

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

## Genotyping Report

FMDV serotype: O  
Country: Egypt  
Year: 2021  
Batch: WRLFMD/2022/00090  
No. of sequences: 3  
Report date: 16th February 2023  
Report generated by: Nick Knowles  
Report checked by: Jemma Wadsworth



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Virus sample name:	EGY/8/2021
Sender reference:	29
Location of origin:	Konayesa, Giza
Country of origin:	Egypt
Date of collection:	19/10/2021
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:	16/01/2023
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/02/2023
Created:	15/02/2023
Last updated:	15/02/2023
VIBASys IDs: sample 52476, genome 52477, sequence viba_52478, sequencing info 52479	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_34167	EGY/7/2017	cattle	99.5	0	O	EA-3		
viba_34171	EGY/8/2017	cattle	99.5	0	O	EA-3		
viba_34183	EGY/11/2017	water buffalo	99.5	0	O	EA-3		
viba_34211	EGY/25/2017	cattle	99.5	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		99.5	0	O	EA-3		
viba_37434	Egy-RL66-AHRI/2017	cattle	99.5	0	O	EA-3		
viba_49588	437694-0257/PAT/2021	cattle	99.5	0	O	EA-3		
viba_50723	PAT/8/2021	cattle	99.5	0	O	EA-3		
viba_35525	Behira 2/Egy/2017		99.5	0	O	EA-3		
viba_34175	EGY/9/2017	cattle	99.5	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	87.8	0	O	EA-3		
viba_854	ETH/1/2007	cattle	84.4	0	O	EA-3		
viba_27877	SRL/2/97	bovine	84.2	0	O	ME-SA	Srl-97	
viba_9021	LAO/2/2006	cattle	84.1	0	O	ME-SA	PanAsia	
viba_617	IND/53/79	bovine	83.8	0	O	ME-SA		
viba_285	UKG/35/2001	porcine	83.8	0	O	ME-SA	PanAsia	
viba_408	ETH/3/2004	cattle	83.6	0	O	EA-3		
viba_302	CIV/8/99	bovine	83.5	0	O	WA		
viba_221	MAL/1/98		83.3	0	O	EA-2		
viba_523	K83/79		82.9	0	O	EA-1		

Virus sample name:	EGY/9/2021
Sender reference:	30
Location of origin:	Qalyub, Qalyubia
Country of origin:	Egypt
Date of collection:	24/10/2021
Host species:	water buffalo
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/01/2023
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/02/2023
Created:	15/02/2023
Last updated:	15/02/2023

VIBASys IDs: sample 52480, genome 52481, sequence viba\_52482, sequencing info 52483

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52486	EGY/10/2021	water buffalo	100.0	0	O	EA-3		
viba_34187	EGY/13/2017	cattle	99.7	0	O	EA-3		
viba_34167	EGY/7/2017	cattle	99.5	0	O	EA-3		
viba_34171	EGY/8/2017	cattle	99.5	0	O	EA-3		
viba_34183	EGY/11/2017	water buffalo	99.5	0	O	EA-3		
viba_34211	EGY/25/2017	cattle	99.5	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		99.5	0	O	EA-3		
viba_35525	Behira 2/Egy/2017		99.5	0	O	EA-3		
viba_34175	EGY/9/2017	cattle	99.5	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	99.5	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	88.2	0	O	EA-3		
viba_27877	SRL/2/97	bovine	84.7	0	O	ME-SA	Srl-97	
viba_854	ETH/1/2007	cattle	84.7	0	O	EA-3		
viba_617	IND/53/79	bovine	84.1	0	O	ME-SA		
viba_408	ETH/3/2004	cattle	84.0	0	O	EA-3		
viba_221	MAL/1/98		83.9	0	O	EA-2		
viba_85	UGA/3/2002		83.9	0	O	EA-2		
viba_9021	LAO/2/2006	cattle	83.8	0	O	ME-SA	PanAsia	
viba_302	CIV/8/99	bovine	83.8	0	O	WA		
viba_263	TAN/2/2004	bovine	83.8	0	O	EA-2		

Virus sample name:	EGY/10/2021
Sender reference:	31
Location of origin:	Qalyub, Qalyubia
Country of origin:	Egypt
Date of collection:	24/10/2021
Host species:	water buffalo
Serotype:	O
Topotype:	EA-3
Lineage:	
Sublineage:	
Sequence length:	633
Ambiguities:	0
Material submitted for sequencing:	WRL-LFBK1
Harvest date of material:	16/01/2023
Primers:	O-1C244F/EUR-2B52R; FMD-3161F/FMD-4303R
Received for sequencing:	13/02/2023
Created:	15/02/2023
Last updated:	15/02/2023
VIBASys IDs: sample 52484, genome 52485, sequence viba_52486, sequencing info 52487	

### Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52482	EGY/9/2021	water buffalo	100.0	0	O	EA-3		
viba_34187	EGY/13/2017	cattle	99.7	0	O	EA-3		
viba_34167	EGY/7/2017	cattle	99.5	0	O	EA-3		
viba_34171	EGY/8/2017	cattle	99.5	0	O	EA-3		
viba_34183	EGY/11/2017	water buffalo	99.5	0	O	EA-3		
viba_34211	EGY/25/2017	cattle	99.5	0	O	EA-3		
viba_35505	Giza 1/Egy/2017		99.5	0	O	EA-3		
viba_35525	Behira 2/Egy/2017		99.5	0	O	EA-3		
viba_34175	EGY/9/2017	cattle	99.5	0	O	EA-3		
viba_34207	EGY/22/2017	water buffalo	99.5	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	88.2	0	O	EA-3		
viba_27877	SRL/2/97	bovine	84.7	0	O	ME-SA	Srl-97	
viba_854	ETH/1/2007	cattle	84.7	0	O	EA-3		
viba_617	IND/53/79	bovine	84.1	0	O	ME-SA		
viba_408	ETH/3/2004	cattle	84.0	0	O	EA-3		
viba_221	MAL/1/98		83.9	0	O	EA-2		
viba_85	UGA/3/2002		83.9	0	O	EA-2		
viba_9021	LAO/2/2006	cattle	83.8	0	O	ME-SA	PanAsia	
viba_302	CIV/8/99	bovine	83.8	0	O	WA		
viba_263	TAN/2/2004	bovine	83.8	0	O	EA-2		

Report on FMDV O in Egypt in 2021

Batch: WRLFMD/2022/00090



\*, not a WRLFMD Reference Number

## Analysis Parameters

VP1 subsequence extractor:	vp1_O
Query sequence set:	WRLFMD/2022/00090-Egypt-O (3 sequences)
Sequence database set:	allseqs_O (5858 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:	12
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
EGY/10/2021	n/a	water buffalo	WRLFMD	Egypt	EA-3
EGY/9/2021	n/a	water buffalo	WRLFMD	Egypt	EA-3
EGY/13/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/8/2021	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/34/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Egy-RL95-AHRI/2017*	MH729319	cattle	AHRI	Egypt	EA-3
Egy-RL94-AHRI/2017*	MH729318	cattle	AHRI	Egypt	EA-3
Egy-RL66-AHRI/2017*	MH729317	cattle	AHRI	Egypt	EA-3
PAT/7/2021	n/a	cattle	WRLFMD	Palestinian AT	EA-3
PAT/10/2021	n/a	cattle	WRLFMD	Palestinian AT	EA-3
PAT/9/2021	n/a	cattle	WRLFMD	Palestinian AT	EA-3
437694-0257/PAT/2021*	n/a	cattle	KVI	Palestinian AT	EA-3
PAT/8/2021	n/a	cattle	WRLFMD	Palestinian AT	EA-3
EGY/7/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/10/2017	n/a	water buffalo	WRLFMD	Egypt	EA-3
Egy-RL91-AHRI/2017*	MH729320	cattle	AHRI	Egypt	EA-3
Behira 1/Egy/2017*	MF322686	n/a	MEVAC	Egypt	EA-3
EGY/30/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Egy/Port Said/2016*	MG552846	cattle	AHRI	Egypt	EA-3
EGY/21/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Giza 1/Egy/2017*	MF322682	n/a	MEVAC	Egypt	EA-3
Sharkia 1/Egy/2017*	MF322684	n/a	MEVAC	Egypt	EA-3
Gharbia 1/Egy/2017*	MF322685	n/a	MEVAC	Egypt	EA-3
EGY/9/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Fayoum 2/Egy/2017*	MF322689	n/a	MEVAC	Egypt	EA-3
EGY/8/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/19/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/28/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/31/2017	n/a	cattle	WRLFMD	Egypt	EA-3
EGY/11/2017	n/a	water buffalo	WRLFMD	Egypt	EA-3
EGY/22/2017	n/a	water buffalo	WRLFMD	Egypt	EA-3
EGY/6/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Cairo 1/Egy/2017*	MF322683	n/a	MEVAC	Egypt	EA-3
EGY/25/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Fayoum 4/Egy/2017*	MF322691	n/a	MEVAC	Egypt	EA-3
Behira 2/Egy/2017*	MF322687	n/a	MEVAC	Egypt	EA-3

*continued on next page*

label	accession	host(s)	lab	country	taxonomic information
Fayoum 5/Egy/2017*	MF322692	n/a	MEVAC	Egypt	EA-3
West Bank/PAT/2017*	n/a	sheep	KVI	Palestinian AT	EA-3
PAT/1/2018	n/a	sheep	WRLFMD	Palestinian AT	EA-3
PAT/12/2017	n/a	sheep	WRLFMD	Palestinian AT	EA-3
ISR/18/2017	n/a	cattle	WRLFMD	Israel	EA-3
ISR/16/2017	n/a	cattle	WRLFMD	Israel	EA-3
PAT/13/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
ISR/15/2017	n/a	cattle	WRLFMD	Israel	EA-3
Yatta-Kraisah/PAT/2017*	n/a	cattle	KVI	Palestinian AT	EA-3
PAT/14/2017	n/a	cattle	WRLFMD	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
Bani Na'im/PAT/2017 C*	n/a	sheep	KVI	Palestinian AT	EA-3
Bani Na'im/PAT/2017 B*	n/a	sheep	KVI	Palestinian AT	EA-3
PAT/17/2017	n/a	sheep	WRLFMD	Palestinian AT	EA-3
PAT/16/2017	n/a	sheep	WRLFMD	Palestinian AT	EA-3
Bani Na'im/PAT/2017 A*	n/a	sheep	KVI	Palestinian AT	EA-3
PAT/18/2017	n/a	sheep	WRLFMD	Palestinian AT	EA-3
Ramallah/PAT/2017*	n/a	sheep	KVI	Palestinian AT	EA-3
PAT/15/2017	n/a	sheep	WRLFMD	Palestinian AT	EA-3
ISR/6/2017	n/a	cattle	WRLFMD	Israel	EA-3
PAT/6/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
ISR/7/2017	n/a	cattle	WRLFMD	Israel	EA-3
ISR/5/2017	n/a	cattle	WRLFMD	Israel	EA-3
PAT/4/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
ISR/4/2017	n/a	cattle	WRLFMD	Israel	EA-3
ISR/2/2017	n/a	cattle	WRLFMD	Israel	EA-3
PAT/1/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
ISR/8/2017	n/a	cattle	WRLFMD	Israel	EA-3
ISR/3/2017	n/a	cattle	WRLFMD	Israel	EA-3
PAT/9/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
ISR/1/2017	n/a	cattle	WRLFMD	Israel	EA-3
EGY/16/2017	n/a	cattle	WRLFMD	Egypt	EA-3
PAT/2/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
PAT/5/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
PAT/10/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
PAT/7/2017	n/a	cattle	WRLFMD	Palestinian AT	EA-3
Alexandria 1/Egy/2017*	MF322681	n/a	MEVAC	Egypt	EA-3
Egy-RL72-AHRI/2017*	MH729316	cattle	AHRI	Egypt	EA-3
Egy-RL49-AHRI/2017*	MH729321	water buffalo	AHRI	Egypt	EA-3
EGY/32/2017	n/a	cattle	WRLFMD	Egypt	EA-3
Fayoum 3/Egy/2017*	MF322690	n/a	MEVAC	Egypt	EA-3
EGY/4/2017	n/a	water buffalo	WRLFMD	Egypt	EA-3
EGY/17/2017	n/a	cattle	WRLFMD	Egypt	EA-3
SUD/1/2016	MK422563	cattle	WRLFMD	Sudan	EA-3
EGY/33/2017	n/a	cattle	WRLFMD	Egypt	EA-3
ERI/1/2017	n/a	bovine	WRLFMD	Eritrea	EA-3
ERI/3/2017	n/a	bovine	WRLFMD	Eritrea	EA-3
ERI/7/2017	n/a	porcine	WRLFMD	Eritrea	EA-3
SUD/2/86	DQ165075	bovine	WRLFMD	Sudan	EA-3
TAN/2/2004	KF561679	bovine	WRLFMD	Tanzania	EA-2
MAL/1/98	DQ165074	n/a	WRLFMD	Malawi	EA-2
UGA/3/2002	DQ165077	n/a	WRLFMD	Uganda	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
IND/53/79	AF292107	bovine	PD-FMD	India	ME-SA
SRL/2/97	AJ303531	bovine	WRLFMD	Sri Lanka	ME-SA/Srl-97
UKG/35/2001	AJ539141	porcine	PIADC	United Kingdom	ME-SA/PanAsia
LAO/2/2006	EU667451	cattle	WRLFMD	Laos	ME-SA/PanAsia
ISA/1/62	AJ303500	n/a	WRLFMD	Indonesia	ISA-1

\*, not a WRLFMD Reference Number

n/a, not available