EGY/18/2012	n/a	cattle	WRLFMD	Egypt	AFRICA/G-IV
EGY/30/2012	n/a	cattle	WRLFMD	Egypt	AFRICA/G-IV
EGY/42/2012	n/a	cattle	WRLFMD	Egypt	AFRICA/G-IV
EGY/1/2012	MK422572	n/a	WRLFMD	Egypt	AFRICA/G-IV
SUD/13/2011	MK422578	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/6/2011	MK422576	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/7/2011	MK422577	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/12/2011	MK422579	cattle	WRLFMD	Sudan	AFRICA/G-IV
SUD/1/2011	MK422575	cattle	WRLFMD	Sudan	AFRICA/G-IV
CAR/38/2012	KX266276	bovine	WRLFMD	Cameroon	AFRICA/G-IV
CAR/72/2012	KX266282	bovine	WRLFMD	Cameroon	AFRICA/G-IV
CAR/63/2012	KX266280	bovine	WRLFMD	Cameroon	AFRICA/G-IV
CAR/70/2012	KX266281	bovine	WRLFMD	Cameroon	AFRICA/G-IV
CAR/34/2012	KX266275	bovine	WRLFMD	Cameroon	AFRICA/G-IV
SUD/3/77	GU566064	n/a	WRLFMD	Sudan	AFRICA/G-IV
SUD/2/84	GU566067	n/a	WRLFMD	Sudan	AFRICA/G-IV
MAI/4/2004	KX258047	cattle	WRLFMD	Mali	AFRICA/G-IV
CAR/P19/2000 mfa/057/01*	n/a	n/a	WRLFMD	Cameroon	AFRICA/G-IV
CAR/14/2000	KX258132	n/a	WRLFMD	Cameroon	AFRICA/G-IV
CAR/15/2000	EF208755	n/a	WRLFMD	Cameroon	AFRICA/G-IV
CAR/13/2000	KX258131	n/a	WRLFMD	Cameroon	AFRICA/G-IV
CAR/12/2000	KX258130	n/a	WRLFMD	Cameroon	AFRICA/G-IV
CAR/P22/2000 fke/066/08*	n/a	n/a	WRLFMD	Cameroon	AFRICA/G-IV
ERI/3/98	KX258045	n/a	WRLFMD	Eritrea	AFRICA/G-IV
ERI/2/98	KX258044	n/a	WRLFMD	Eritrea	AFRICA/G-IV
ERI/3/97	KX258043	n/a	WRLFMD	Eritrea	AFRICA/G-IV
NGR/2/73	KF561704	bovine	WRLFMD	Niger	AFRICA/G-V
EGY/1/72	EF208756	bovine	WRLFMD	Egypt	AFRICA/G-II
KEN/3/64	AY593761	n/a	PIADC	Kenya	AFRICA/G-III
UGA/13/66	KF561705	bovine	WRLFMD	Uganda	AFRICA/G-VII
KEN/42/66	KF561699	n/a	WRLFMD	Kenya	AFRICA/G-I
GHA/16/73	KF561698	bovine	WRLFMD	Ghana	AFRICA/G-VI
Alem/ARG/81*	AJ306219	n/a	INTA-Argentina	Argentina	EURO-SA/A81
Cruzeiro/BRA/55*	AY593768	bovine	PIADC	Brazil	EURO-SA/A24
UKG/119/32	M10975	n/a	PIADC	United Kingdom	EURO-SA/A12
Allier/FRA/60*	AY593780	n/a	PIADC	France	EURO-SA/A5
IRQ/24/64	AY593763	bovine	PIADC	Iraq	ASIA/A22
IRN/2/87	EF208770	bovine	WRLFMD	Iran	ASIA/Iran-87
IRN/22/99	EF208772	n/a	WRLFMD	Iran	ASIA/Iran-99

*, not a WRLFMD Reference Number

n/a, not available