

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

## Genotyping Report

FMDV serotype: O  
Country: Sudan  
Year: 2020  
Batch: WRLFMD/2022/000039  
No. of sequences: 11  
Report date: 25th October 2022  
Report generated by: Nick Knowles  
Report checked by: Hayley Hicks

O/SUD/1/2020 also contained a few type A sequences and is probably a mixture of the two serotypes.



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Virus sample name:	SUD/1/2020
Sender reference:	1/020 EPI
Location of origin:	Mahlab, Khartoum State
Country of origin:	Sudan
Date of collection:	20/02/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	20/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51773, genome 51774, sequence viba_51775, sequencing info 51776	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51787	SUD/8/2020	cattle	99.8	0	O	EA-3		
viba_51783	SUD/6/2020	cattle	99.7	0	O	EA-3		
viba_51779	SUD/3/2020	cattle	99.7	0	O	EA-3		
viba_51799	SUD/14/2020	cattle	99.1	0	O	EA-3		
viba_51791	SUD/12/2020	cattle	99.1	0	O	EA-3		
viba_51795	SUD/13/2020	cattle	98.9	0	O	EA-3		
viba_34187	EGY/13/2017	cattle	97.0	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	96.8	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		96.8	0	O	EA-3		
viba_35528	Fayoum 1/Egy/2017		96.8	0	O	EA-3		

### 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_116	SUD/2/86	bovine	86.4	0	O	EA-3		
viba_221	MAL/1/98		83.4	0	O	EA-2		
viba_854	ETH/1/2007	cattle	83.4	0	O	EA-3		
viba_408	ETH/3/2004	cattle	83.0	0	O	EA-3		
viba_263	TAN/2/2004	bovine	82.9	0	O	EA-2		
viba_85	UGA/3/2002		82.8	0	O	EA-2		
viba_617	IND/53/79	bovine	82.8	0	O	ME-SA		
viba_285	UKG/35/2001	porcine	82.7	0	O	ME-SA	PanAsia	
viba_302	CIV/8/99	bovine	82.5	0	O	WA		
viba_523	K83/79		82.1	0	O	EA-1		

Virus sample name:	SUD/3/2020
Sender reference:	3/020 EPI
Location of origin:	Mahlab, Khartoum State
Country of origin:	Sudan
Date of collection:	24/02/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	17/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51777, genome 51778, sequence viba_51779, sequencing info 51780	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51783	SUD/6/2020	cattle	100.0	0	O	EA-3		
viba_51775	SUD/1/2020	cattle	99.7	0	O	EA-3		
viba_51787	SUD/8/2020	cattle	99.5	0	O	EA-3		
viba_51799	SUD/14/2020	cattle	98.7	0	O	EA-3		
viba_51791	SUD/12/2020	cattle	98.7	0	O	EA-3		
viba_51795	SUD/13/2020	cattle	98.6	0	O	EA-3		
viba_34187	EGY/13/2017	cattle	97.3	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	97.2	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		97.2	0	O	EA-3		
viba_35528	Fayoum 1/Egy/2017		97.2	0	O	EA-3		

### 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_116	SUD/2/86	bovine	86.7	0	O	EA-3		
viba_854	ETH/1/2007	cattle	83.7	0	O	EA-3		
viba_221	MAL/1/98		83.6	0	O	EA-2		
viba_408	ETH/3/2004	cattle	83.3	0	O	EA-3		
viba_263	TAN/2/2004	bovine	83.0	0	O	EA-2		
viba_617	IND/53/79	bovine	83.0	0	O	ME-SA		
viba_85	UGA/3/2002		82.9	0	O	EA-2		
viba_285	UKG/35/2001	porcine	82.8	0	O	ME-SA	PanAsia	
viba_302	CIV/8/99	bovine	82.7	0	O	WA		
viba_850	NEP/1/2015	cattle	82.4	1	O	ME-SA	PanAsia-2	KAT-15

Virus sample name:	SUD/6/2020
Sender reference:	6/020 EPI
Location of origin:	Mahlab, Khartoum State
Country of origin:	Sudan
Date of collection:	26/02/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	22/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51781, genome 51782, sequence viba_51783, sequencing info 51784	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51779	SUD/3/2020	cattle	100.0	0	O	EA-3		
viba_51775	SUD/1/2020	cattle	99.7	0	O	EA-3		
viba_51787	SUD/8/2020	cattle	99.5	0	O	EA-3		
viba_51799	SUD/14/2020	cattle	98.7	0	O	EA-3		
viba_51791	SUD/12/2020	cattle	98.7	0	O	EA-3		
viba_51795	SUD/13/2020	cattle	98.6	0	O	EA-3		
viba_34187	EGY/13/2017	cattle	97.3	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	97.2	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		97.2	0	O	EA-3		
viba_35528	Fayoum 1/Egy/2017		97.2	0	O	EA-3		

### 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_116	SUD/2/86	bovine	86.7	0	O	EA-3		
viba_854	ETH/1/2007	cattle	83.7	0	O	EA-3		
viba_221	MAL/1/98		83.6	0	O	EA-2		
viba_408	ETH/3/2004	cattle	83.3	0	O	EA-3		
viba_263	TAN/2/2004	bovine	83.0	0	O	EA-2		
viba_617	IND/53/79	bovine	83.0	0	O	ME-SA		
viba_85	UGA/3/2002		82.9	0	O	EA-2		
viba_285	UKG/35/2001	porcine	82.8	0	O	ME-SA	PanAsia	
viba_302	CIV/8/99	bovine	82.7	0	O	WA		
viba_850	NEP/1/2015	cattle	82.4	1	O	ME-SA	PanAsia-2	KAT-15

Virus sample name:	SUD/8/2020
Sender reference:	8/020 EPI
Location of origin:	Mahlab, Khartoum State
Country of origin:	Sudan
Date of collection:	26/02/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	22/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51785, genome 51786, sequence viba_51787, sequencing info 51788	

#### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51775	SUD/1/2020	cattle	99.8	0	O	EA-3		
viba_51783	SUD/6/2020	cattle	99.5	0	O	EA-3		
viba_51779	SUD/3/2020	cattle	99.5	0	O	EA-3		
viba_51799	SUD/14/2020	cattle	98.9	0	O	EA-3		
viba_51791	SUD/12/2020	cattle	98.9	0	O	EA-3		
viba_51795	SUD/13/2020	cattle	98.7	0	O	EA-3		
viba_34187	EGY/13/2017	cattle	96.8	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	96.7	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		96.7	0	O	EA-3		
viba_35528	Fayoum 1/Egy/2017		96.7	0	O	EA-3		

#### 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_116	SUD/2/86	bovine	86.3	0	O	EA-3		
viba_221	MAL/1/98		83.3	0	O	EA-2		
viba_854	ETH/1/2007	cattle	83.3	0	O	EA-3		
viba_408	ETH/3/2004	cattle	82.9	0	O	EA-3		
viba_263	TAN/2/2004	bovine	82.7	0	O	EA-2		
viba_85	UGA/3/2002		82.6	0	O	EA-2		
viba_617	IND/53/79	bovine	82.6	0	O	ME-SA		
viba_285	UKG/35/2001	porcine	82.5	0	O	ME-SA	PanAsia	
viba_302	CIV/8/99	bovine	82.4	0	O	WA		
viba_523	K83/79		82.1	0	O	EA-1		

Virus sample name:	SUD/12/2020
Sender reference:	14/020 EPI
Location of origin:	Al Shigla, Khartoum
Country of origin:	Sudan
Date of collection:	09/03/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	23/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51789, genome 51790, sequence viba_51791, sequencing info 51792	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51795	SUD/13/2020	cattle	99.8	0	O	EA-3		
viba_51799	SUD/14/2020	cattle	99.7	0	O	EA-3		
viba_51775	SUD/1/2020	cattle	99.1	0	O	EA-3		
viba_51787	SUD/8/2020	cattle	98.9	0	O	EA-3		
viba_51783	SUD/6/2020	cattle	98.7	0	O	EA-3		
viba_51779	SUD/3/2020	cattle	98.7	0	O	EA-3		
viba_34187	EGY/13/2017	cattle	97.0	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	96.8	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		96.8	0	O	EA-3		
viba_35528	Fayoum 1/Egy/2017		96.8	0	O	EA-3		

### 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_116	SUD/2/86	bovine	86.6	0	O	EA-3		
viba_854	ETH/1/2007	cattle	83.6	0	O	EA-3		
viba_285	UKG/35/2001	porcine	83.3	0	O	ME-SA	PanAsia	
viba_408	ETH/3/2004	cattle	83.3	0	O	EA-3		
viba_221	MAL/1/98		83.1	0	O	EA-2		
viba_263	TAN/2/2004	bovine	83.1	0	O	EA-2		
viba_617	IND/53/79	bovine	83.1	0	O	ME-SA		
viba_302	CIV/8/99	bovine	83.0	0	O	WA		
viba_85	UGA/3/2002		82.8	0	O	EA-2		
viba_523	K83/79		82.6	0	O	EA-1		

Virus sample name:	SUD/13/2020
Sender reference:	15/020 EPI
Location of origin:	Al Shigla, Khartoum
Country of origin:	Sudan
Date of collection:	09/03/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1 & WRL-LFBK2
Harvest date of material:	27/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022

VIBASys IDs: sample 51793, genome 51794, sequence viba\_51795, sequencing info 51796

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51791	SUD/12/2020	cattle	99.8	0	O	EA-3		
viba_51799	SUD/14/2020	cattle	99.5	0	O	EA-3		
viba_51775	SUD/1/2020	cattle	98.9	0	O	EA-3		
viba_51787	SUD/8/2020	cattle	98.7	0	O	EA-3		
viba_51783	SUD/6/2020	cattle	98.6	0	O	EA-3		
viba_51779	SUD/3/2020	cattle	98.6	0	O	EA-3		
viba_34187	EGY/13/2017	cattle	96.8	0	O	EA-3		
viba_35509	Cairo 1/Egy/2017		96.7	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	96.7	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		96.7	0	O	EA-3		

### 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_116	SUD/2/86	bovine	86.4	0	O	EA-3		
viba_854	ETH/1/2007	cattle	83.4	0	O	EA-3		
viba_221	MAL/1/98		83.3	0	O	EA-2		
viba_263	TAN/2/2004	bovine	83.3	0	O	EA-2		
viba_408	ETH/3/2004	cattle	83.2	0	O	EA-3		
viba_285	UKG/35/2001	porcine	83.1	0	O	ME-SA	PanAsia	
viba_617	IND/53/79	bovine	83.0	0	O	ME-SA		
viba_302	CIV/8/99	bovine	82.8	0	O	WA		
viba_850	NEP/1/2015	cattle	82.7	1	O	ME-SA	PanAsia-2	KAT-15
viba_766	IRN/31/2009	cattle	82.7	0	O	ME-SA	PanAsia-2	FAR-09

Virus sample name:	SUD/14/2020
Sender reference:	16/020 EPI
Location of origin:	Al Shigla, Khartoum
Country of origin:	Sudan
Date of collection:	09/03/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1 & WRL-LFBK2
Harvest date of material:	27/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022

VIBASys IDs: sample 51797, genome 51798, sequence viba\_51799, sequencing info 51800

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51791	SUD/12/2020	cattle	99.7	0	O	EA-3		
viba_51795	SUD/13/2020	cattle	99.5	0	O	EA-3		
viba_51775	SUD/1/2020	cattle	99.1	0	O	EA-3		
viba_51787	SUD/8/2020	cattle	98.9	0	O	EA-3		
viba_51783	SUD/6/2020	cattle	98.7	0	O	EA-3		
viba_51779	SUD/3/2020	cattle	98.7	0	O	EA-3		
viba_34187	EGY/13/2017	cattle	97.0	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	96.8	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		96.8	0	O	EA-3		
viba_35528	Fayoum 1/Egy/2017		96.8	0	O	EA-3		

### 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_116	SUD/2/86	bovine	86.9	0	O	EA-3		
viba_854	ETH/1/2007	cattle	83.6	0	O	EA-3		
viba_408	ETH/3/2004	cattle	83.6	0	O	EA-3		
viba_263	TAN/2/2004	bovine	83.5	0	O	EA-2		
viba_221	MAL/1/98		83.4	0	O	EA-2		
viba_617	IND/53/79	bovine	83.4	0	O	ME-SA		
viba_285	UKG/35/2001	porcine	83.3	0	O	ME-SA	PanAsia	
viba_302	CIV/8/99	bovine	83.0	0	O	WA		
viba_85	UGA/3/2002		82.8	0	O	EA-2		
viba_359	Manisa/TUR/69		82.7	0	O	ME-SA		



Virus sample name:	SUD/15/2020
Sender reference:	23/020 EPI
Location of origin:	Dongola, Northern State
Country of origin:	Sudan
Date of collection:	27/04/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	23/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51801, genome 51802, sequence viba_51803, sequencing info 51804	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51815	SUD/18/2020	cattle	100.0	0	O	EA-3		
viba_51811	SUD/17/2020	cattle	100.0	0	O	EA-3		
viba_51807	SUD/16/2020	cattle	100.0	0	O	EA-3		
viba_34163	EGY/6/2017	cattle	96.8	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	96.7	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		96.7	0	O	EA-3		
viba_34167	EGY/7/2017	cattle	96.7	0	O	EA-3		
viba_34175	EGY/9/2017	cattle	96.7	0	O	EA-3		
viba_35540	Fayoum 4/Egy/2017		96.7	0	O	EA-3		
viba_34211	EGY/25/2017	cattle	96.7	0	O	EA-3		

### 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_116	SUD/2/86	bovine	87.5	0	O	EA-3		
viba_854	ETH/1/2007	cattle	84.1	0	O	EA-3		
viba_617	IND/53/79	bovine	84.1	0	O	ME-SA		
viba_302	CIV/8/99	bovine	83.4	0	O	WA		
viba_221	MAL/1/98		83.4	0	O	EA-2		
viba_285	UKG/35/2001	porcine	83.3	0	O	ME-SA	PanAsia	
viba_85	UGA/3/2002		83.0	0	O	EA-2		
viba_359	Manisa/TUR/69		83.0	0	O	ME-SA		
viba_523	K83/79		82.8	0	O	EA-1		
viba_354	PAK/16/2010	cattle	82.8	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	SUD/16/2020
Sender reference:	24/020 EPI
Location of origin:	Dongola, Northern State
Country of origin:	Sudan
Date of collection:	27/04/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	23/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51805, genome 51806, sequence viba_51807, sequencing info 51808	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51815	SUD/18/2020	cattle	100.0	0	O	EA-3		
viba_51811	SUD/17/2020	cattle	100.0	0	O	EA-3		
viba_51803	SUD/15/2020	cattle	100.0	0	O	EA-3		
viba_34163	EGY/6/2017	cattle	96.8	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	96.7	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		96.7	0	O	EA-3		
viba_34167	EGY/7/2017	cattle	96.7	0	O	EA-3		
viba_34175	EGY/9/2017	cattle	96.7	0	O	EA-3		
viba_35540	Fayoum 4/Egy/2017		96.7	0	O	EA-3		
viba_34211	EGY/25/2017	cattle	96.7	0	O	EA-3		

### 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_116	SUD/2/86	bovine	87.5	0	O	EA-3		
viba_854	ETH/1/2007	cattle	84.1	0	O	EA-3		
viba_617	IND/53/79	bovine	84.1	0	O	ME-SA		
viba_302	CIV/8/99	bovine	83.4	0	O	WA		
viba_221	MAL/1/98		83.4	0	O	EA-2		
viba_285	UKG/35/2001	porcine	83.3	0	O	ME-SA	PanAsia	
viba_85	UGA/3/2002		83.0	0	O	EA-2		
viba_359	Manisa/TUR/69		83.0	0	O	ME-SA		
viba_523	K83/79		82.8	0	O	EA-1		
viba_354	PAK/16/2010	cattle	82.8	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	SUD/17/2020
Sender reference:	26/020 EPI
Location of origin:	Dongola, Northern State
Country of origin:	Sudan
Date of collection:	27/04/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	23/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51809, genome 51810, sequence viba_51811, sequencing info 51812	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51815	SUD/18/2020	cattle	100.0	0	O	EA-3		
viba_51807	SUD/16/2020	cattle	100.0	0	O	EA-3		
viba_51803	SUD/15/2020	cattle	100.0	0	O	EA-3		
viba_34163	EGY/6/2017	cattle	96.8	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	96.7	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		96.7	0	O	EA-3		
viba_34167	EGY/7/2017	cattle	96.7	0	O	EA-3		
viba_34175	EGY/9/2017	cattle	96.7	0	O	EA-3		
viba_35540	Fayoum 4/Egy/2017		96.7	0	O	EA-3		
viba_34211	EGY/25/2017	cattle	96.7	0	O	EA-3		

### 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_116	SUD/2/86	bovine	87.5	0	O	EA-3		
viba_854	ETH/1/2007	cattle	84.1	0	O	EA-3		
viba_617	IND/53/79	bovine	84.1	0	O	ME-SA		
viba_302	CIV/8/99	bovine	83.4	0	O	WA		
viba_221	MAL/1/98		83.4	0	O	EA-2		
viba_285	UKG/35/2001	porcine	83.3	0	O	ME-SA	PanAsia	
viba_85	UGA/3/2002		83.0	0	O	EA-2		
viba_359	Manisa/TUR/69		83.0	0	O	ME-SA		
viba_523	K83/79		82.8	0	O	EA-1		
viba_354	PAK/16/2010	cattle	82.8	0	O	ME-SA	PanAsia-2	PUN-10

Virus sample name:	SUD/18/2020
Sender reference:	28/020 EPI
Location of origin:	Dongola, Northern State
Country of origin:	Sudan
Date of collection:	27/04/2020
Host species:	cattle
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	23/09/2022
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/10/2022
Created:	25/10/2022
Last updated:	25/10/2022
VIBASys IDs: sample 51813, genome 51814, sequence viba_51815, sequencing info 51816	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_51811	SUD/17/2020	cattle	100.0	0	O	EA-3		
viba_51807	SUD/16/2020	cattle	100.0	0	O	EA-3		
viba_51803	SUD/15/2020	cattle	100.0	0	O	EA-3		
viba_34163	EGY/6/2017	cattle	96.8	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	96.7	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		96.7	0	O	EA-3		
viba_34167	EGY/7/2017	cattle	96.7	0	O	EA-3		
viba_34175	EGY/9/2017	cattle	96.7	0	O	EA-3		
viba_35540	Fayoum 4/Egy/2017		96.7	0	O	EA-3		
viba_34211	EGY/25/2017	cattle	96.7	0	O	EA-3		

### 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_116	SUD/2/86	bovine	87.5	0	O	EA-3		
viba_854	ETH/1/2007	cattle	84.1	0	O	EA-3		
viba_617	IND/53/79	bovine	84.1	0	O	ME-SA		
viba_302	CIV/8/99	bovine	83.4	0	O	WA		
viba_221	MAL/1/98		83.4	0	O	EA-2		
viba_285	UKG/35/2001	porcine	83.3	0	O	ME-SA	PanAsia	
viba_85	UGA/3/2002		83.0	0	O	EA-2		
viba_359	Manisa/TUR/69		83.0	0	O	ME-SA		
viba_523	K83/79		82.8	0	O	EA-1		
viba_354	PAK/16/2010	cattle	82.8	0	O	ME-SA	PanAsia-2	PUN-10

Report on FMDV O in Sudan in 2020

Batch: WRLFMD/2022/000039



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor: vp1\_O  
 Query sequence set: WRLFMD/2022/000039-Sudan-O (11 sequences)  
 Sequence database set: allseqs\_O (5753 sequences)  
 Prototype sequence set: !prototypes\_O (49 sequences)  
 Number of related sequences reported: 10  
 Minimal VP1 subsequence match length: 600  
 Sequence alignment method: muscle (default parameters)  
 Sequence alignment length: 636  
 Phylogeny reconstruction method: fdnadist, fneighbor  
 Number of bootstrap samples: 1000  
 Random seed for bootstrapping: 1  
 Displaying bootstrap values above: 70.0%  
 Number of sequences in tree capped at: 100  
 Number of prototype sequences in tree: 14  
 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
SUD/17/2020	n/a	cattle	WRLFMD	Sudan	EA-3
SUD/15/2020	n/a	cattle	WRLFMD	Sudan	EA-3
SUD/18/2020	n/a	cattle	WRLFMD	Sudan	EA-3
SUD/16/2020	n/a	cattle	WRLFMD	Sudan	EA-3
SUD/14/2020	n/a	cattle	WRLFMD	Sudan	EA-3
SUD/12/2020	n/a	cattle	WRLFMD	Sudan	EA-3
SUD/13/2020	n/a	cattle	WRLFMD	Sudan	EA-3
SUD/3/2020	n/a	cattle	WRLFMD	Sudan	EA-3
SUD/8/2020	n/a	cattle	WRLFMD	Sudan	EA-3
SUD/1/2020	n/a	cattle	WRLFMD	Sudan	EA-3
SUD/6/2020	n/a	cattle	WRLFMD	Sudan	EA-3
ETH/2/2017	MN987452	cattle	WRLFMD	Ethiopia	EA-3
SUD/7/2017	MK422568	cattle	WRLFMD	Sudan	EA-3
EGY/26/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/33/2017	n/a	cattle	WRLFMD	Egypt	EA-3
SUD/1/2016	MK422563	cattle	WRLFMD	Sudan	EA-3
SUD/5/2017	MK422567	cattle	WRLFMD	Sudan	EA-3
ERI/7/2017	n/a	porcine	WRLFMD	Eritrea	EA-3
ERI/8/2017	n/a	porcine	WRLFMD	Eritrea	EA-3
ERI/4/2017	n/a	bovine	WRLFMD	Eritrea	EA-3
ERI/2/2017	n/a	bovine	WRLFMD	Eritrea	EA-3
ERI/3/2017	n/a	bovine	WRLFMD	Eritrea	EA-3
ERI/1/2017	n/a	bovine	WRLFMD	Eritrea	EA-3
EGY/4/2017	n/a	water buffalo	WRLFMD	Egypt	EA-3
Fayoum 3/Egy/2017*	MF322690	n/a	MEVAC	Egypt	EA-3
Fayoum 1/Egy/2017*	MF322688	n/a	MEVAC	Egypt	EA-3
EGY/32/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Alexandria 1/Egy/2017*	MF322681	n/a	MEVAC	Egypt	EA-3
EGY/13/2017	n/a	cattle	WRLFMD	Egypt	EA-3
PAT/4/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
ISR/4/2017	n/a	cattle	WRLFMD	Israel	EA-3
ISR/1/2017	n/a	cattle	WRLFMD	Israel	EA-3
PAT/1/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
ISR/5/2017	n/a	cattle	WRLFMD	Israel	EA-3
PAT/9/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
ISR/8/2017	n/a	cattle	WRLFMD	Israel	EA-3

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
ISR/6/2017	n/a	cattle	WRLFMD	Israel	EA-3
ISR/3/2017	n/a	cattle	WRLFMD	Israel	EA-3
ISR/2/2017	n/a	cattle	WRLFMD	Israel	EA-3
ISR/7/2017	n/a	cattle	WRLFMD	Israel	EA-3
PAT/6/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
PAT/13/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
Bani Na'im/PAT/2017 C*	n/a	sheep	KVI	Palestinian AT	EA-3
Yatta-Kraisah/PAT/2017*	n/a	cattle	KVI	Palestinian AT	EA-3
ISR/17/2017	n/a	cattle	WRLFMD	Israel	EA-3
Ayn al-Sahla/ISR/2017*	n/a	cattle	KVI	Israel	EA-3
ISR/15/2017	n/a	cattle	WRLFMD	Israel	EA-3
PAT/14/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
EGY/6/2017	n/a	cattle	WRLFMD	Egypt	EA-3
PAT/7/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
PAT/2/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
PAT/10/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
PAT/5/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
Egy-RL49-AHRI/2017*	MH729321	water buffalo	AHRI	Egypt	EA-3
EGY/16/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/8/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Cairo 1/Egy/2017*	MF322683	n/a	MEVAC	Egypt	EA-3
EGY/22/2017	n/a	water buffalo	WRLFMD	Egypt	EA-3
EGY/28/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/19/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Behira 2/Egy/2017*	MF322687	n/a	MEVAC	Egypt	EA-3
Egy-RL66-AHRI/2017*	MH729317	cattle	AHRI	Egypt	EA-3
EGY/25/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Giza 1/Egy/2017*	MF322682	n/a	MEVAC	Egypt	EA-3
Gharbia 1/Egy/2017*	MF322685	n/a	MEVAC	Egypt	EA-3
EGY/7/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/30/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Fayoum 2/Egy/2017*	MF322689	n/a	MEVAC	Egypt	EA-3
EGY/11/2017	n/a	water buffalo	WRLFMD	Egypt	EA-3
EGY/9/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/10/2017	n/a	water buffalo	WRLFMD	Egypt	EA-3
EGY/21/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Fayoum 4/Egy/2017*	MF322691	n/a	MEVAC	Egypt	EA-3
Sharkia 1/Egy/2017*	MF322684	n/a	MEVAC	Egypt	EA-3
Egy-RL91-AHRI/2017*	MH729320	cattle	AHRI	Egypt	EA-3
Behira 1/Egy/2017*	MF322686	n/a	MEVAC	Egypt	EA-3
SUD/2/86	DQ165075	bovine	WRLFMD	Sudan	EA-3
TAN/2/2004	KF561679	bovine	WRLFMD	Tanzania	EA-2
UGA/3/2002	DQ165077	n/a	WRLFMD	Uganda	EA-2
MAL/1/98	DQ165074	n/a	WRLFMD	Malawi	EA-2
ETH/1/2007	FJ798137	cattle	WRLFMD	Ethiopia	EA-3
ETH/3/2004	FJ798109	cattle	WRLFMD	Ethiopia	EA-3
CIV/8/99	AJ303485	bovine	WRLFMD	Cote d'Ivoire	WA
K83/79*	AJ303511	n/a	WRLFMD	Kenya	EA-1
TAI/189/87*	KY091288	bovine	TRRL	Thailand	SEA
NEP/1/2015	MN276045	cattle	WRLFMD	Nepal	ME-SA/PanAsia-2/KAT-15
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
PAK/16/2010	KY091285	cattle	WRLFMD	Pakistan	ME-SA/PanAsia-2/PUN-10
IRN/31/2009	KY091284	cattle	WRLFMD	Iran	ME-SA/PanAsia-2/FAR-09
Manisa/TUR/69*	AY593823	n/a	PIADC	Turkey	ME-SA
IND/53/79	AF292107	bovine	PD-FMD	India	ME-SA
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

\*, not a WRLFMD Reference Number

n/a, not available